ARTISTIC AND CONSTRUCTION TECHNIQUES OF THE ECCLESIASTICAL ARCHITECTURAL HERITAGE IN PIEDMONT AND VALLE D'AOSTA BETWEEN THE XI AND XVI CENTURIES

PITEM Pa.C.E.Patrimonio, Cultura, Economia
ALCOTRA Interreg VA France-Italy Cross-border Cooperation Programme (2014-2020)
European Regional Development Fund (FESR)

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Cathedral of Santa Maria Assunta in Ivrea.
Romanesque bell towers of Bishop Warmondo, early 11th century

Contents

Foreword

In the Alcotra area, within a territory where populations of different languages, histories, cultures and political affiliations have lived and continue to live, it is impossible to speak of a developed artistic tradition with specific characteristics. It is, however, possible to speak of a great creative liveliness, particularly during the 15th century, featuring circuits of artists, patrons and audiences, generally on both sides of the border. Places of great or very great importance draw attention also in peri-alpine or pre-alpine contexts, sites for meeting and exchange that grow and intersect along the Alpine roads, playing a decisive role in the circulation of things, men and ideas, in a context strongly receptive to innovations spread by itinerant craftsmen and the circulation of models.

Ivrea, Bardonecchia, Borgo San Dalmazzo and Saluzzo, in the provinces of Turin and Cuneo, and in Aosta, in the Autonomous Region of the Valley, seats of noble courts, but also small alpine villages, with their cathedrals, collegiate churches or small mountain chapels, represent exemplary cases to follow, through the surviving artistic heritage, the evolution of the techniques and materials used, both architecturally and in the decorative apparatuses aimed at offering images in relation to popular devotions.

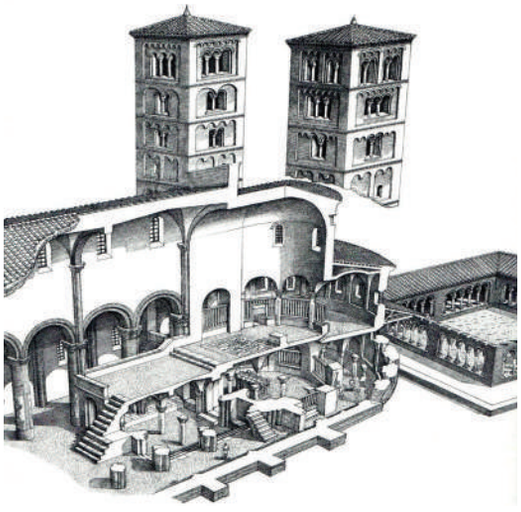

AOSTA
IVREA
BARDONECCHIA
SALUZZO
BORGO SAN DALMAZZO

Ivrea

The Cathedral of Santa Maria Assunta: the Romanesque crypt.

The diocese of Ivrea, like the neighbouring diocese of Aosta, represents an important reference point for the early Romanesque period. A prestigious patron, Bishop Warmondo, left one of the most significant testimonies of patronage at the origins of the Romanesque period with the reconstruction of the cathedral in the high part of the town, in a sacred area that had previously been the site of an altar dedicated to Apollo (or Jupiter) in the Roman city of Eporedia.

Building in the Middle Ages meant gathering the economic means, ideas, men and materials for the organisation of the construction site around a project, starting with the decision of the client who, in addition to proposing a project and seeking the financial means to support it, had to find the architect capable of organising and carrying out the work, employing workers to excavate the foundations, labourers who with special technical skills for transporting and lifting construction materials, and the builders responsible for construction. These are passages in Romanesque religious and civil construction characterised by infinite variations, with different operational solutions that can be reconstructed through the direct analysis of the structures.



On the right: Cathedral of Santa Maria Assunta (Ivrea)

Reconstructive overview of the Romanesque phase, apse area (from Peyrani Baricco 2014, p. 202, drawing by F. Corni)

The Cathedral and its history. ***Notes.***

Romanesque period: public building, of which the function is unknown, positioned like the neighbouring theatre against the southern slope of the hill.

EARLY CHRISTIAN BASILICA

Late IV - early V century: first episcopal church, perhaps partially overlying the pre-existing Romanesque structure that was destroyed. Of this basilica, probably with a triple nave, there remain traces of the foundations of the colonnades and sections of the terracotta floor.

The diocese of Ivrea was separated from that of Vercelli (in the time of Bishop Eusebius). A small capital and a fragment of a slab from the VIII century, incorporated into the crypt floor, prove that the liturgical furnishings were renewed during the early Middle Ages (see sample sheet 1)

X – XI century: the Ottonians exercised their imperial power by consolidating a new relationship with local authorities: the bishop was the guarantor of public order, taking over the governance of important urban affairs.

985-1005: **Warmondo** was appointed (possibly in 969) Bishop of Ivrea by imperial order. It was probably Otto III, around the year 1000, granted him public authority over the city and the territory (districtus) which extended for three miles around it, including the agricultural settlements (curtes) of Romano and Fiorano. Warmondo transformed the cathedral complex according to the standards of highly innovative Romanesque architecture.

The Early Christian church was probably still intact, but it was at the end of the X century that Bishop Warmondo added the extraordinary counter apse to the west, surrounded by stacked ambulatories between twin bell towers.

Testimony to the rebuilding of the western area, emphasising the desire to bring prestige to the Eporedian diocese, is the plaque located today in the ambulatory of the cathedral, bearing the inscription *Condit hoc Domino praesul*

Warmundus ab imo.
Again, the intention was to increase the credit and celebrity of the Eporedian cathedral, which led to the establishment of an Episcopal *Scriptorium* in which illuminated manuscripts today considered to be of significant value and outstanding quality were produced.

Proto-Romanesque High bell towers and counter-apse built by Bishop Warmondo

Ivrea

Late XI – early decades of the XII century: major reconstruction work on the church, with the rebuilding of the naves, marked by round brick pillars -still visible above the current entrance to the crypt- supporting the cross vaults; a shallow transept was created (not exceeding the width of the two side naves) and a lantern tower was built at the junction of the transept with the nave.

SARCOPHAGUS

The bishop's refined culture, faithful to the imperial programme of *renovatio imperì*, can be seen in the choice of the Roman sarcophagus of *C. Atecius Valerius* as a reliquary for the remains of St. Bessus, protector of the city.

CRYPT

XI century: cross vaults of the hemicycle, which was lowered to obtain the necessary height. To the east, the crypt was separated from the nave by a thick wall in which two small side apses were created.

The renovation also included a general light-coloured final re-plastering, with no painted decorations.

XII century: the new section develops within the space of the nave following a scheme involving the division into three naves by two columns and an apse to the east, supporting the staircase leading to the upper chancel.

The construction techniques (sample 2) are characterised by extensive reuse of Romanesque materials, a custom also observed in other parts of Piedmont. The vaults are original (sample 3). The capitals are attributed to a Lombard-trained craftsman who renewed a decorative repertoire of Carolingian origin.

The crypt with Roman sarcophagus

Ivrea

CLOISTER OF THE CANONS
Visible on the southern side of the church according to the planimetric model of the Abbey of San Gallo, which spread throughout Europe around the XI century. The name "cloister of the canons", suggests that it was used for the chapter of canons who lived in buildings near the cathedral together with the bishop.

CEMETERY
Located in the area in front of the façade of the pre-Romanesque church: the brick tombs were built after the apse and, consequently, date back to the XI century, with a definite continuation into the XII and XIII centuries.

CAPITULAR SACRISTY
1464: built on the south side of the church, there are no traces of it today. Bishop Parella also commissioned beautifully carved walnut wood stalls, with dossals depicting decorative motifs of plants, human figures and animals and sides featuring stories from the Old Testament, probably attributable to a cabinetmaker from Pavia, Baldino da Surso.

1787: the XV century stalls have been replaced by new ones painted in monochrome by Carlo Cogrossi. Some of the panels by Bernardino da Surso are now in the Museo civico d'arte antica in Turin.

CHAPEL OF THE HOLY SACRAMENT
1761: va cathedral wall is demolished for the first time, ideally extending the left wing of the transept.

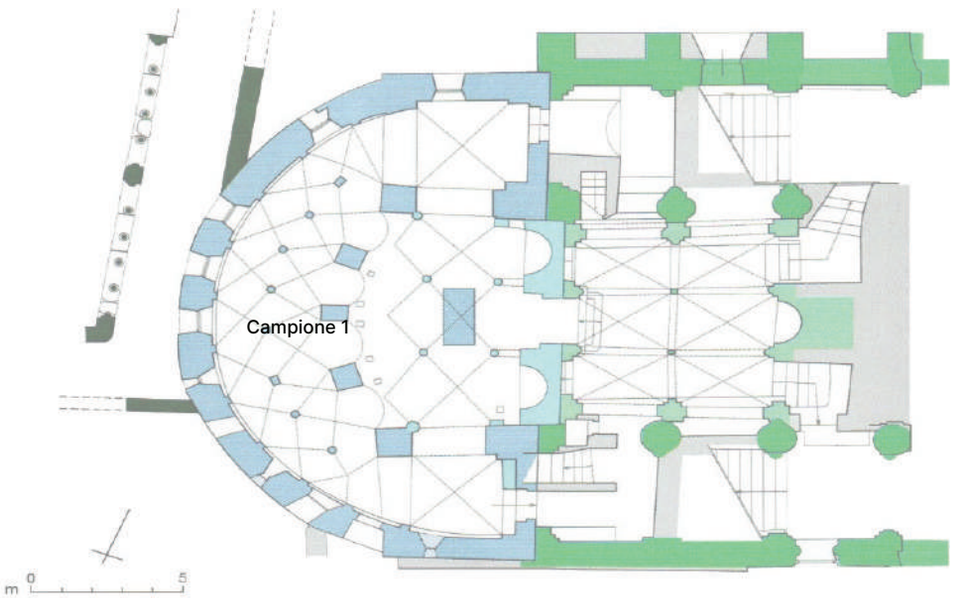
FAÇADE
Early XVI century: Bishop Boniface Ferreri. He replaced the Romanesque façade with a new one characterised by the Bramante-style portico, featured in some drawings.
1854: neoclassical façade, when the cathedral was lengthened by one bay.
Late XVIII century: commissioned by Bishop Ottavio Pochettini, the architect J. Martinez altered the pillars inside the church and created stucco decorations, frescoes and marble facings.
1853: renovation of the façade to a design by architect Gaetano Bertolotti.

The Cloister of the Cannons

Ivrea

SAMPLE 1
Location: eastern crypt.
Materials and components: pillars made of squared stone blocks bearing evident hammer marks. The top of these self-supporting pillars is covered by a layer of whitewash. They date back to the VIII - IX century were originally part of a barrier, as can be deduced from the rectangular recesses used to house posts: the barriers were part of the episcopal complex. The pillars in the eastern section are almost all made of recycled materials.
Dated: XI century.

Recycled columns made of pink marble



Plan drawn up by Peyrani Baricco 2014, p. 186

Samp. 1

Fragment of a barrier reused in the floor. Probably a post to support a balustrade. Dated late VIII century

Ivrea

SAMPLE 2

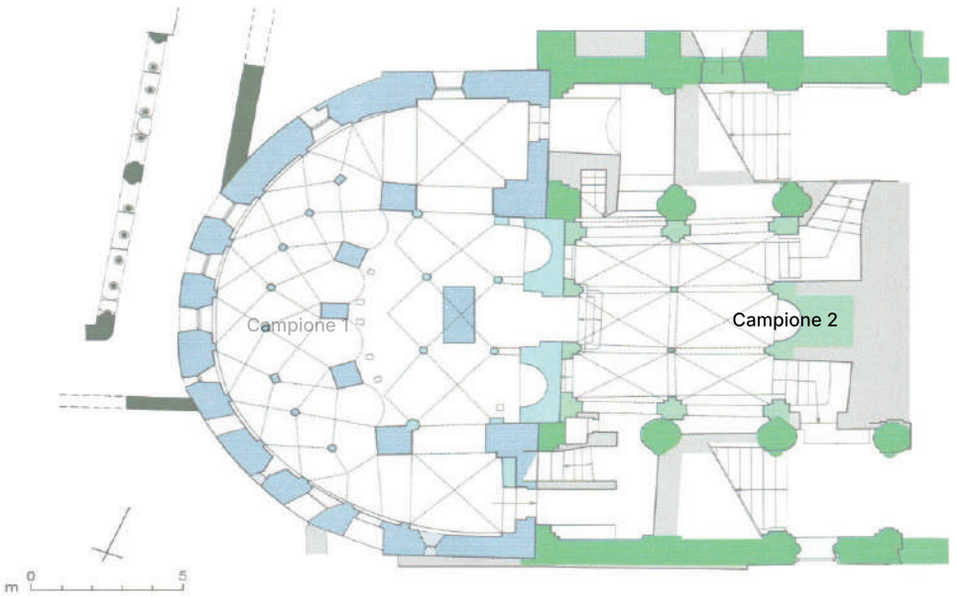
Location: western crypt.

Materials and components: wall made of evenly sized bricks (approximately 20×6 cm; some of them cut - 12×6 cm - to fit the curvature of the apse).

The bricks display signs of being well fired in an oxidising atmosphere *(Munsell: Reddish yellow 5YR 7/6 and 6/8)* and only a few elements seem to have undergone slightly reductive firing *(Munsell: Yellowish red 5YR 4/6)*.

The rows are even and well-spaced by a bed of mortar *(Munsell: Pinkish white 7.5YR 8/2)*. The aggregates in the mortar are small except for a few elements that

Samp. 2



Plan drawn up by Peyrani Baricco 2014, p. 186

reach 0.4 mm). Whitewash with splashes of red ochre is visible.
Dated: Romanesque period – late XI/early decades XII century.

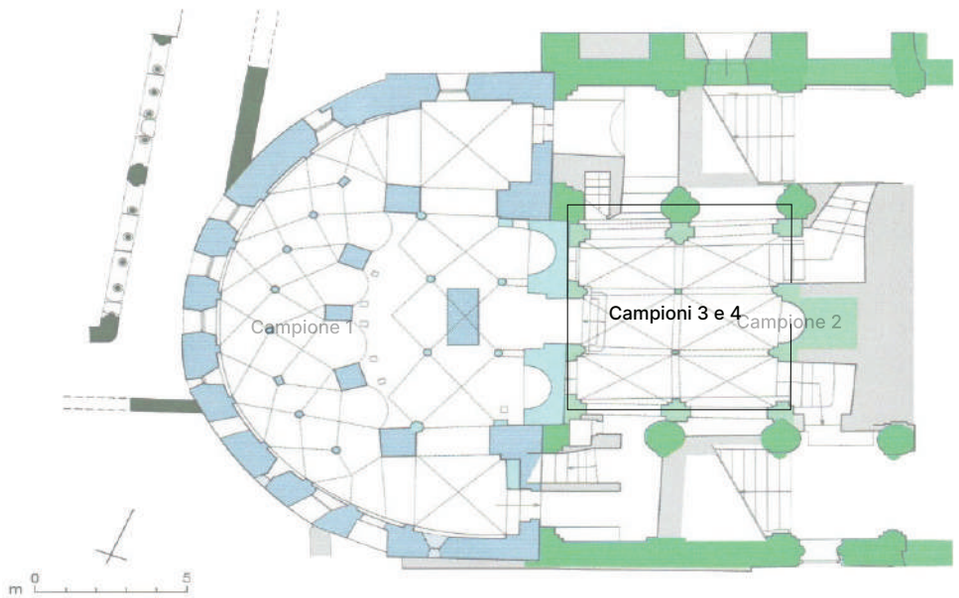
Enclosures and niches to be connected to a possible wooden structure set into the wall and decorated with the fresco of St. Gaudentius (cf. Peyrani Baricco 2014, p. 204

Ivrea

SAMPLE 3
Location: western crypt.
Materials and components: Mortar *(Munsell Light Gray 10YR 7/1)* evenly distributed over all the original vaults in this part of the crypt.
Traces of the construction site can be seen in the intrados of the vaults, identifiable in the imprints of the ribs that are still clearly visible in the mortar. These traces suggest that the wooden planks were 9-12 cm wide (Lomartire 2013, pp. 202-203).
Dated: Romanesque period – late XI/early decades XII century.

SAMPLE 4
Location: western crypt.
Materials and components: bricks *(Munsell Light Red 10R 7/8)* laid evenly around the arch. The bed of mortar is even and is 0.5 cm thick *(Munsell Pinkish White 10R 8/2)*.
Dated: Romanesque period – late 11th/ early decades XII century.

The vaultsof the crypt



Plan drawn up by Peyrani Baricco 2014, p. 186

Samp. 3 - 4: vault construction details

Ivrea

SAMPLE 5

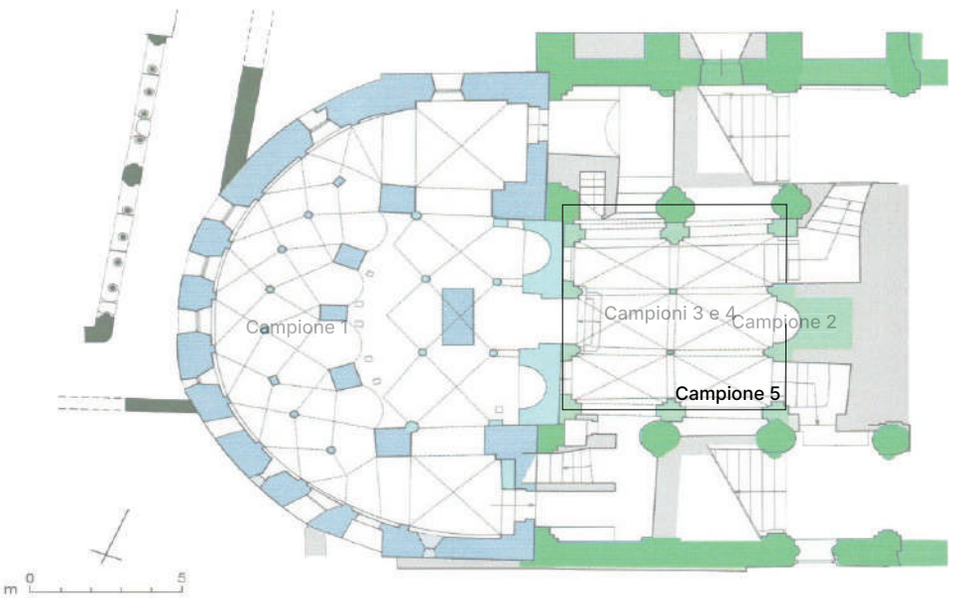
Location: western crypt.

Materials and components: bricks *(Munsell Light Red 10R 7/8-6/8)* laid evenly with an evenly distributed 0.5 cm bed of fine mortar *(Munsell Pinkish White 10R 8/2)*.

Evident traces of oblique or herringbone workmanship show the reuse of rounded fired Roman "sesquipedali" bricks. These traces are also found in many bricks in the western part of the crypt.

Dated: Romanesque period – late XI/early decades XII century.

Samp. 5: details of bricks



Plan drawn up by Peyrani Baricco 2014, p. 186

Traces of crafting and adaptation of Roman "sesquipedali"

Ivrea

SAMPLE 6

Location: crypt, west wall of the south ambulatory.

Materials and components: very uneven brickwork: the bricks *(Munsell Light Red 10R 6/8)* are not laid in horizontal rows and many of them have been broken and used for repointing. The mortar *(Munsell Light Grey 7/1)* – very thick and grainy with quartz aggregates – has been used to fill the gaps created by the uneven laying of the bricks.

Dated: post-medieval phase.

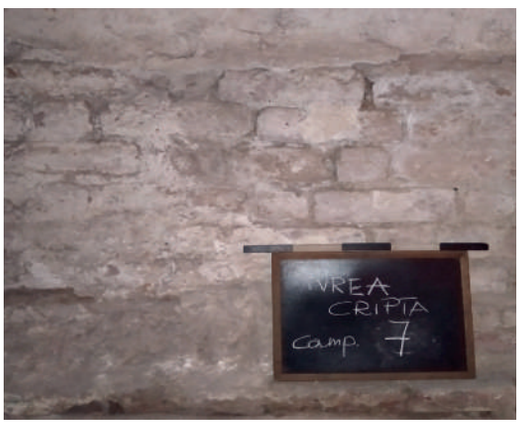
SAMPLE 7

Location: south wall of the south ambulatory.

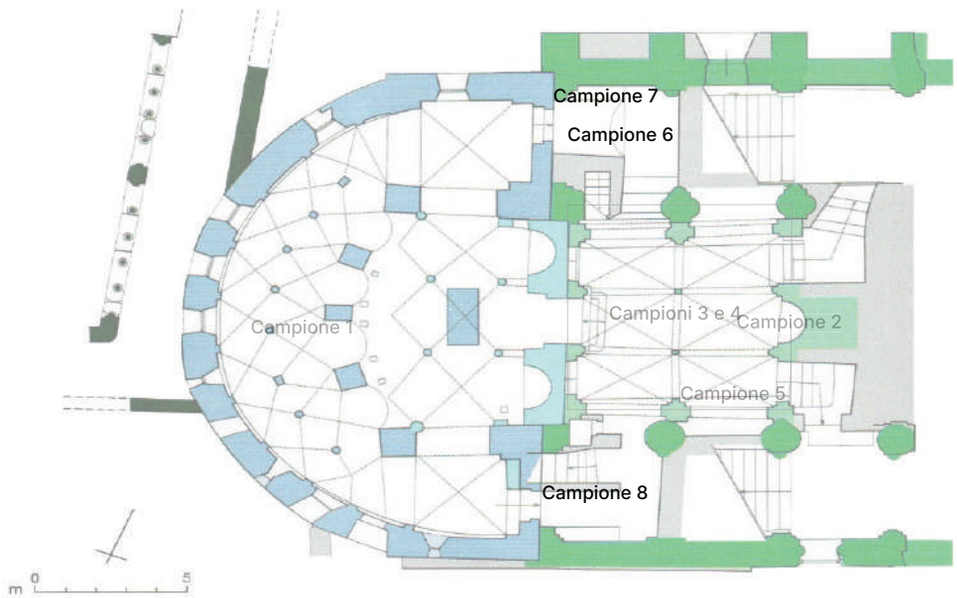
Materials and components: brick wall *(Munsell Light Red 10R 7/8- 6/8; average size 28 l x 7 h) l*aid in even rows. Some have been broken and used for repointing: these re probably recycled Roman "sesquipedali" bricks.

The mortar is fine *(Munsell Pinkish White 10R 8/2)* with an even thickness.

Dated: Romanesque period – late XI/early decades XII century.



Samp. 6 and 7: details of the wall texture



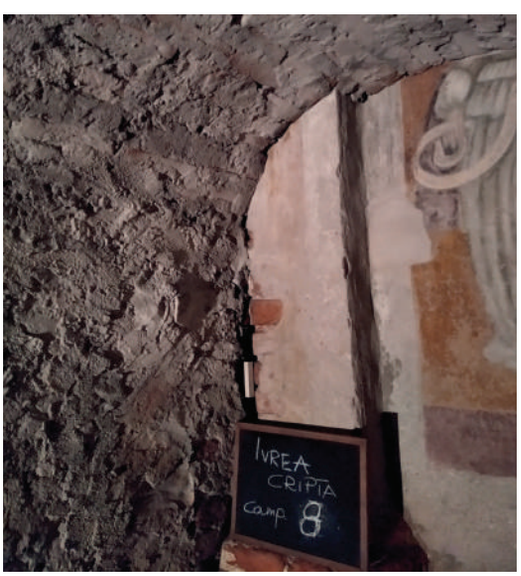
Plan drawn up by Peyrani Baricco 2014, p. 186

SAMPLE 8

Location: crypt, north wall of the south ambulatory.

Materials and components: very uneven agglomerate: the bricks (Munsell Light Red 10R 6/8) are not laid in horizontal rows and many of them have been broken and used for repointing. The mortar *(Munsell Light Grey 7/1)* – very thick and grainy with quartz aggregates – has been used to fill the gaps created by the uneven laying of the bricks.

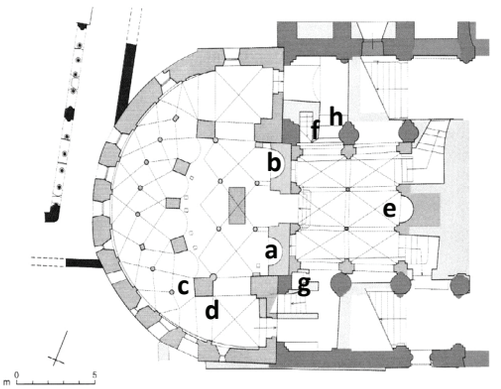
Dated: post-medieval phase.



Wall painting techniques through the observation of surfaces.
The wall paintings in the crypt.

d. *Dux Aimo (attr.), holy knight, second quarter XV century*

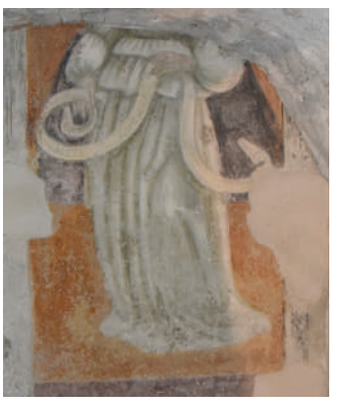
e. *St Gaudentius, XIII century*



a. *Giacomino da Ivrea (attr.) Nursing Madonna, Anthony the Great, St. Christopher and St. Sebastian; on the arch of the apse Annunciation, second quarter XV century*

b. *Madonna and Child, holy bishop and holy monk, XIII century*

c. *Holy knight, early XV cent*



f. *Saint with the scroll*

g.1 *Fragment with two saints*

g.2 *Fragment with holy knight*

h. *Frame with plant motifs*

Wall painting techniques through the observation of surfaces.
The wall.

THE WALLS OF THE CRYPT

Painting and St. Gaudentius: Brick wall visible in the part below the painting. he **vaults** show the signs left by the wooden planks of the centring used to create the vaults.

Brick wall support

The wall.

Painting of St. Gaudentius

Wall painting techniques through the observation of surfaces. ***Preparatory layers.***

Preparatory layers are applied to the wall in widely varying numbers and compositions, but generally in three main types:

1. RENDER: to adjust and level the wall.
2. PRIMER: an intermediate layer applied after the render in preparation for the surface plaster to be decorated.
3. PLASTER: the top layer, characterised by fine-grained aggregates, to which the painted decoration is applied.
It is not always possible to observe the stratigraphy of the preparatory layers on the paintings in the crypt, as they are often concealed by stucco work carried out during restoration.

Painting **b. Madonna and Child, Holy bishop and Holy monk**: 0.5 cm thick plaster visible along the edge of a lacuna of preparatory layers. It is not possible to precisely identify the layers.

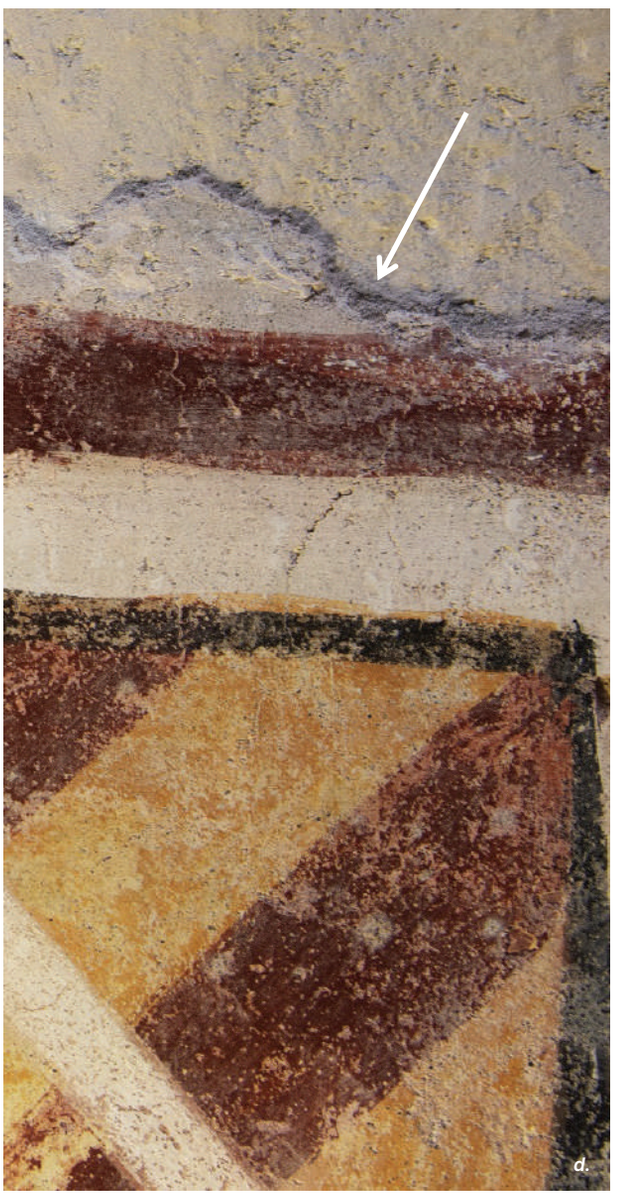
Painting **d. Holy knight**: the plaster is about 0.5 cm thick and is visible along the edge of the painting.
Again, It is not possible to precisely identify the layers.

Painting b. Madonna and Child, Holy bishop and Holy monk, detail

Painting d. Dux Aimo, holy knight, detail

Wall painting techniques through the observation of surfaces.

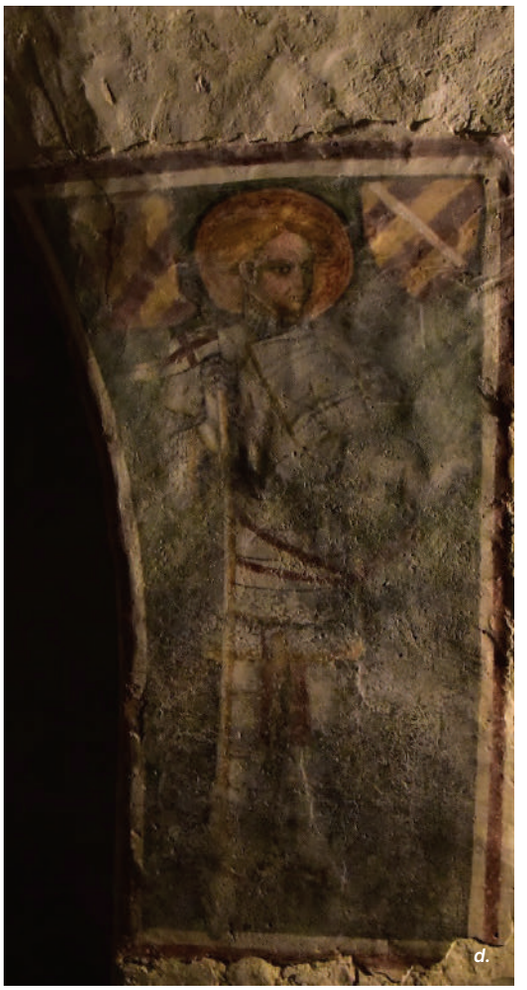
Preparatory layers.



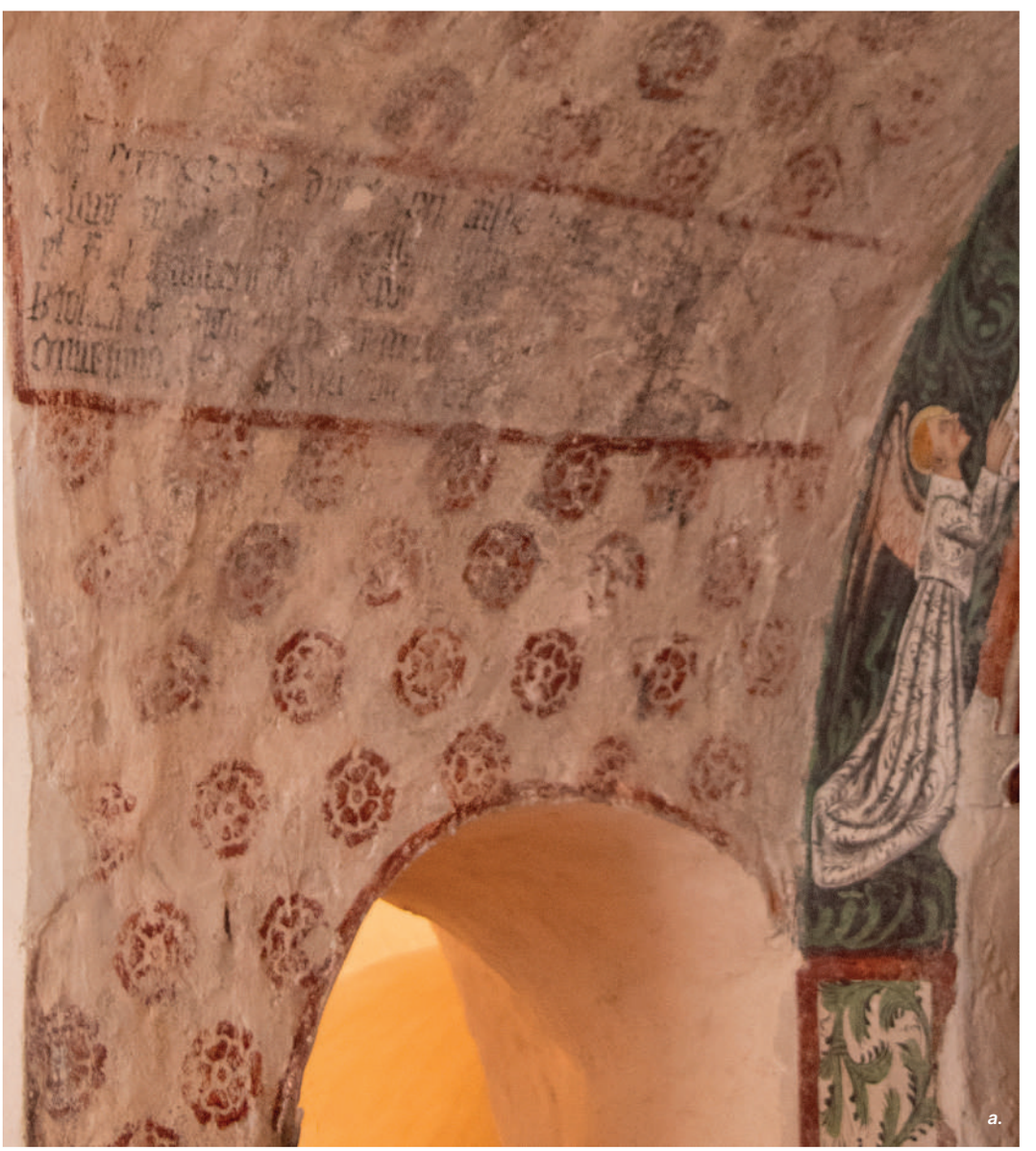
Wall painting techniques through the observation of surfaces. ***Surface finishing.***

The surface looks smooth.
Depending on the area, there are irregularities due to the conformation of the wall and the marks left by the tools used to apply and compact the plaster.
This operation carried out on fresh plaster allows the water and lime solution to be drawn to the surface in order to promote carbonation, a process during which the pigment binds closely to the plaster, making the paint particularly resistant to the effects of the weather.

Painting **d. Dux Aimo, Holy knight**: application marks on the plaster and uneven surface due to the wall below.
Painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian**: application marks on the plaster on the barrel vault of the apse to the right of the so-called Confession of San Bessus.



Painting d.
Holy knight in raking light



Painting a.

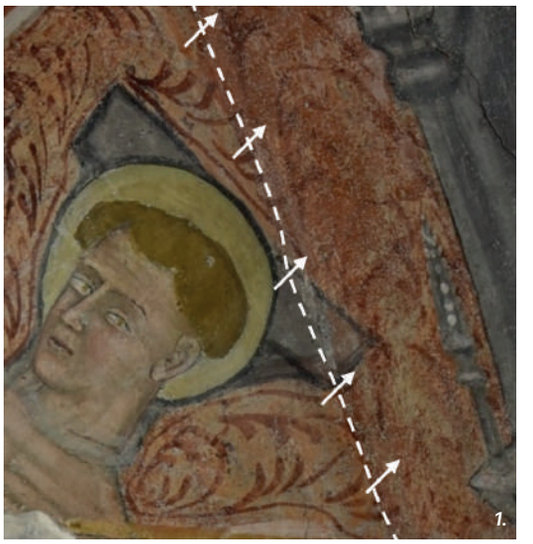
Wall painting techniques through the observation of surfaces. ***The giornata.***

A **giornata** is a portion of plaster the name of which originates from the Italian word for a day's work (*giornata*) and is the equivalent of the area of plaster than could be painted by the artist during a day's work. They can be identified by observing the surface under grazing lighting, which highlights the overlapping lines of the plaster between one day and the next. By observing the overlapping margins of the days, it is possible to establish the chronological order in which the various portions were painted.

Painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian**: marks of the giornatas observed under grazing light; the overlapping of the sequence in which they were painted can be seen.

The giornata portraying St. Sebastian overlaps that of the Nursing Madonna which was, consequently, painted first *(1)*.

The portrayal of the Annunciation was painted before the Nursing Madonna *(2)*.



(1) Detail with Saint Sebastian

(2) Detail of the Annunciation

Wall painting techniques through the observation of surfaces.

The "giornata".

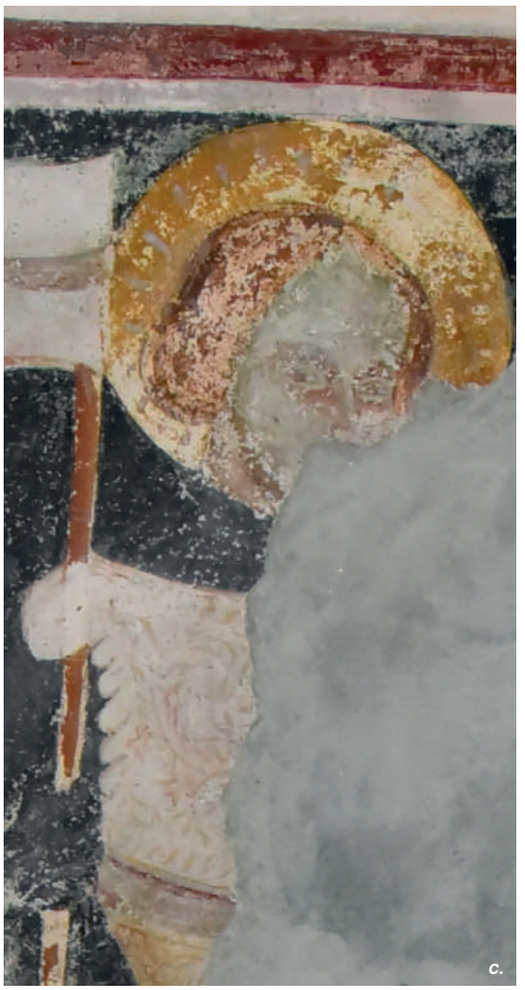
a.

Wall painting techniques through the observation of surfaces.
The preparatory drawing.

TAPPING THE STRING

This is usually carried out with a length of string soaked in pigment: pulled taut and secured with nails at both ends, it is tapped onto the surface after being pulled. The lines drawn in this way define the spaces of the figurative composition.
After tapping the string, the actual preparatory drawing is traced, using the following techniques: **direct drawing, direct etching and cartoon**.

Painting **c. Holy knight with flag**: as can be seen in the upper left-hand corner, a string soaked in red pigment was used to outline the panel and frame of the painting.



Painting c.

Detail of painting c.

Ivrea

Direct drawing is performed using a brush with pigments diluted in water, usually ochre.

Painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian** two colours are used for the preliminary drawing: grey and ochre/green. The preliminary drawing of the Nursing Madonna was created with a grey pigment and can be observed through the falling paint film on the Child's robe. In the Annunciation in the archivolt, the preliminary drawing was created with a brush and ochre and can be seen in the falling of the more superficial layers of the Madonna's robe, on the wings of the Heralding Angel and on the cloak of the Everlasting Father.

Painting **e. St. Gaudentius:** preparatory drawing using a brush with yellow ochre.

Painting a.

Painting e. detail of the robe of St. Gaudentius

Ivrea

Direct etching is carried out with a metal point, etching the contours of the drawing into the plaster while it is still wet. It is used especially for architecture but can also be found in circular lines created using a compass, usually for haloes, decorative or architectural elements with circular lines.

Direct etching leaves a hard mark in the plaster with jagged edges.

Painting **b. Madonna and Child, Holy Bishop and Holy Monk**: the circular lines of the haloes and the decoration of the holy bishop's robe were created by direct engraving using the point of the compass.

Painting b.

The etching outlining the halo of the Madonna presents the typical hard mark with jagged edges *(1)*.
As can be seen from the decoration of the holy bishop's robe, the compass had two points, one spinning on itself in the centre of the circumference and the other etching its perimeter *(2)*.

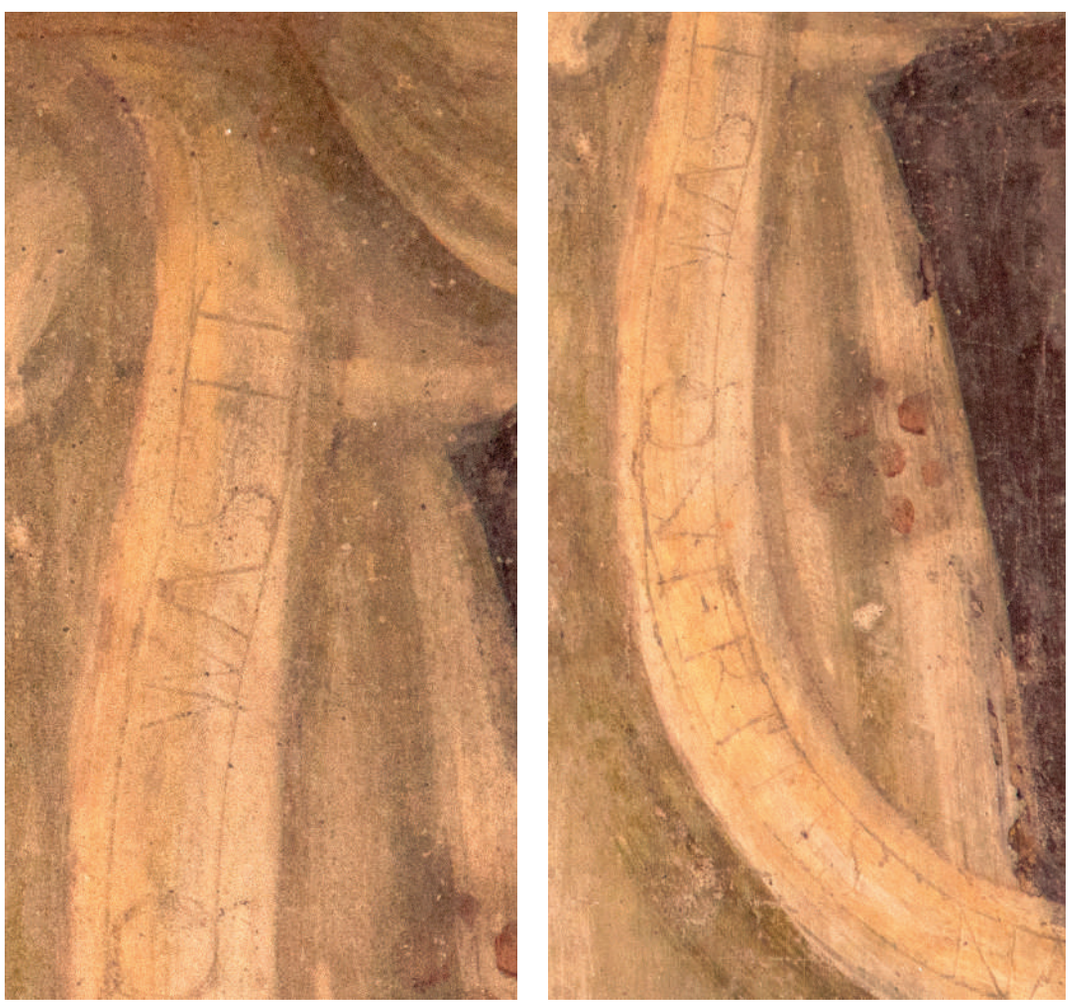
Detail of painting b.

Ivrea

Using the **cartoon** technique, the drawing is transferred onto the fresh plaster by tracing the outline with a point. The resulting mark is a slight groove with rounded edges due to the impression of the point through the paper.

Painting **f. Saint with scroll**: the grazing illumination shows that the painting was made using a cartoon, as can be seen from the soft, rounded edges of the incisions in the scroll and the sleeve of the robe.

Painting f.



Detail of painting f. Engravings

Wall painting techniques through the observation of surfaces.
Colour application technique.

TRUE FRESCO

The process of carbonatation of the lime leads to the formation of a genuine layer of paint, in which the crystalline calcium carbonate binds the pigment particles spread on the still wet or partially wet plaster; as a result, the paint is firmly bonded to the outermost layer of plaster.
Painting **d. Dux Aimo, Holy Knight**: the best-preserved areas were painted using the true fresco technique and it is particularly possible to appreciate the compactness of the painted layers of the armour detailed by fine black brushstrokes illustrating the weft of the wire mesh, the hair and the halo decorated with whorls.
Painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian**: It is usually possible to distinguish between areas painted using the true fresco and dry fresco techniques by observing the condition of the painted film. The carbonatation process that takes place on the surface makes the paint very resistant to deterioration, whereas the painted film applied dry with organic binders deteriorates more easily. In this case, the throne, the Madonna's green robe and the yellows were applied onto fresh plaster, whereas the red background was probably applied dry.

On the left: painting d., detail
On the right: painting a., detail

Colour application technique.

a.

d.,

g a.,

LIME PAINTING

Colours applied on top of the base coat, when applied to dry or drying plaster, can be mixed with lime to allow new carbonatation. Occasionally, some details in white can be painted with pure lime onto a coloured background.

Painting **h. Frame with plant motifs**: the full-bodied and textured brushstrokes on the light backgrounds were obtained by mixing colour with lime.

Detail painting h.

Colour application technique.

Detail painting h.

DRY PAINTING

The colour is applied to the dry plaster, mixing the pigments with an organic binder.

Painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian**: As can be deduced from the poor condition of the painting, the red of the background was most likely created using cinnabar, a red pigment that was generally used dry, mixed with an organic binder. Another characteristic of cinnabar is its tendency to turn darker in colour, as can be seen in the picture on the right.

a. *Detail painting a.*

Colour application technique.

Detail painting a.

In **dry painting**, the colour is applied to dry plaster, mixing the pigments with an organic binder.
Painting **d. Dux Aimo, Holy Knight**: the background against which the saint is portrayed is made up of a double frame, green on the outside and blue immediately behind the figure's shoulders. This type of background, which was very common, was usually painted dry with green/blue copper-based pigments applied to a black background applied using the true fresco technique.

Detail painting d.

Colour application technique.

Detail painting c.: holy knight with flag

Wall painting techniques through the observation of surfaces.
Painting procedures.

GLAZES

Applied wet or dry, they consist of highly diluted layers of paint usually applied over one or more underlying layers of colour so that the latter remain visible, creating volume or transparency effects.

Painting **g. St. Christopher** and painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian**: light glazes create the effect of the waves of the water crossed by the saint.

Detail of painting g.

Detail of painting a.

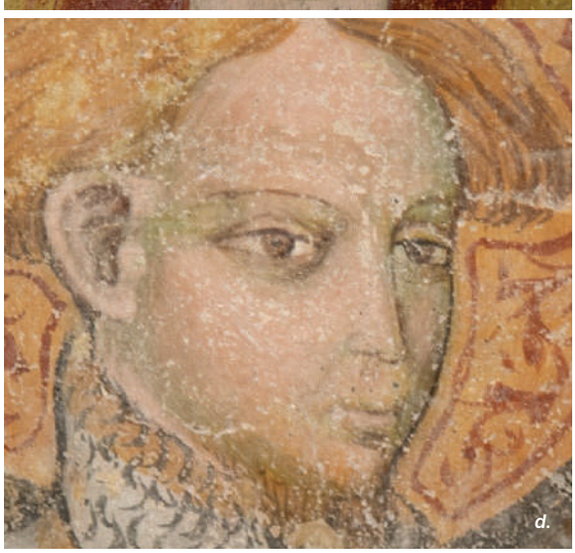
FLESH TONES

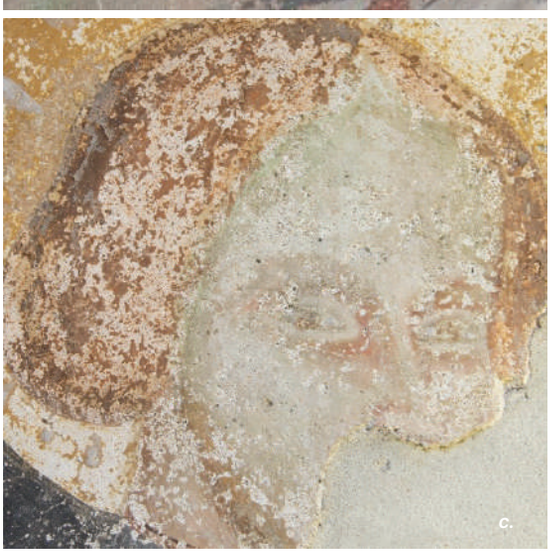
Flesh tones were traditionally created using a preliminary base of **verdaccio**, a mixture of greenish-brown pigments over which more or less opaque pinkish layers were applied, in most cases created with white of lime and yellow and red ochre, variably mixed to produce transitions between highlights and mid-tones. The shadows produced using dark glazes blended by transparency with the underlying verdaccio.

Four examples of the use of verdaccio to create flesh tones: in the first case (**painting b**) it was used not as a base colour but in the form of strokes of diluted colour on a pink background to outline the anatomical features of the oval of the face, the upper eyelid and the fold between the nose and mouth. In the second case (**painting g**) it was applied as a base, with overlapping and juxtaposed strokes to modulate the intensity of the colour in the shadows. In the last two cases, the verdaccio base provides soft shades that are intensified by overlapping glazes in correspondence with the shadows. In the first three cases, the shade of the skin is obtained by applying layers of pinkish colours which, in the first painting, consist of an even, flat base coat, while in the other two, the dilution of colour or the amount of white varies to create volumes by playing with light and shade. The advanced deterioration of painting **c. Holy Knight** has led to the loss of the surface layers, leaving the green base visible.


b.


g.


d.


c.

DECORATIVE BRUSH MOTIFS

Decorative brush motifs are achieved using fluid freehand brush strokes to decorate and enrich the paintings.

Painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian**: decorations with foliage and whorls on the draped fabrics, backgrounds and lower decorative band.

Painting **d. Dux Aimo, Holy Knight**: the halo is decorated with fluid red brushstrokes.

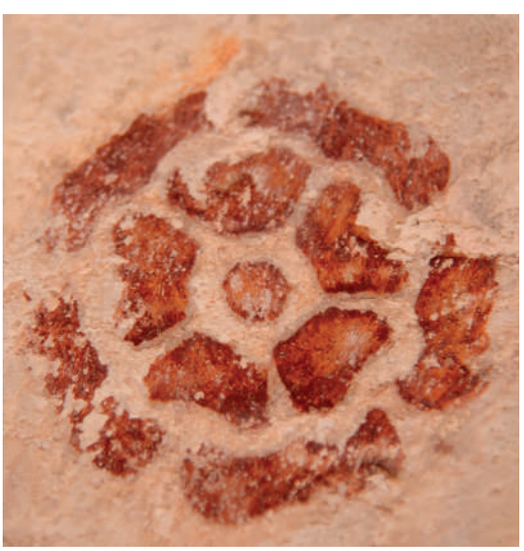
Detail of painting a.

Details of paintings a.and d.

DECORATIVE MOTIFS CREATED USING TEMPLATES

Painting **a. Giacomino da Ivrea, Nursing Madonna with Anthony the Great, St. Christopher and St. Sebastian**. The barrel vault leading to the font is decorated using a flower-shaped template, with red paint on a white background, repeated at regular intervals. The same technique was used to enrich the cloak of the Nursing Madonna, in which the decorative motifs of the draped fabric are repeated without taking into account the folds and the movement of the fabric.

Painting **f. Saint with scroll**. The fabric is decorated using a template which reproduces a floral shape painted red.



Detail of painting a.

Details of painting a.

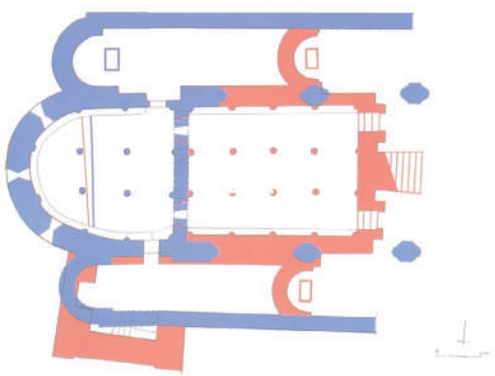
Detail of painting f.

Borgo San Dalmazzo

Ancient Abbey of Pedona: the Romanesque crypt.

In the Ancient Abbey of Pedona in Borgo San Dalmazzo, Cuneo, an exceptional archaeological stratification has emerged beneath the present-day church, which was originally built as a Late Antique burial church on the tomb of a venerated martyr and later developed in the Gothic and Longobard periods, as documented by sources, and was located in a town that proudly erected "white towers" in the early Middle Ages.

In the Middle Ages, the Romanesque abbey became the seat of a Benedictine monastery of particular importance, which retained the dedication to San Dalmazzo of Pedona, with reference to the Roman city that had long since disappeared. The crypt, built between the XI and XII centuries, was recovered following archaeological surveys, making it possible to create a visitor route.



Abbey of San Dalmazzo of Pedona (CN). Crypt Plan reworked by Micheletto E., 1999

On the right: facade of the current parish church of Borgo di San Dalmazzo

Borgo San Dalmazzo

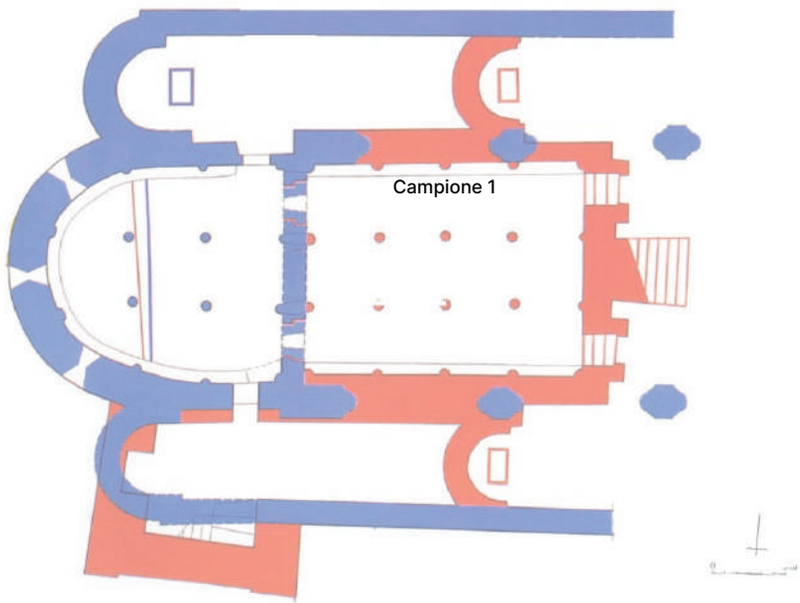
By observing the walls
we can read history.

SAMPLE 1
Location: crypt, south wall.
Materials and components: half-column made with recycled Roman "sesqui¬pedali" bricks *(Munsell: Light Reddish Brown 5 YR 7/4; Light Red 2.5 YR 7/6):* traces of oblique or herringbone workmanship are evident. The brickwork is regular and, in some cases, elements that have been specially cut to better follow the semi-circular course of the column are visible.
The mortar *(Munsell Pinkish White 10R 8/2)* is rough with black is coarse with black aggregates (approximately 2 cm thick). The columns were covered with stucco that reproduced the marble tapering of the classical tradition (the base is in Doric style).
Dated: XII century.

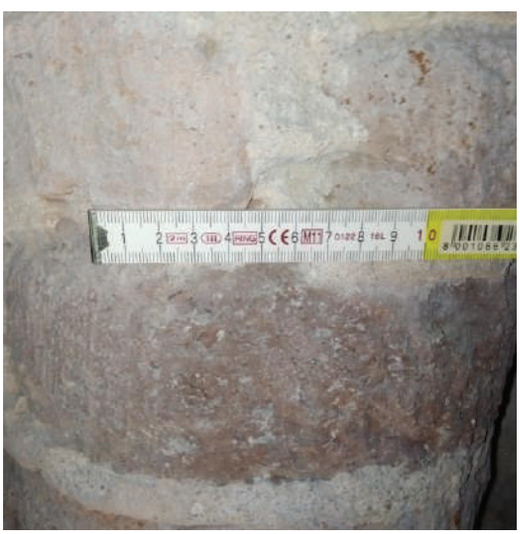
Samp. 1

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999

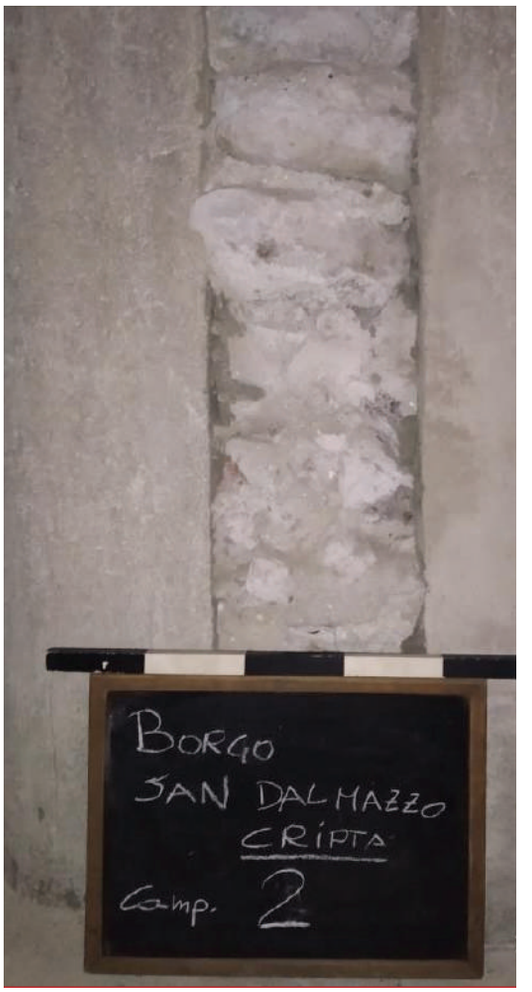


Detail of traces of workmanship related to reuse.

Borgo San Dalmazzo

SAMPLE 2
Location: crypt, link between western part and eastern part.
Materials and components: river pebbles (Stura di Demonte and/or Gesso) split and arranged in a rather irregular manner. The installation features barely noticeable rows and the spaces between one pebble and another are filled with extremely coarse mortar *(Munsell White 7.5YR 8/1)*.
Dated: XI-XII century.

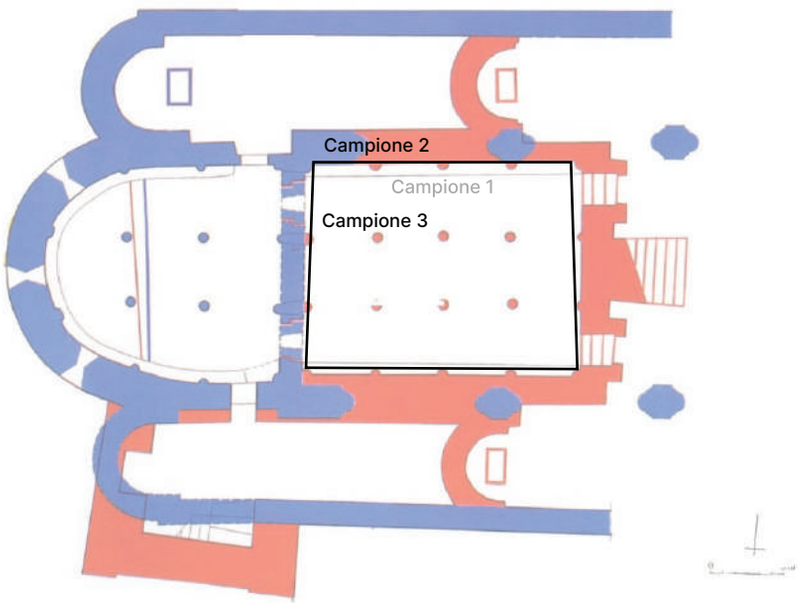
SAMPLE 3
Location: crypt, western part.
Materials and components: cross vaults made of bricks arranged to follow the curve up to the keystone. Thin and regular mortar beds.
The position did not allow the detection of colours with Munsell tables, nor the measurement of the construction elements.
Dated: XII century.



Samp. 2

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999

Samp. 3

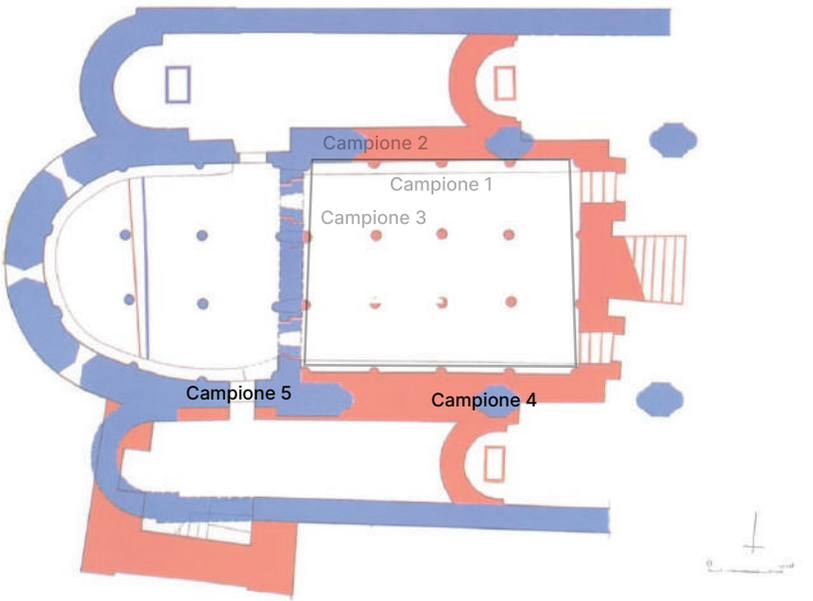
Borgo San Dalmazzo

SAMPLE 4

Location: crypt, north wall.

Materials and components: wall structure made up of small and medium-sized stone blocks. wall structure made up of small and medium-sized stone blocks. Repointing with broken bricks is visible. A conglomerate of recent mortar evenly covers the façade, preventing a thorough reading of the wall structure.

Dated: undeterminable.



Crypt. Plan reworked by Micheletto E., 1999

By observing the walls

we can read history.

SAMPLE 5

Location: crypt, access in the north-eastern part, jamb.

Materials and components: wall structure consisting of medium-sized squared stones (25×29×10 cm) arranged in a very regular manner in order to ensure adequate stability. Repointing with both brick fragments and splinters from the roughing of the stone blocks is visible. The mortar is coarse with lots of aggregates *(Munsell Pin¬kish White 10YR 8/1)*.

Dated: XI century.

Samp. 5

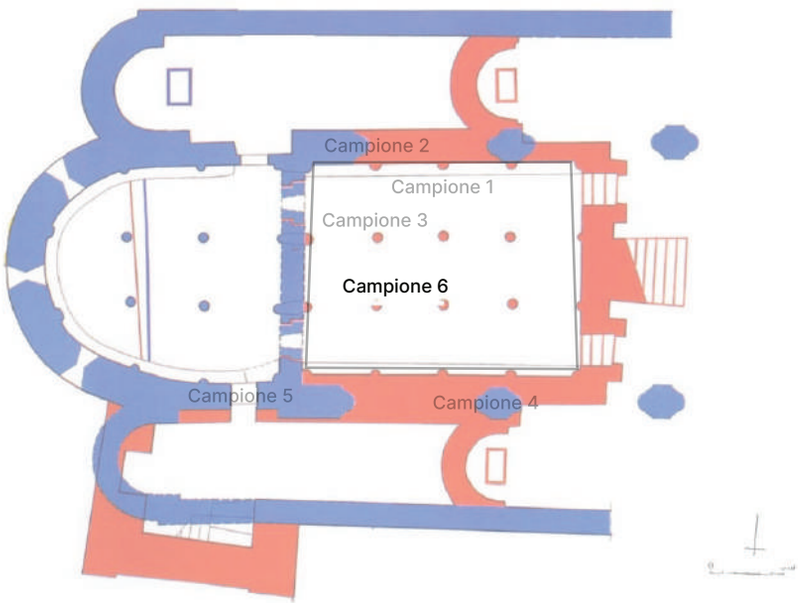
Borgo San Dalmazzo

SAMPLE 6
Location: crypt, western part.
Materials and components: monolithic column in Bardiglio di Valdieri marble, probably recycled from the previous church building considering the evident traces of chisel work to adapt the column to the new requirements.
Dated: XII century.

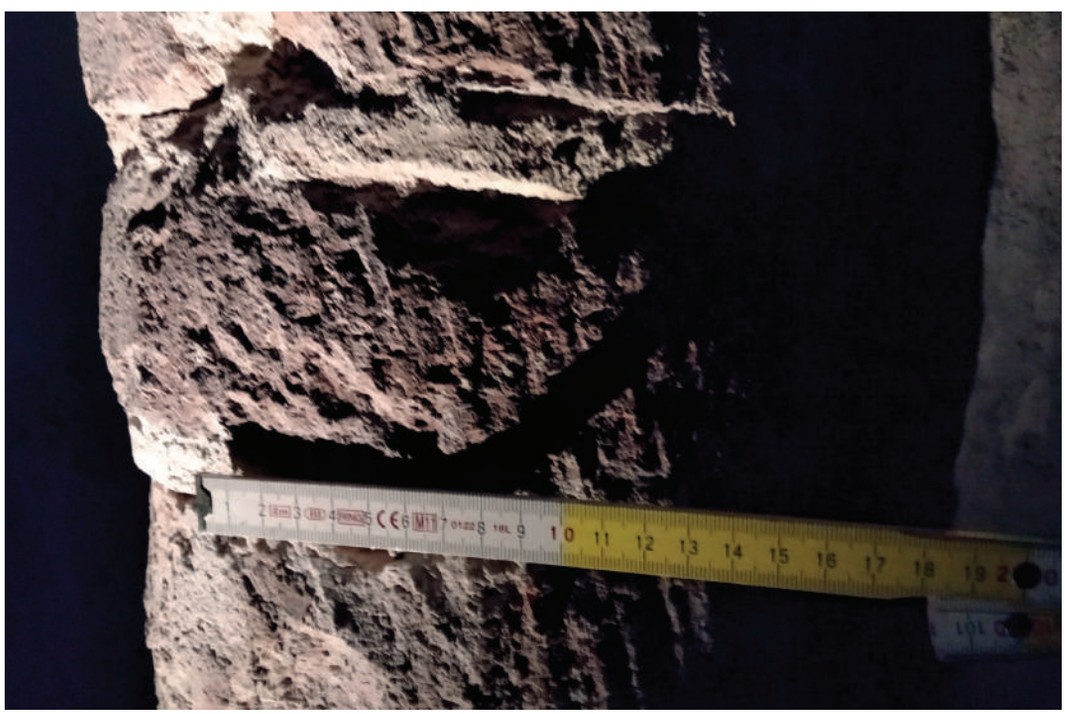
Samp. 6

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999



Detail of the traces of workmanship

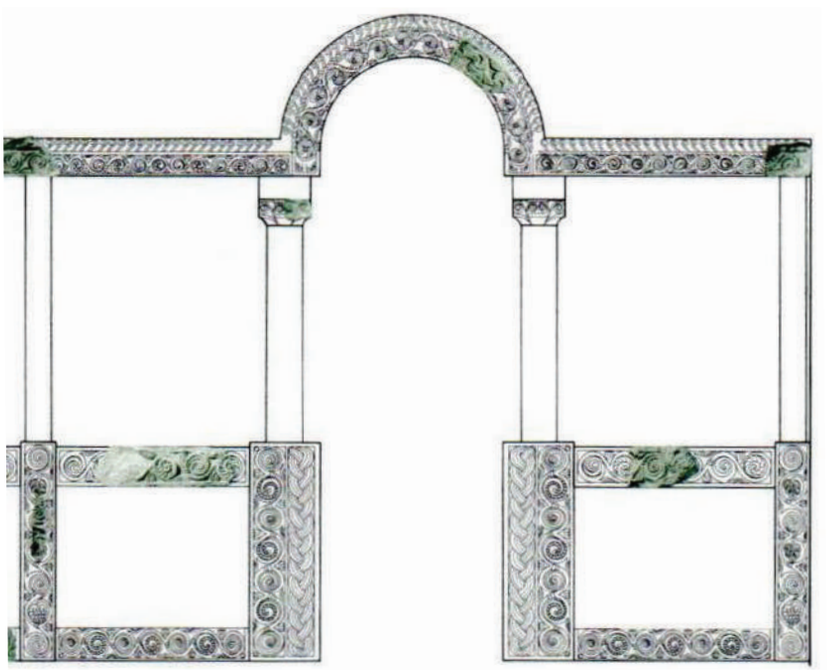
Borgo San Dalmazzo

SAMPLE 7

Location: crypt, western part.

Materials and components: Bardiglio di Valdieri marble pillar. Reuse of an element of the presbyterial enclosure which, in the VIII century building, delimited the area destined for the tomb of San Dalmazzo and the altar. The sinuous trellis with rosettes and oblong connecting leaflets is characteristic. Faint signs of the brackets used to anchor the decorative elements to the supporting structure are still visible (see reconstructive drawing).

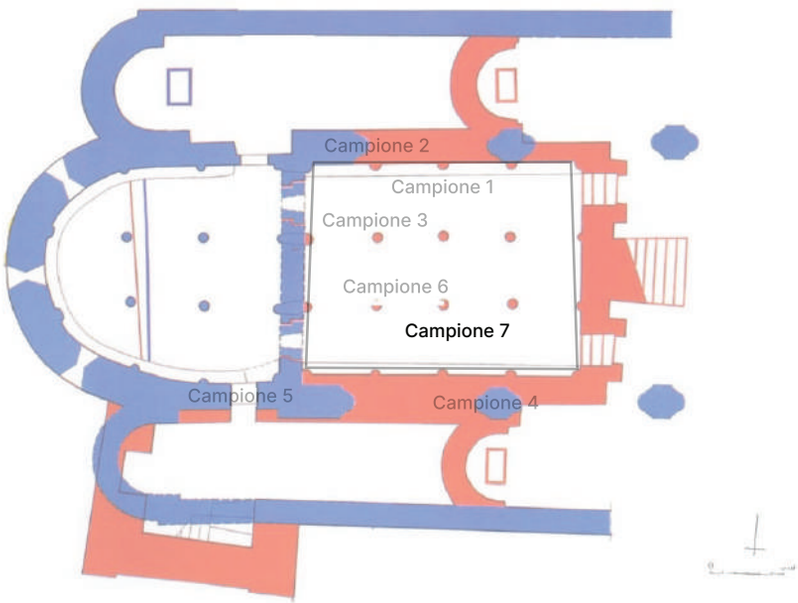
Dated: XII century.



Reconstruction of the VIII century presbytery enclosure

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999

Samp. 7

Borgo San Dalmazzo

SAMPLE 8

Location: crypt, eastern part.

Materials and components: Bardiglio di Valdieri marble monolithic column, roughly worked perhaps to allow for better application of a stucco finish.

The capital, made of local marble, features the "Corinthian with smooth leaves" decoration characteristic of the early Middle Ages: again, a reuse of the VIII century church complex.

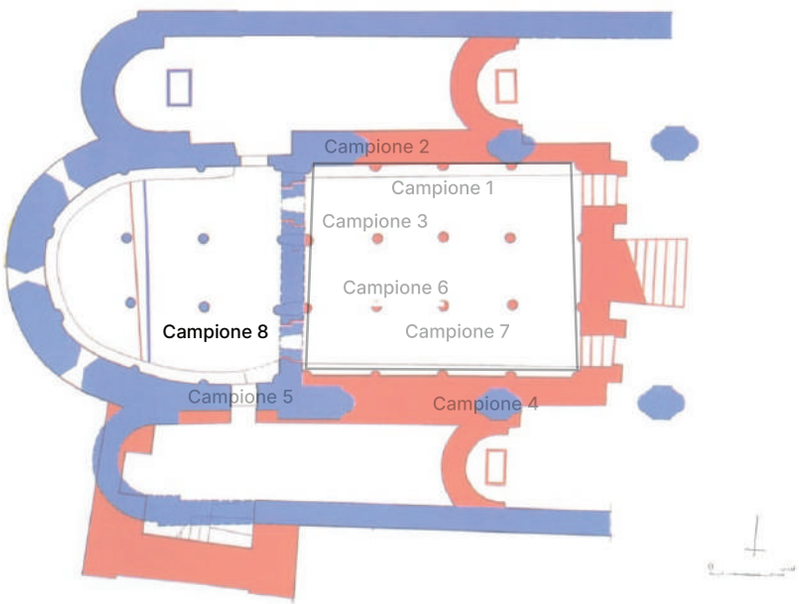
Dated: XI century.

Detail samp 8: early mediaeval capital reused in the crypt

Samp. 8

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999

Early mediaeval capital reused in the crypt

Borgo San Dalmazzo

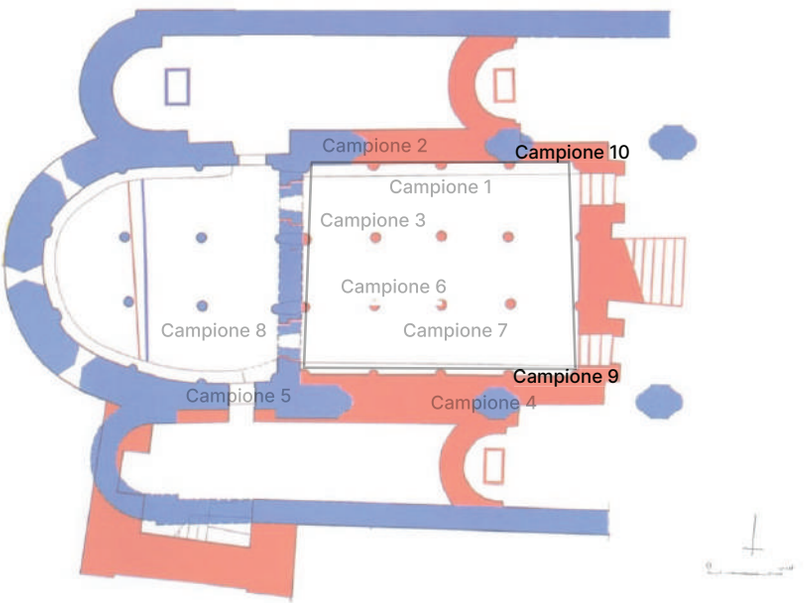
SAMPLE 9
Location: crypt, eastern part near the north door.
Materials and components: brick wall *(Munsell Light Red 2.5 YR 7/8)* made with evenly sized elements (27×6 cm), arranged in even rows and with a bed of mortar *(about 2 cm thick; Munsell Pinkish White 7.5 YR 8/2)* coarse with aggregates visible to the naked eye.
Dated: XII century (uncertain).

SAMPLE 10
Location: crypt, exterior southern part.
Materials and components: wall made of river pebbles (Stura di Demonte and/or Gesso) in medium and large sizes (29×17; 35×24×16 cm), arranged in regular rows with a hint of herringbone structure. The mortar *(Munsell Pinkish White 10R 8/2)* is coarse with aggregates visible to the naked eye being made up of tiny pebbles.
Dated: XI-XII century.

Masonry detail in bricks on the left and in cobblestones on the right

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999

Detail of a stucco pillar, Romanesque period

Borgo San Dalmazzo

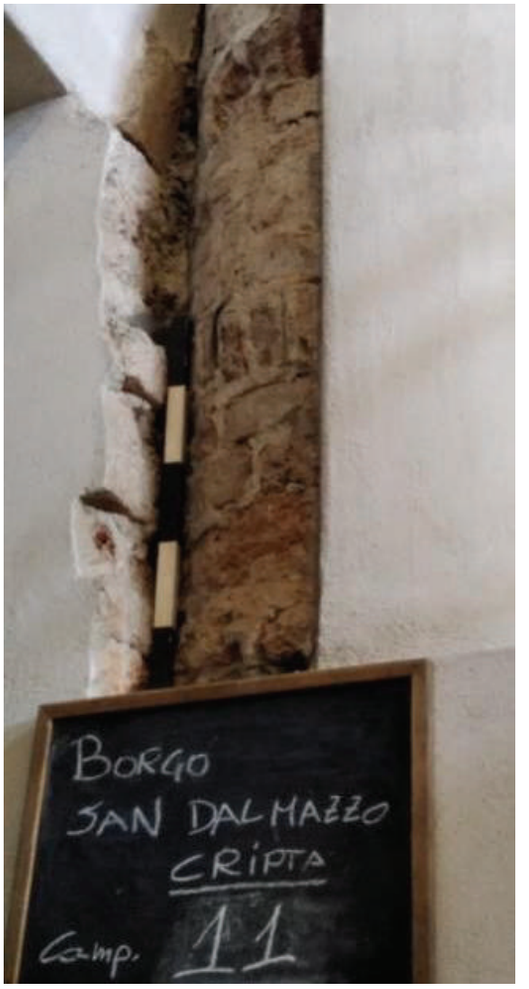
SAMPLE 11

Location: crypt, exterior southern part.

Materials and components: pillar made of recycled Romanesque bricks: traces of oblique or herringbone workmanship to adapt them to the curve of the column are evident. The brickwork is irregular, with horizontal rows alternated with bricks laid sideways, leaving the short side visible. The position did not allow the detection of colours with Munsell tables, nor the measurement of the construction elements.

Mortar beds of about 2 cm.

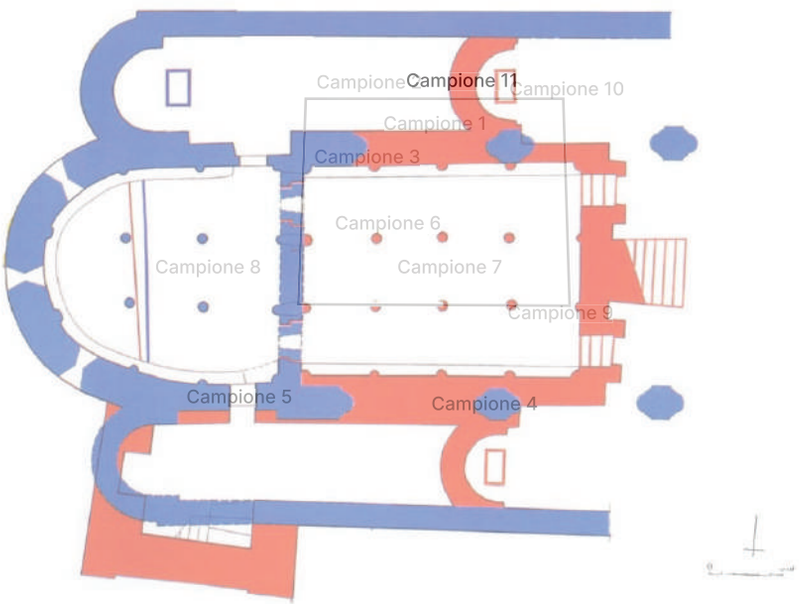
Dated: XII century.



Samp. 11

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999

Detail pillar with bricks of Roman age

Borgo San Dalmazzo

SAMPLE 12

Location: crypt, apse in the exterior southern part.

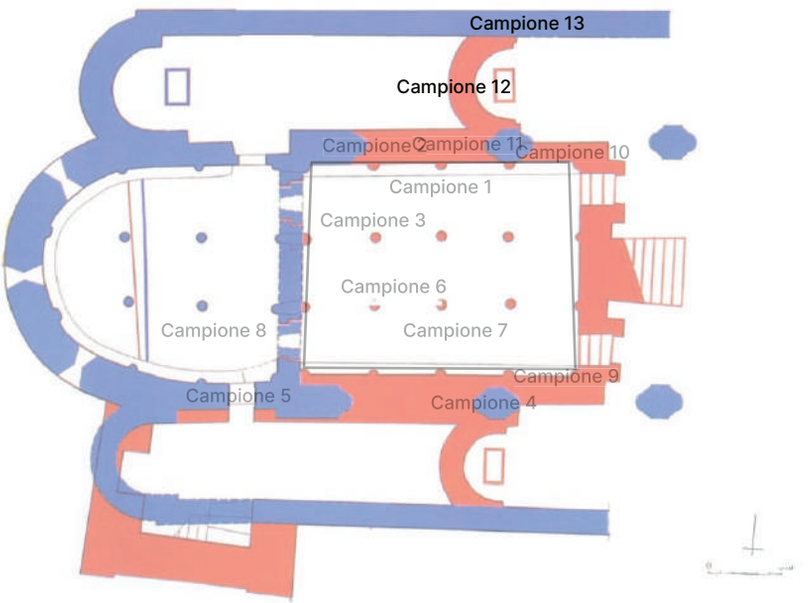
Materials and components: wall texture consisting of split pebbles (Stura di Demonte and/or Chalk) a few rounded stones and fragments of brick arranged in even rows and with uniform mortar beds (approx. 2 cm) sometimes used to fill the spaces between one element and another. The position didn't allow the detection of colours with Munsell tables, nor the measurement of the construction elements.

Dated: XII century.

Samp. 12

By observing the walls

we can read history.



Crypt. Plan reworked by Micheletto E., 1999

Samp. 13

SAMPLE 13

Location: crypt, external south wall.

Materials and components: wall structure consisting of split river pebbles (Stura di Demonte and/or Chalk) and a few rounded stones: the rows are even with a hint of herringbone workmanship.

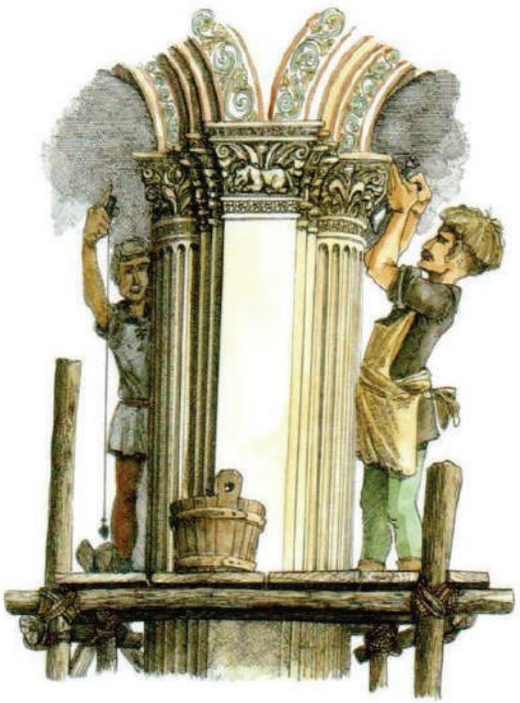
The thickness of the mortar *(Munsell Pinkish White 10R 8/2)* is uneven as it was used to fill the spaces between one element and another.

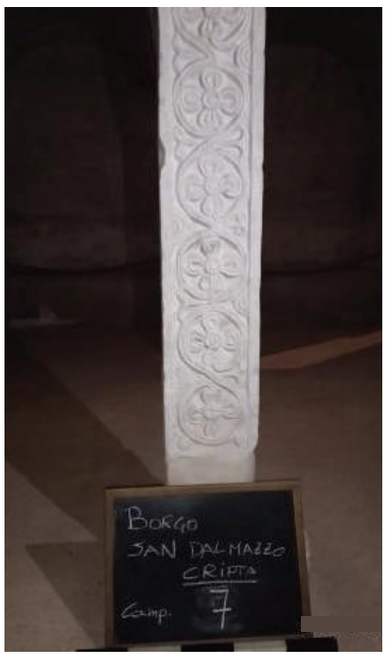
The upper part of the elevation is decorated with frescoes from the second half of the XIV century, which cover the oldest wall.

Dated: XI century.

Borgo San Dalmazzo

Taken from
Micheletto, 2005




BORGO
SAN DALMAZZO
CRIPTA
Comp. 7

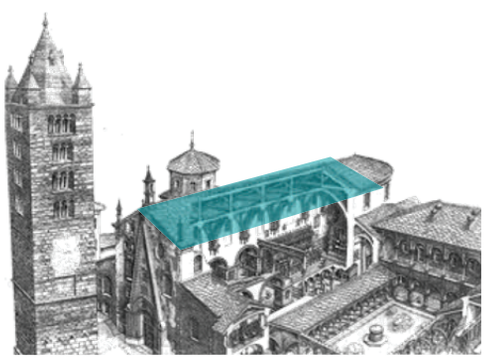
Aosta

The Collegiate Church of Saints Peter and Ursus: the Romanesque crypt.

The composite nature of the architecture and decoration of the Collegiate Church of Saints Peter and Ursus, as well as the cathedral of Aosta, reveals the complexity of the historical stratification that marked and determined the evolution of Aosta's main churches in the XI and XII centuries. The XII century Romanesque constructions of the cloister and bell tower at Saint Ursus were followed by interventions that particularly influenced the overall appearance of the building, endowing it with architectural and decorative elements during the XV century and the early decades of the XVI century, when there was a proliferation of initiatives by ecclesiastical and lay patrons.

The current late Gothic façade and brick vaults date back to this period, as do the wooden choir stalls, which, together with the stained glass windows, frescoes and gold work, enriched the artistic heritage of the Collegiate Church, coinciding with the period of extraordinary prosperity experienced by the region, the political fortunes of the Savoy dynasty and the development of nearby Geneva, a commercial and financial centre of European dimensions, with a consequent increase in commercial traffic (including works of art and materials) across the Gran San Bernardo pass, also facilitated by the close ties that united the local lay and ecclesiastic ruling class with the Genevois and Vaud aristocracy.

Superimpositions, alterations, rebuilding and reconstruction did not erase the ancient framework of the building, the construction of which dates back to around the year 1000. The building was erected over a pre-existing V century settlement, the remains of which have re-emerged following excavation campaigns.



On the right: Collegiate Church of Saints Peter and Ursus

Aosta

By observing the walls
we can read history.

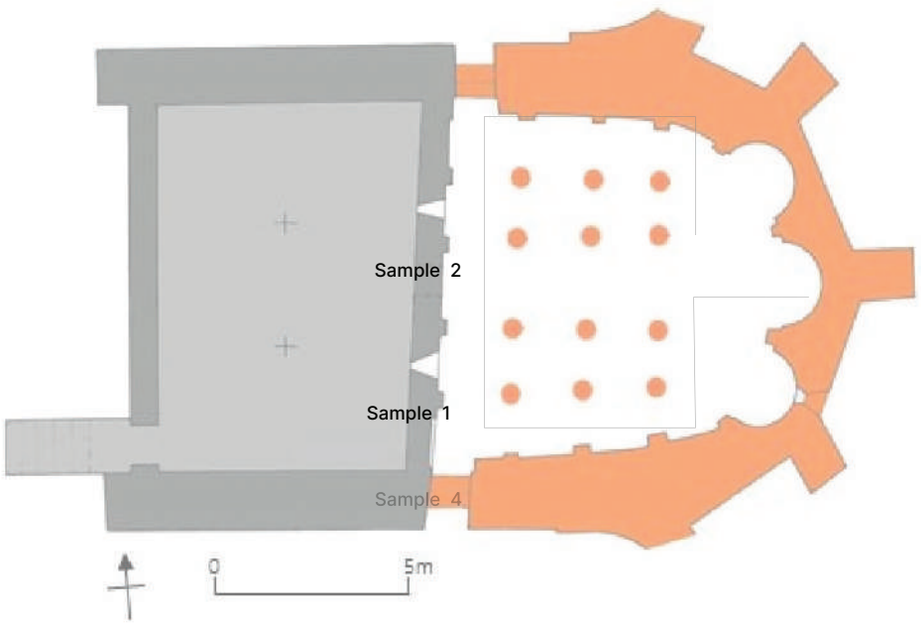
SAMPLE 1
Location: crypt, eastern part.
Materials and components: wall structure consisting of medium and large stones (47×31; 17×10), a few fragments of bricks used for repointing; the rows are levelled with a thick layer of coarse mortar *(Munsell White 7.5 YR 8/1)* with aggregates visible to the naked eye. The interpretation is compromised by the presence of a layer of plaster. Very similar to sample 3.
Dated: postmedieval.

Samp. 1

SAMPLE 2
Location: crypt, eastern part.
Materials and components: the lower part is made up of medium to large stones similar to sample 1. At 1.08 m from the floor level, a levelling of thin stones arranged in a shear pattern (B) marks the change in the wall structure consisting of bricks *(20×8; Munsell Reddish Yellow 7.5 YR 7/8; Very Pale Brown 10YR 8/4)* arranged in regular rows alternating with rounded stones (average size 26×8). There is a lot of repointing obtained with fragmentary laterites and chips of stone. Two jambs (A) are visible on the sides, corresponding to the opening connecting the eastern part and the western part, later closed with the infill, the characteristics of which are shown here.
Dated: postmedieval.

By observing the walls

we can read history.



Plan supplied by
M. Cortelazzo

Samp. 2

A – delimitation of the south jamb
B - functional levelling to the infill

Aosta

SAMPLE 3
Location: crypt, eastern part.
Materials and components: wall texture consisting of medium to large stones (47×31; 17×10); the rows are levelled with a thick layer of coarse mortar *(Munsell White 7.5 YR 8/1)* with aggregates visible to the naked eye. The interpretation is impaired by the presence of a layer of plaster. Very similar to sample 1.
Dated: postmedieval.

SAMPLE 4
Location: crypt, south entrance.
Materials and components: wall structure consisting of medium-sized (23×18) rounded stones with prominent and regular edges, alternating with bricks *(23×8; Munsell Reddish Yellow 5 YR 6/8)* the rows are levelled with a regular layer of coarse mortar *(Munsell Pinkish White 7.5 YR 8/2)*. This could be a subsequent resurfacing with the infill recognised as sample 2.
Dated: XI-XII century.

Samp. 3

By observing the walls

we can read history.

Plan supplied by M. Cortelazzo

Samp. 4

SAMPLE 5

Location: eastern crypt.

Materials and components: cross vaults throughout the crypt.

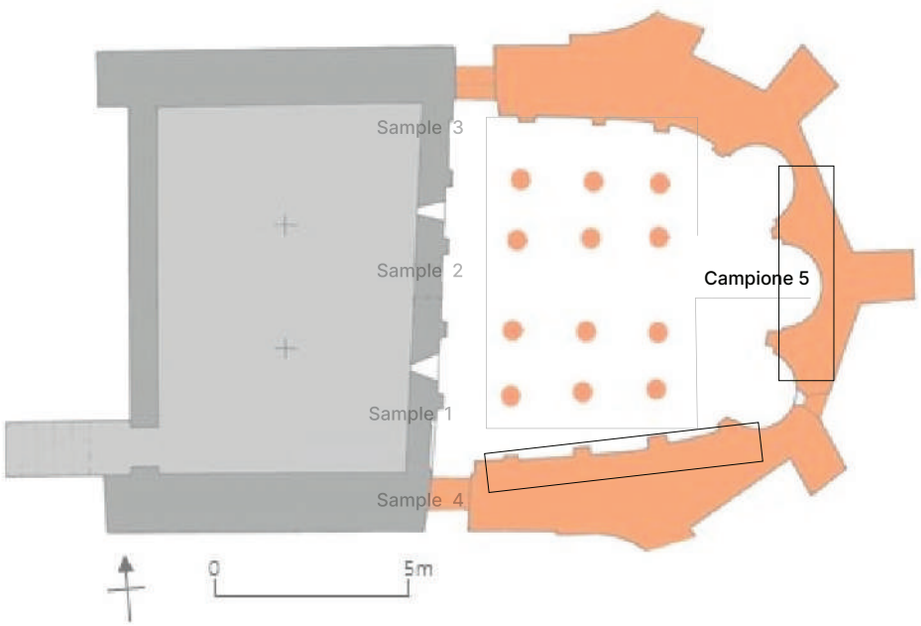
The wall structure is not legible due to an even covering of plaster.

Dated: XI–XII century.

Samp. 5

By observing the walls

we can read history.



Plan supplied by
M. Cortelazzo

Samp. 5

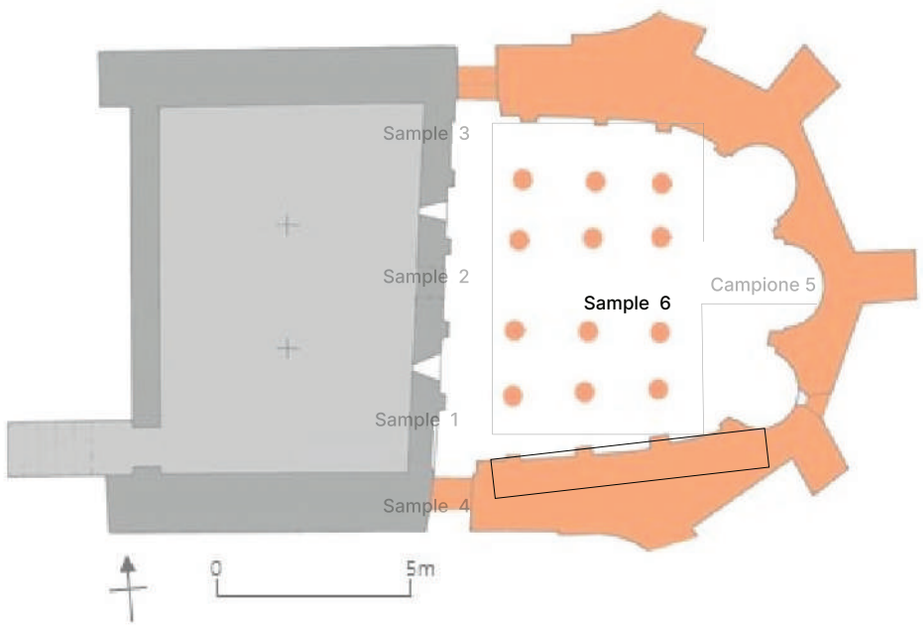
SAMPLE 6

Location: crypt, eastern part.
Materials and components: a rectangular monolithic column (29×27), with traces of the chisel used to finish off the surface and to allow the stucco that probably covered it to adhere still partially visible on the upper part. Possible reuse.
Dated: XI-XII century.

Samp. 6

By observing the walls

we can read history.



Plan supplied by
M. Cortelazzo

Samp. 6

SAMPLE 7

Location: crypt, eastern part.

Materials and components: monolithic column with a rectangular shape (34×35×31×24); on the western side there is an opening of 1.62 m calculated from the floor level. The opening is 6 cm wide and 4 cm deep.

Traces of the various tools used to reshape the stone element are clearly visible.

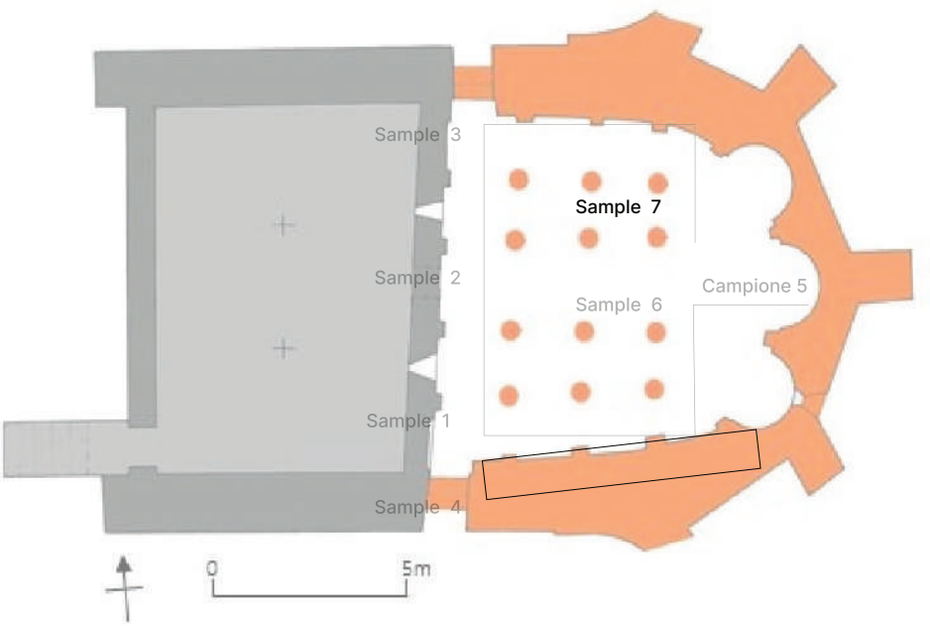
Most probably this is a reuse for connection to the interlocking of some architectural element.

Dated: XI-XII century.

Samp. 7

By observing the walls

we can read history.



Plan supplied by M. Cortelazzo

Samp. 7

Aosta

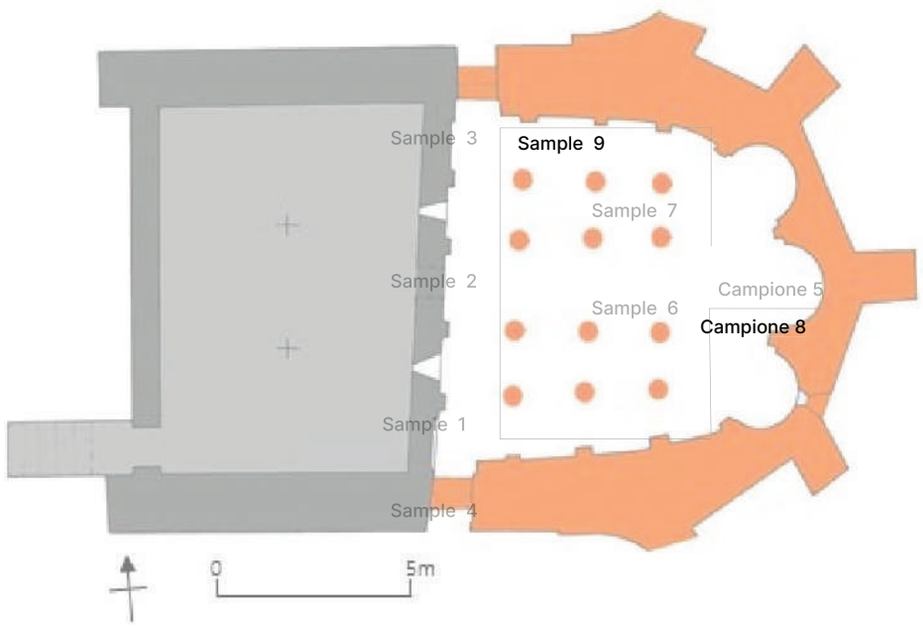
SAMPLE 8
Location: crypt, eastern part.
Materials and components: monolithic circular column (diameter 1.40 m); the column is set directly on the floor level as its height is sufficient to bear the weight of the cross vaults; traces of stucco are visible on the upper part. The columns in the eastern row, near the apse area, are all circular, despite being recycled, as can be seen from the different diameters and different regularised heights, in order to support the vaults, with bases of adequate size.
Dated: XI-XII century.

SAMPLE 9
Location: crypt, eastern part.
Materials and components: monolithic octagonal column (diameter 1.29 m; single face 19 cm); traces of stucco are visible on the upper part; it is the only column to have this form. Probable reuse.
Dated: XI-XII century.

Samp. 8

By observing the walls

we can read history.



Plan supplied by M. Cortelazzo

Samp. 9

Aosta

SAMPLE 10
Location: crypt, eastern part.
Materials and components: monolithic pillar on all the walls of the crypt and near the three small apses.
Dated: XI-XII century.

SAMPLE 11
Location: crypt, eastern part, altar of St. Ursus.
Materials and components: the wall structure is made up of medium to large stones and a few bricks *(Munsell Reddish Yellow 7.5 YR 6/6)* arranged in regular rows: the wall structure is not clearly visible as it is covered by a thick layer of coarse mortar *(Munsell White 2.5 YR 8/1)* with river gravel aggregates clearly visible to the naked eye arranged in regular rows alternating with rounded stones (average size 26×8).
Dated: postmedieval.

Samp. 10

By observing the walls

we can read history.

Plan supplied by M. Cortelazzo

Samp. 11

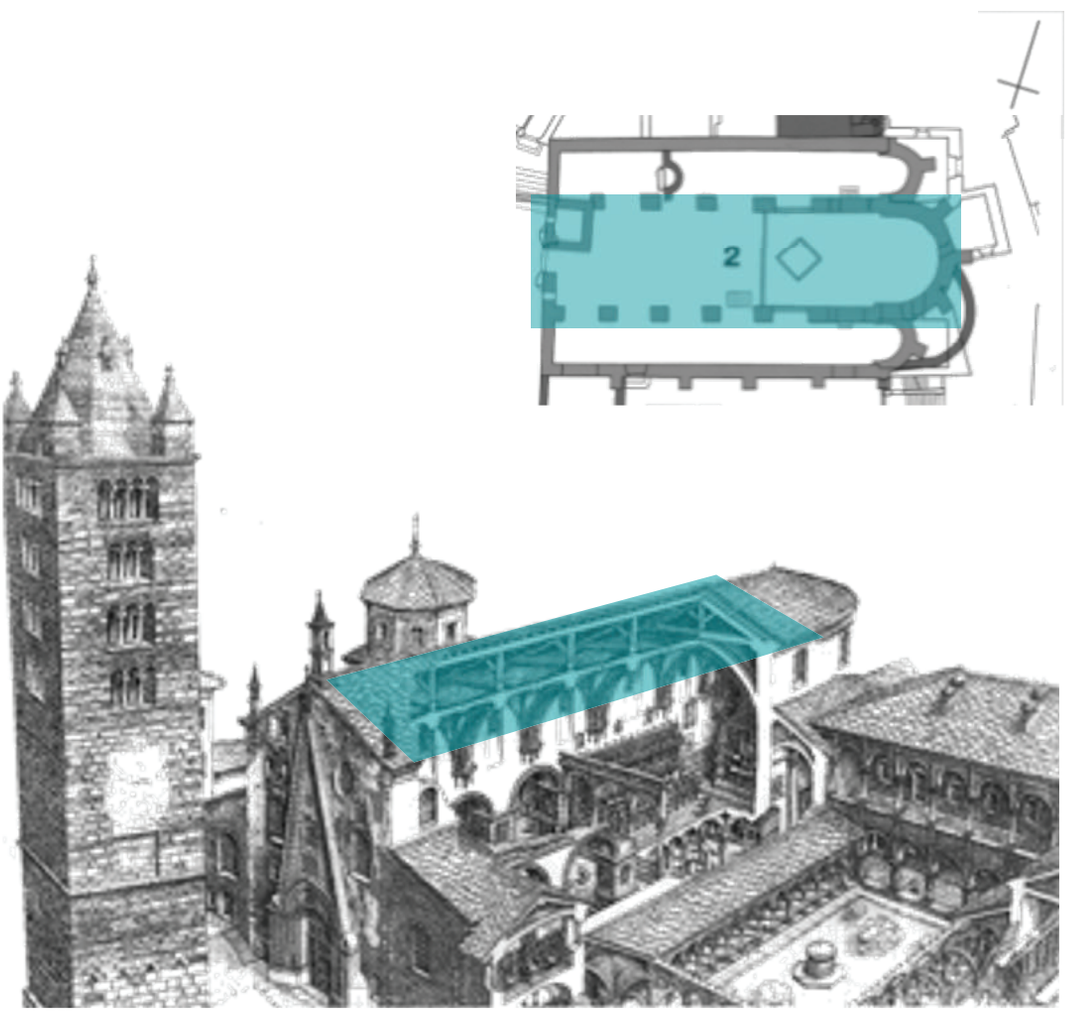
Aosta

Collegiate Church of Saints Peter and Ursus: the Romanesque wall paintigs in the attic.

The paintings date back to the first decades of XI century, the period when the church was built on behalf of Bishop Anselm, who occupied the Aosta see around the year 1000. They were already compromised in ancient times, particularly in the XV century, following the construction of the Gothic vaults and the creation of new decorations that covered the Romanesque wall paintings of the ancient church.. What remains of this decorative phase was brought to light and finally cleared of sediment and rubble in the attic in the 1960s. It is the work of an atelier of artists in which a main master and different painters can be recognised, but who worked in a standardised manner, under the guidance of the master craftsman, and also worked on the pictorial decoration of the cathedral of Aosta at the same time or immediately afterwards.


S PETR VS

Painting techniques through
the observation of surfaces.
The Romanesque wall paintings in the attic.

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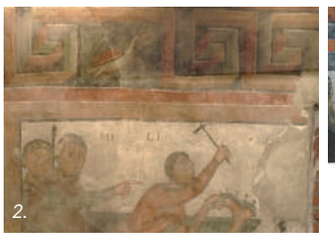
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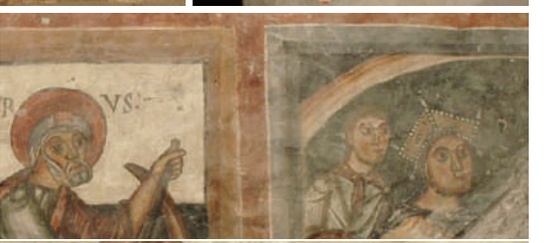

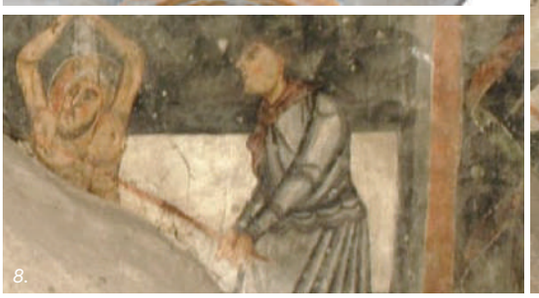
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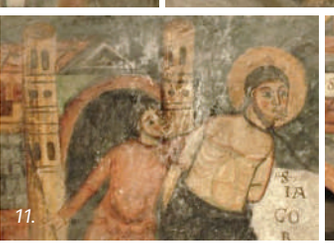
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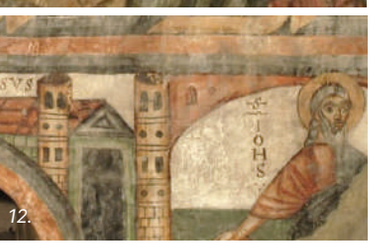
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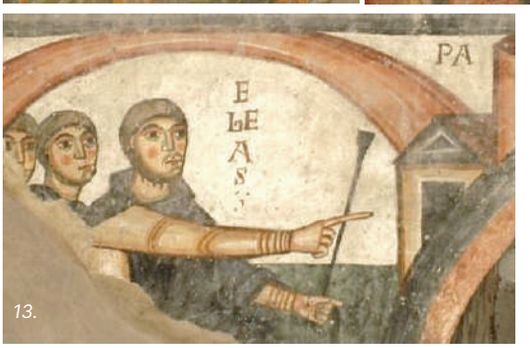


13.

Detail of the pictorial cycle:

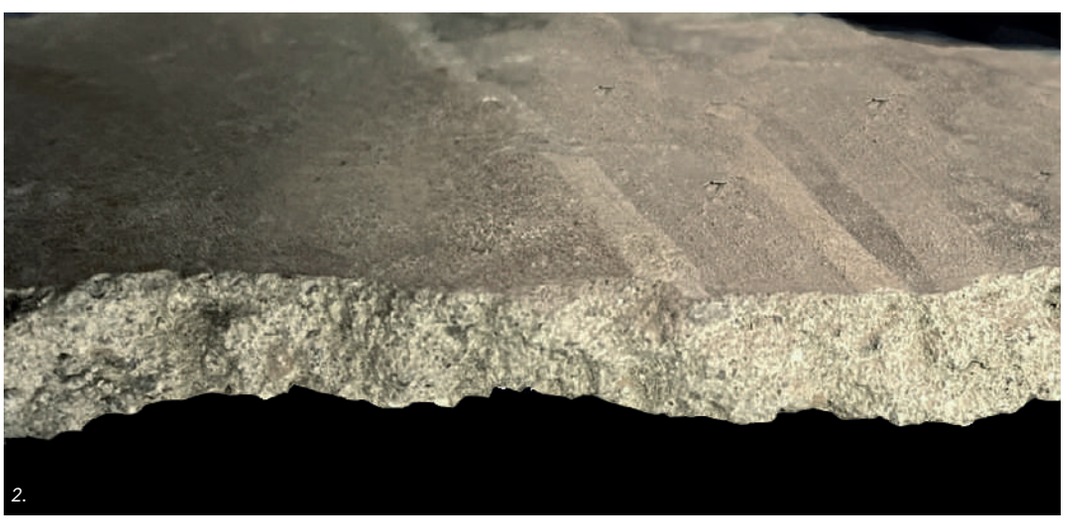
1. Counter façade, section OV2
2. Counter façade, section OV1
3. Section N2
4. Section N3
5. Section N4
6. Section N5
7. Section N6
8. Section S1
9. Section S2
10. Section S3
11. Section S4
12. Section S5
13. Section S6

Painting techniques through the observation of surfaces.
Wall surface.

The frescoes in the attic were painted on a wall made up of pebbles embedded in lime mortar.

Painting techniques through the observation of surfaces. ***The preparatory layers.***

In the eastern portion, there are two layers of plaster, while on the rest of the walls, the preparation consists of a single layer of dark grey plaster. Due to the considerable irregularities of the primitive brickwork, the plaster, which also levels the surface, is very thick in some places, while in others, where there are protrusions of stones, it is only a few millimetres thick.

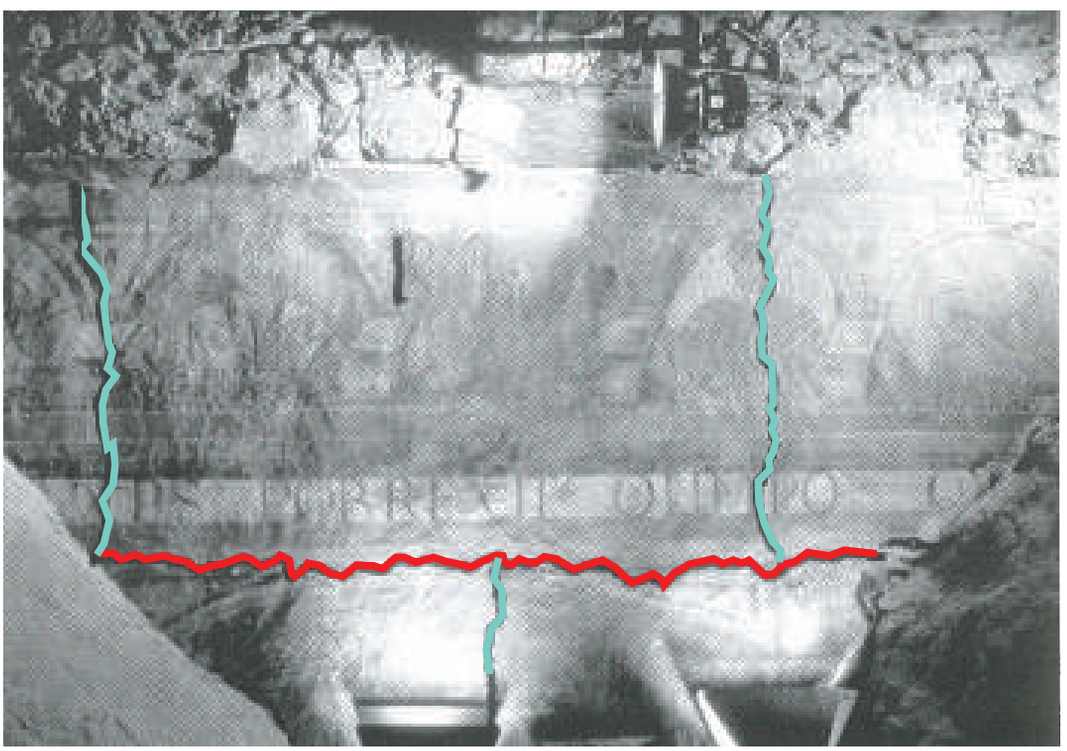


2.

2. Stratigraphy in the eastern portion. The two plasters do not appear to be related to each other, but the deeper layer may be related to pre-existing plasterwork

Painting techniques through the observation of surfaces. ***The pontata and the "giornata".***

The plaster was applied in horizontal strips according to the levels of the scaffolding *(pontata)*, dividing application into successive stages depending on the area that could be painted in one day *("giornata")*.

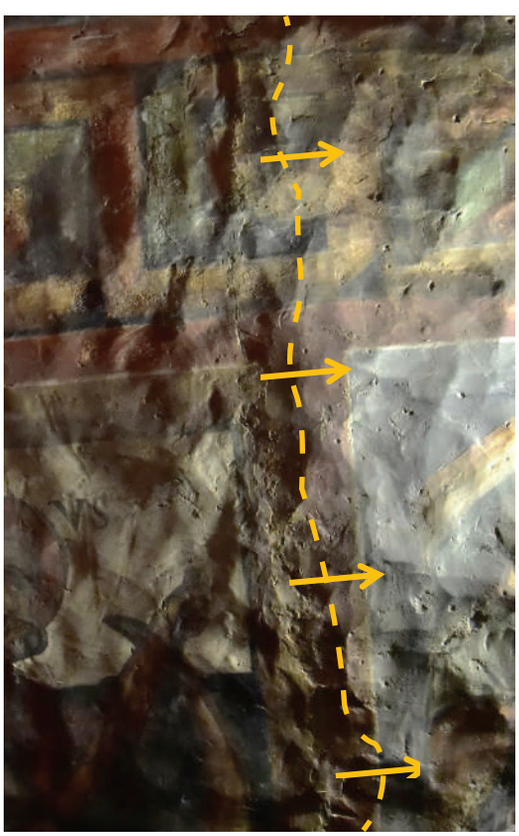


The pontata

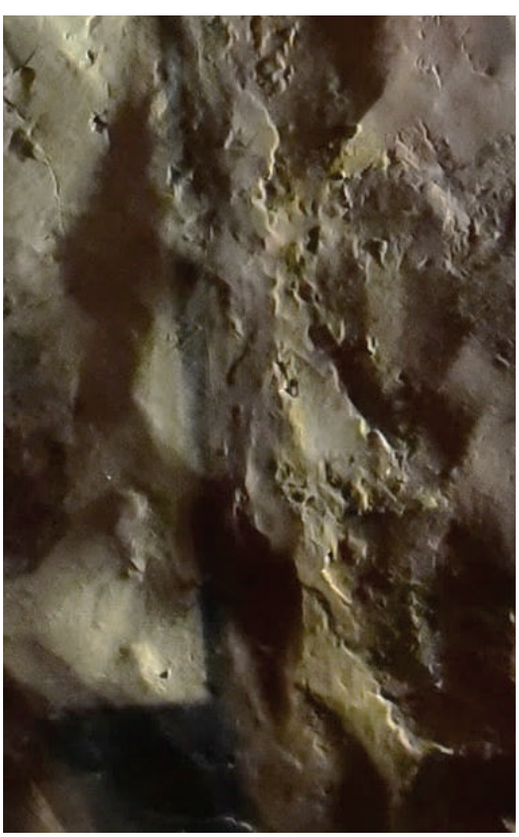
The "giornata"

The pontata e the "giornata".

The perimeter of the pontatas and "giornatas" can be observed through the grazing illumination of the surface.



The chronology of the interventions can be traced by observing how the margins of the giornatas overlap.



Painting techniques through the observation of surfaces. ***Surface finishing.***

The surface generally appears smooth, pressed by the trowel, which has left marks on the surface that are clearly visible under grazing lighting.

Detail of the pictorial cycle S6

SECTION S6: The grazing light highlights the marks left by the working tools used to apply the plaster and the irregularities of the surface caused by the underlying wall surface.

Painting techniques through the observation of surfaces.
The preparatory drawing.

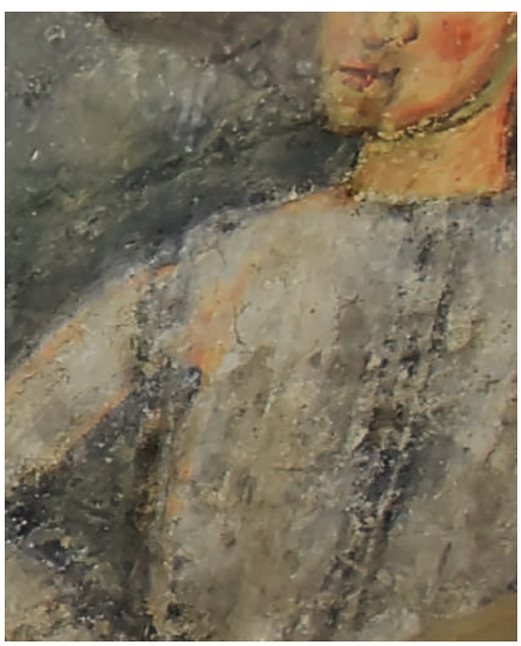
TAPPING THE STRING

For the realisation of the winding geometric decoration, the horizontal lines were defined using the string tapping technique with a string soaked in red paint.

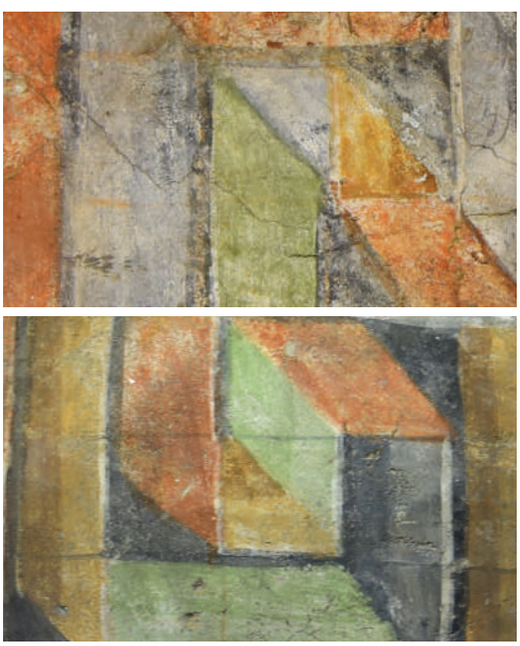
The string left no impression marks on the plaster. Splashes of colour can be observed near the string tapping lines, due to the impact of the colour-soaked string on the plaster

DIRECT DRAWING

Some strokes of the preliminary drawing are visible through gaps in the colour: it was done using a brush with a different width - and sometimes very wide - mark. In most cases, red pigment was used, with black only in a few cases. Often the painter deviated somewhat from the preliminary drawing, but no major departures can be observed.



The red lines of the preparatory drawing emerge from the gaps in the paint of the grey robe



The vertical lines of the preparatory drawing of the winding geometric decorations were painted with both red and black pigment by brush

Painting techniques through the observation of surfaces. ***The paint palette.***

A recent study of pigments indicates that the number of colours used is modest: lime white, lampblack, two ochre colours -yellow and red- can be identified, the latter often applied in two layers so as to be very intense. There is green earth shaded with particular skill (mixing with white and varying the colour of the chromatic base on which it was applied); ultramarine blue (lapis lazuli) is used in small quantities and usually on the garments of the most important figures as in the case of Christ.

Detail of the pictorical cycle, S4

The paint palette.

LIME WHITE
Natural mineral pigment obtained by the carbonatation of calcium hydroxide. It is lime that is not completely slaked, and it acts as a binder, so it does not require a medium. This means that it could be used alone or mixed with other pigments, the fixing of which it aided thanks to carbonatation.

YELLOW OCHRE
Natural silica and silicoaluminates, to which hydrated iron oxides impart the typical yellow colouring, varying from yellow to deep beige.

RED OCHRE
Earths similar in composition to yellow ochres with a higher content of anhydrous ferric oxide; shades range from orange to purplish red.

GREEN EARTH
Natural mineral pigment based on aluminosilicates of bivalent and trivalent iron, potassium and magnesium, consisting of blends of glauconite and celadonite.

NATURAL ULTRAMARINE BLUE
The mineral pigment is made up of sodium and aluminium silicate with additions of sulphide and sulphate. Naturally occurring and also known as lapis lazuli, it was a highly prized pigment and, due to its high cost, its use was limited to detailing or portrayals of particular importance.

LAMPBLACK
Lampblack is obtained by the carbonisation of gases, oily substances and organic materials, the soot from which was collected in various systems.

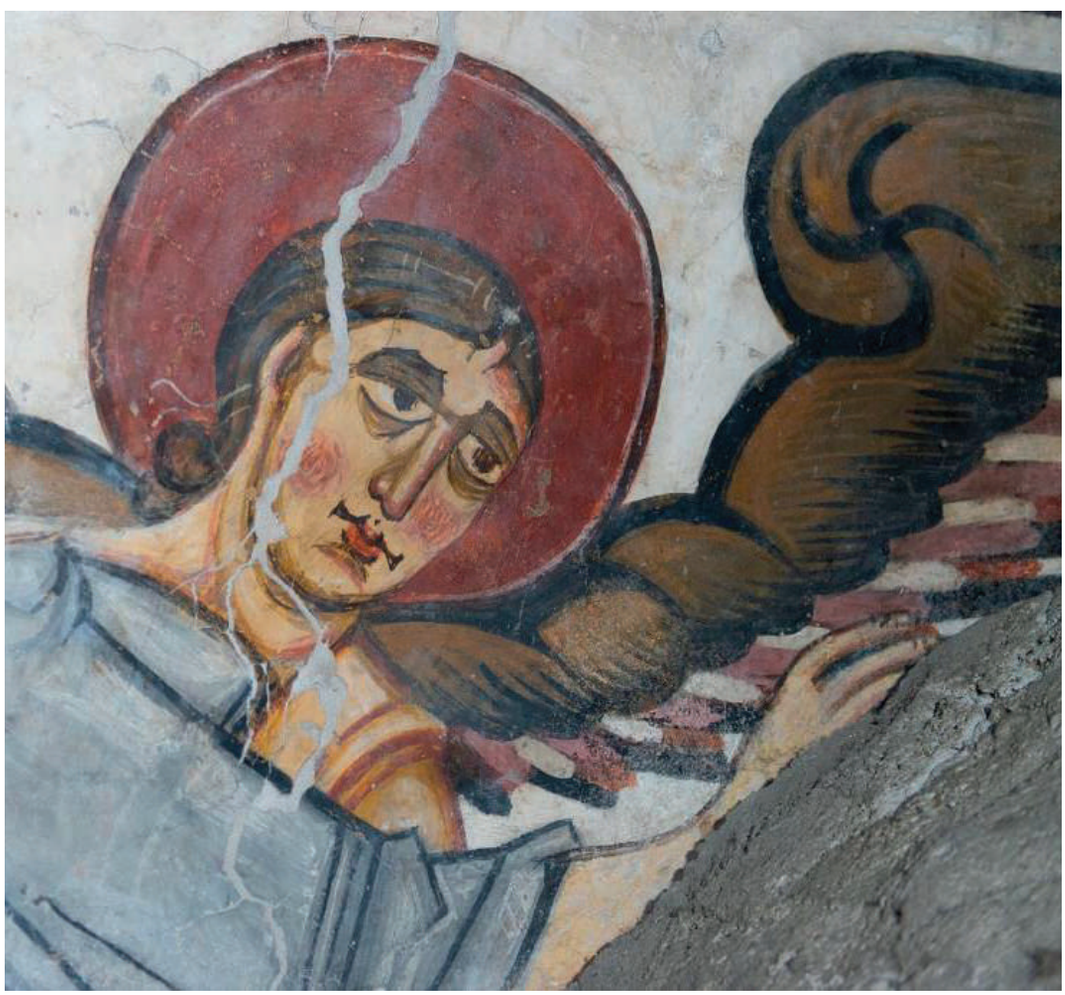
Painting techniques through the observation of surfaces. ***Colour application technique.***

The painting technique is characterised by a complex stratigraphy consisting of a base coat applied directly onto **fresh plaster** with subsequent overlaps (up to 4-5 layers) to create the tonal transitions, shadows, lights and finishes. By the time the final layers were applied, the plaster could be dry or in the process of drying, affecting the carbonatation of the surface layers.
For the light colours, the binder and adhesion were ensured by the presence of lime white (**lime paint**), while the adhesion of the dark finishes such as shadows, outlines, beards, eyebrows, was due to a process of "secondary" carbonation of the fresco - as no traces of organic binders were found in most cases. Instead of carbonatation being caused by the plaster, it was caused by the thick layer of lime base over which the fresco was applied. The less intact state of conservation of these successive layers supports the theory that they were applied to the plaster as it was drying.

Detail of the pictorical cycle

Painting techniques through
the observation of surfaces.

Colour application technique.



Painting techniques through the observation of surfaces.
Painting procedures.

THE BACKGROUNDS

After creating the preparatory drawing, the background sections were laid out. The areas occupied by the figures were left out, quickly and roughly outlining the silhouettes. Generally, the backgrounds of the figures were painted in white or dark green; to give the latter a more intense tone, it was laid on a dark grey base according to a stratagem already used in antiquity.

The grazing lighting emphasises the substantial white background that contours the finger painted directly onto he plaster surface

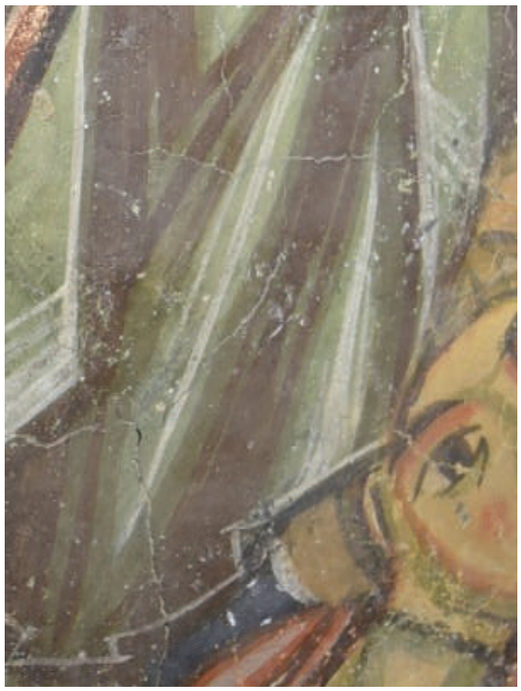
The dark green background contours the figure

THE CREATION OF COLOURS

The various shades of colour were created using two methods:

METHOD 1: mixing pigments by combining colours by transparency;

METHOD 2: painting over with subsequent glazes.

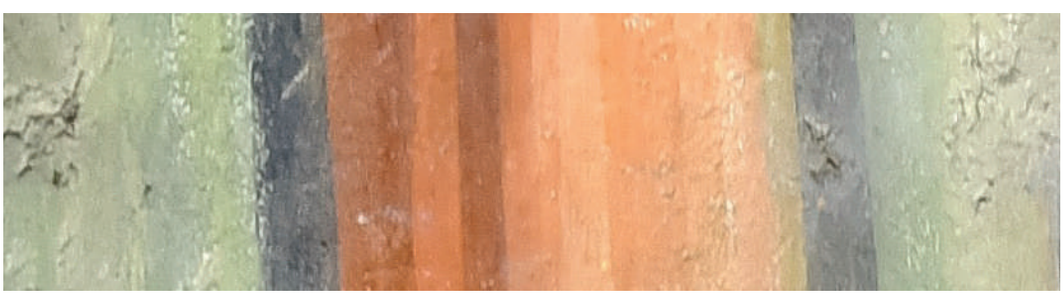


The pink and green fabrics were created using an initial base coat of light colour over which successive glazes were layered to obtain the medium tones, finishing off with highlights and shadows

Red glazes are used on the pink fabric to create tonal transitions. The light and shade of the fabric are defined with brushstrokes of more or less diluted white or dark tones obtained by mixing pigments with black

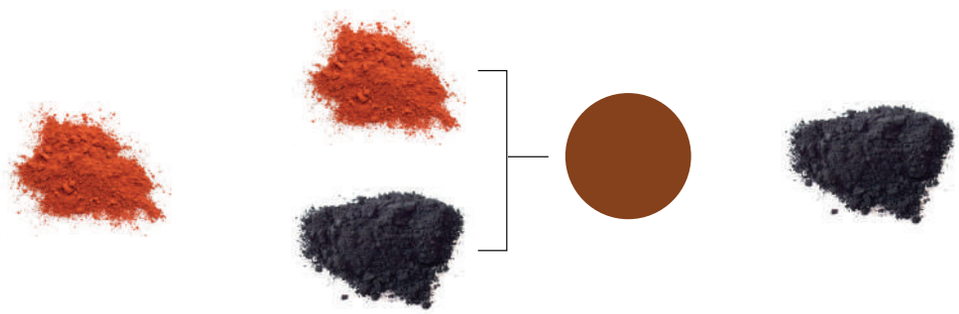
Aosta

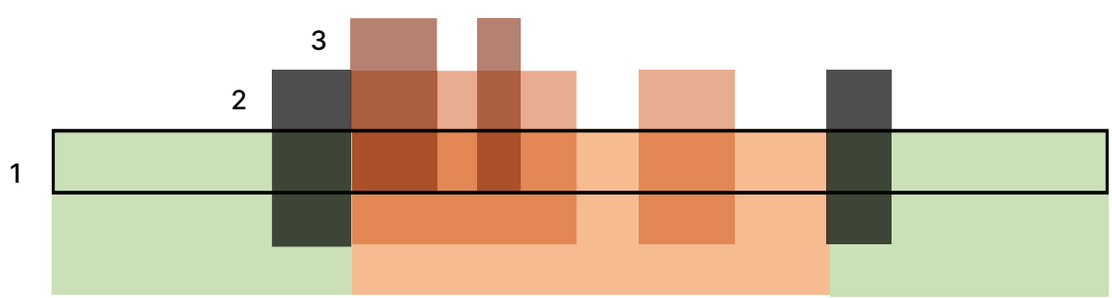
METHOD 1
Base colours obtained by blending pigment and lime white.



METHOD 2

Two/three more or less transparent glazes applied in succession.





SOME PIGMENT MIXTURES

The **brown** of the hair is more complex: it is a mixture of ochre, red and black. **Grey** was often used for architectural motifs but also for many garments and for the hair of older people, mixing it with **lime white** to obtain numerous grey shades of grey.

A cold **pink** that recurs only in a few spots can be attributed to a mixture of red ochre, white and a touch of black. **Green earth** was also used in a mixture in a highly variable manner, taking advantage of the influence of the colour of the background, which played a fundamental role depending on whether it was dark grey or white.

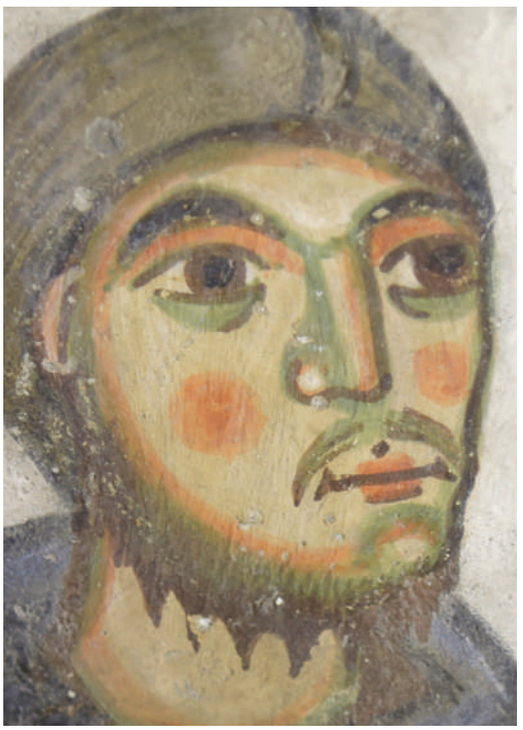
For brown hair, different shades of colour were obtained by varying the percentage of pigments

Different shades of grey on the hair and beard of an elderly character

Different green earth application methods. On the architecture, it is applied directly onto the light colour of the plaster, while for the background it is applied on a black base that intensifies the colour

THE FLESH TONES

The modelling of the flesh tones is rendered by glazes, with red accents and green shadows juxtaposed on the base layer of lime white and yellow ochre. Almost all the faces and hands show both painting methods: the mixture of colours forming a thick, full-bodied layer in the base of the flesh tones and the glazes of the subsequent modelling.



Observation under grazing light highlights the textural brushstrokes of the base layer of the flesh tones obtained by mixing yellow ochre with lime white

Painting techniques through the observation of surfaces.

Painting procedures.

1. *Base layer of the flesh tones consisting of a thick, full mixture of lime white and yellow ochre*

2. *Glazes of red ochre and green earth applied with brushstrokes of diluted colour*

PAINTING IN LAYERS

Where the surface layers of colour have fallen off, it is possible to observe the painting procedures implemented by the painter. In particular, we can see how, in the case of overlapping figures on different spatial planes, he proceeded by layering the paint.

The hands were painted above the neck of the vase

The lack of colour on the hand highlights the presence of the robe painted previously

In the area occupied by a group of saints, abrasions in the colour of the halo in the foreground reveal portions of the face of a saint in the background behind it

Bardonecchia

Romanesque chapel of Notre-Dame du Coignet.

The interior and exterior of the Romanesque chapel are decorated with XV and XVI century frescoes. Extended at the beginning of the XVI century, the chapel is situated on a hill overlooking the hamlets of Les Arnauds and Melezet di Bardonecchia. The interior has a single nave, with a larger area corresponding to the body of the chapel and a smaller area, separated by a wooden gate, which houses the altar.

The pictorial decoration adorning the walls of this religious area can be dated 1496, and is attributed to an anonymous painter (known as the Maestro del Coignet) who also worked in other chapels in the area, such as the church of Sant'Andrea in Ramats (Chiomonte).

A second phase dating back to the early decades of the XVI century is responsible for the completion of the decoration. To the same period belong the frescoes with St. Christopher and the Annunciation that decorate the exterior of the façade.

On the right: Notre-Dame du Coignet

Bardonecchia

By observing the walls
we can read history.

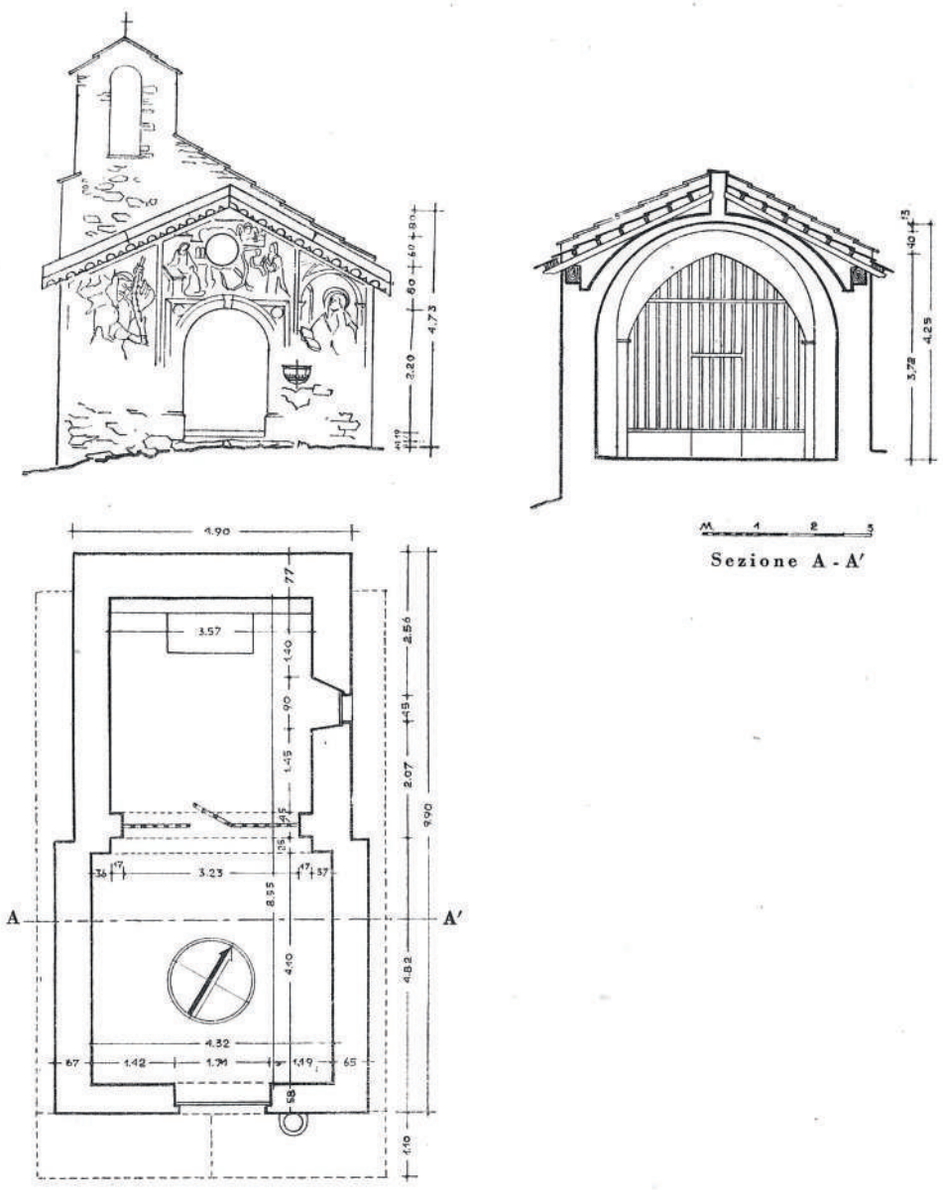
There are six chapels in the parish of Melezet: they include the chapel of Notre Dame du Coignet, once the subject of contention between the communities of Les Arnauds and Melezet - equidistant from the site of the building - both of which claimed jurisdiction over it for a long time. The dispute was resolved in 1771 thanks to the intervention of the bishop of Pinerolo, who assigned it to Melezet, while authorising its use by the community of Les Arnauds. Finally, in 1979, the bishop of Susa, Vittorio Bernardetto, decreed the union "aeque principaliter" (which assigns equal importance to avoid issues of predominance) to the parishes of Melezet and Les Arnauds, giving them to the parish priest of Melezet.

N.B.: Model of the Alpine chapels in the high Susa Valley. As this planimetric scheme is extremely repetitive - and very similar to that of the Chapel of Notre-Dame du Coignet - that of the neighbouring **Chapel of Chaffaux** will be used, in order to indicate the location of the sampling of wall structures carried out at Notre-Dame du Coignet.

The chapel has a single nave and the presbytery is separated from the hall by a wooden gate next to the triumphal arch; the two rectangular rooms most probably belong to two construction phases (cf. also Chaffaux).
The extension of the chapel could be dated to the end of the XV century, when the eastern part was frescoed.

By observing the walls

we can read history.



These paintings predate those visible on the façade.
The chapel under analysis falls within the cultural context of the territories of the present-day municipalities of Bardonecchia and Nevache, both of which belonged to the Dauphiné until 1713.
The frescoes in the chapel of Notre-Dame du Coignet, restored in 1995, are the result of three different pictorial moments between the latter years of the XV century and the early decades of the XVI century.
The oldest decorations are at the altar and depict the Visitation, the Pieta and Saint gratus on the back wall, the Martyrdom of St. Agatha on the north wall and the Martyrdom of St. Lucy on the south wall; they were created in 1496, as can be seen from an inscription inside the Visitation panel.
Traces of alteration of the building can be seen next to the triumphal arch, which acts as a connecting point between the two rooms; the discontinuity in the construction of the arch leads us to believe that the hall was a later addition to an older construction.

Recent restoration work has also uncovered the remains of an ancient bell tower, situated by the arch, in the area to the right of the chapel, identifiable on the outside thanks to a red ashlar decoration, entirely similar to that recovered in the initial part of the presbytery, which is recorded in the Final Report of the restoration by the firm G. Finandri & C. (July/

By observing the walls

we can read history.

Detail of facade paintings

September 1995), and deposited with the Superintendency of Artistic and Historical Heritage of Piedmont.

Traces suggesting the later addition of the hall

By observing the walls

we can read history.

Remains of an ancient belltower

Bardonecchia

SAMPLE 1
Location: chapel, north external wall.
Materials and components: a coating of coarse mortar *(Munsell Pink 7.5 YR 8/4)* that covers the wall very evenly, making it impossible to read the wall structure. The cornerstones, made of evenly sized (32×17 cm) blocks of tufa with squared edges, visible on all sides of the building, are interesting. A window made of the same lithotypes as the corners is visible.
Dated: XV century (apart from the mortar which should be part of the recent restoration work).

SAMPLE 1A
Location: chapel, est wall exterior.
Materials and components: window made of blocks of tufa: on the inside it is very small, a sort of slit, and is frescoed, while on the outside, a perimeter band with accentuated splaying partially covered with white lime is visible *(Munsell White 7.5 YR 8/1)*.
Dated: XV century.

Samp. 1

By observing the walls

we can read history.

Samp. 1a

Details of stone and mortar masonry

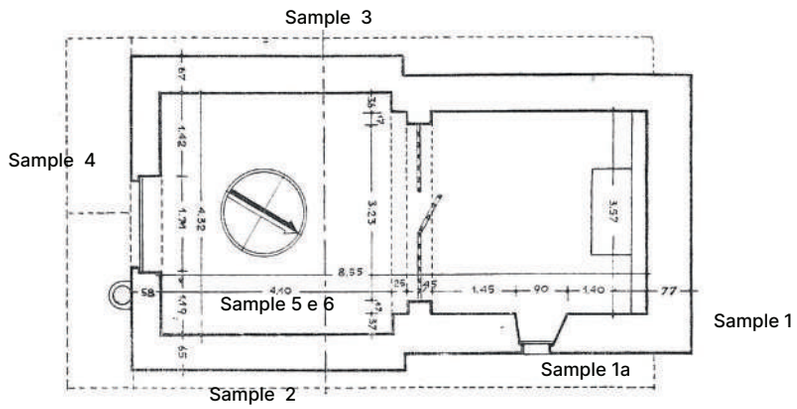
SAMPLE 2

Location: cappella, east wall exterior.
Materials and components: even coating of rough mortar *(Munsell Pinkish Gray 7.5 YR 7/2);* there are glimpses of squared litothotypes.
Dated: XV century (apart from the mortar which should be part of the recent restoration work).

Samp. 2

By observing the walls

we can read history.



SAMPLE 3

Location: cappella, ovest wall exterior.
Materials and components: coarse mortar with aggregates (river gravel) visible to the naked eye *(Munsell Pinkish Gray 7.5 YR 7/2; Pink 7.5 YR 8/4)*. The coating partially covers the wall, making it possible to read the wall structure, which consists of large and small (47×21; 36×9; 12×6) hammered or slightly rounded river stones and pebbles arranged without following regular rows.
Dated: XV century.

Samp. 3

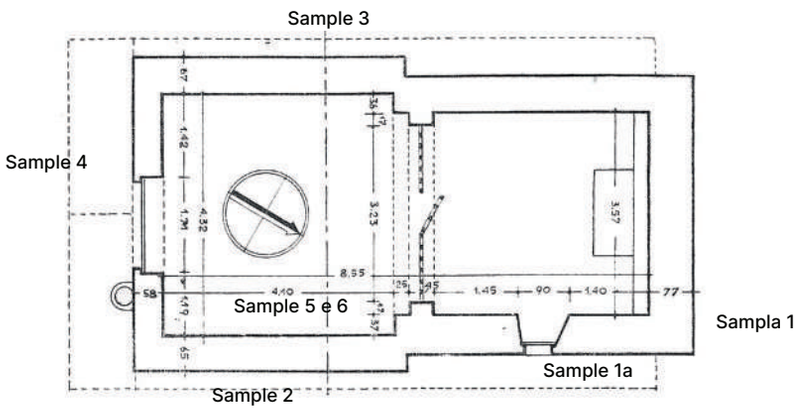
SAMPLE 4
Location: cappella, façade, left side.
Materials and components: plaster *(Munsell Pink 7.5 YR 8/4)* partially covered by C1; it could be the preparation of the fresco depicting St. Christopher.
Dated: XV century.

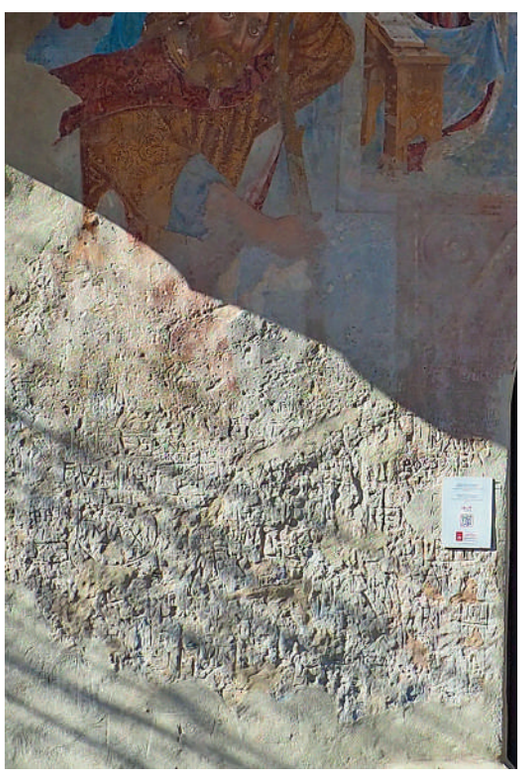
SAMPLE 5
Location: est wall interior.
Materials and components: door to the chapel made with evenly sized (40×21; 68×20) squared stone ashlars arranged one on top of the other and linked by a 0.55 mm thick layer of mortar.
The height of the door towards the interior suggests a different height of the floor or a raised threshold compared to that currently visible.
Dated: XV century.

SAMPLE 6
Location: cappella, est wall interior.
Materials and components: infill that has blocked the southern access to the chapel. It consists of large (26×7cm) rounded stones arranged one on top of the other, a bed of coarse mortar *(Munsell Pinkish Gray 7.5 YR 7/2)* and levelling in mortar.
Dated: definitely after the XV century.

By observing the walls

we can read history.





Samp. 4

Samp. 5 e 6

Painting techniques through the observation of surfaces.
The wall paintings.

MAESTER OF COIGNET, 1496

The large central scene depicts the Pieta, flanked on the left by the Visitation and on the right by Saint Gratus Enthroned

Painting techniques through the observation of surfaces.

The wall paintings.

Left side wall Martyrdom of Saint Agatha

Right side wall Saint Lucy

ANONYMOUS PAINTER, XVI CENTURY
The scenes on the two side walls are attributed to a pupil of the master painter.

Left wall:
Death of the Virgin

Right wall:
Assumption of the Virgin, detail

Painting techniques through the observation of surfaces.
Wall surface.

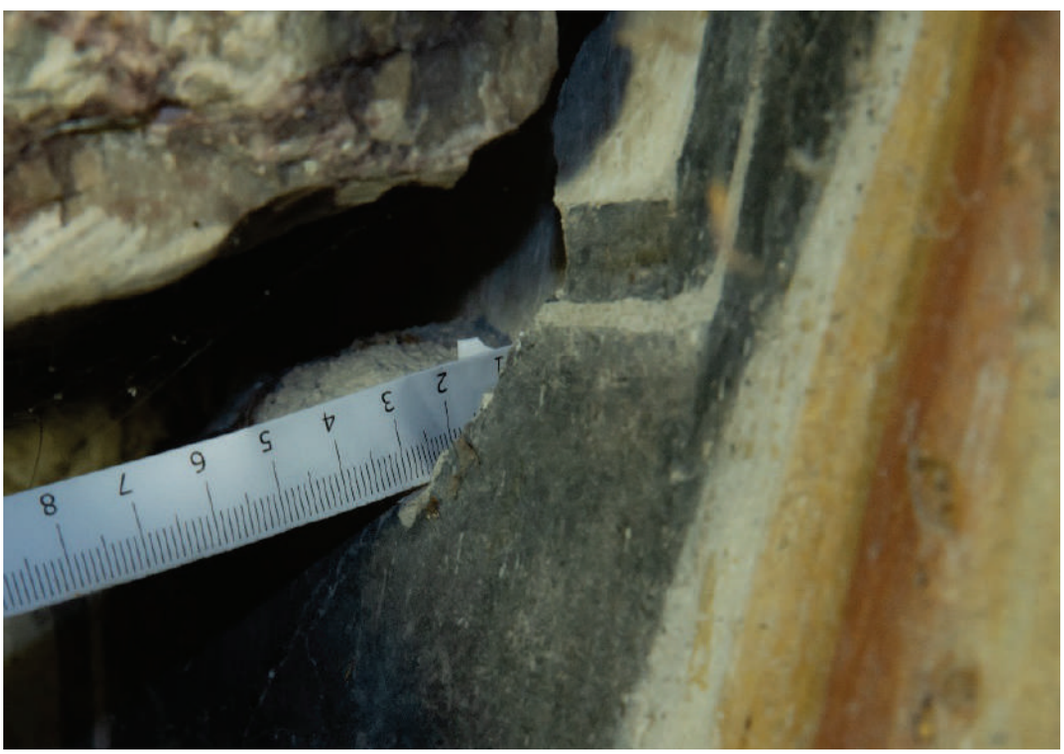
East exterior wall.
Detail of wall surface

Wall surface.

Inside the chapel, the stone and mortar wall surface is visible along the lower border of the walls.

Painting techniques through the observation of surfaces. ***The preparatory layers.***

The preparatory layers are composed of lime-based mortar and aggregates of varying grain size, but the number of layers cannot be measured. Varying thicknesses laid to level the irregularities of the stone wall surface can be observed through some gaps.



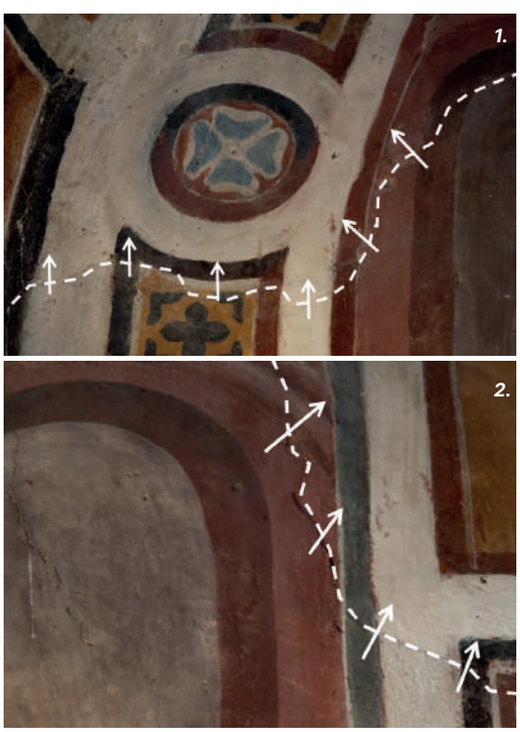
Maestrer of Coignet. On the right side of the altar mensa - Inside gap, the preparatory layers are about three centimetres thick

The preparatory layers.

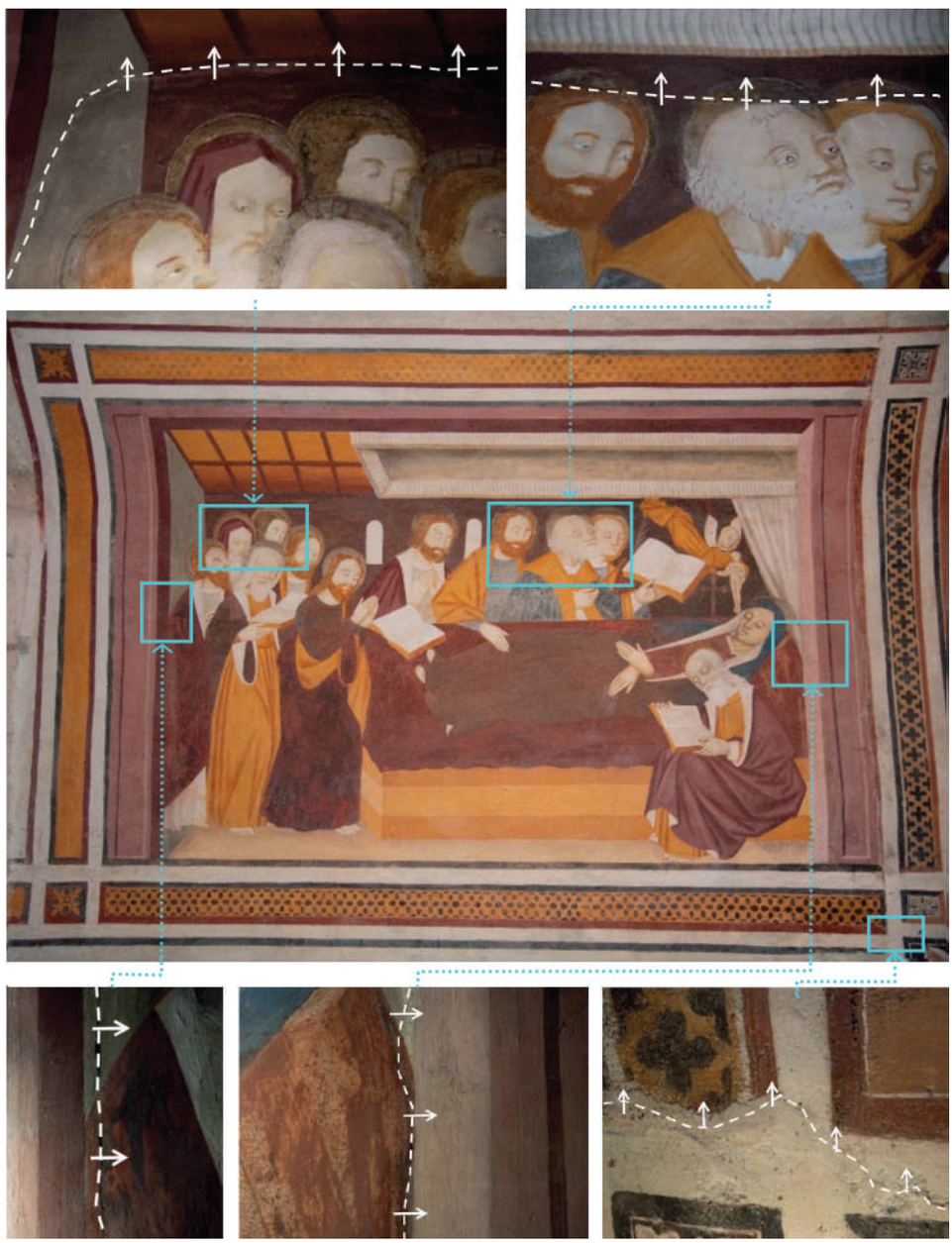
Anonymous painter. The plaster painting overlaps the surface of the adjacent paintings by the Maester of Coignet - At this point the thickness of the plasterwork is a few millimetres

Painting techniques through the observation of surfaces. ***The "giornata".***

The artist divided the laying of the plaster into successive stages according to the areas that could be painted in a day (a giornata).
In the paintings by the Maester of Coignet, the giornatas are less evident than in the paintings by the anonymous artist and the seams between the giornatas have been joined more expertly. Again, observing the seams reconstructs the chronology of the painting of the giornatas, indicating the habit of starting the work from the top.



The "giornata".



Anonymous painter. Observing the seams where the giornatas overlap, it is possible to establish the order in which the plaster was applied and painted. The artist began his work from the top, moving from left to right

Painting techniques through the observation of surfaces. ***Surface finishing.***

The surface of the plaster appears smooth, pressed by the trowel, which has left marks on the surface that are clearly visible under grazing lighting.

Anonymous painter. In addition to the surface finishing marks, the grazing light highlights the unevenness of the wall below

The preparatory layers.

Master of Coignet,
Martyrdom of Saint Agatha

Painting techniques through the observation of surfaces.
The preparatory drawing.

TAPPING THE STRING

The **anonymous painter** used the **string tapping** technique to make the frames and, if you look at them under grazing light, you can see the marks made by the string on the surface of the plaster, which was soft when the lines were traced.

In the picture below, at the end of the lines, the pressure exerted to hold the string during the tapping operation has left a deeper and more pronounced mark.

The string and the mark it can leave imprinted on the surface

Anonymous painter. On the left is the frame of the Assumption and on the right the frame of the Virgin's death. The string left its mark imprinted in the fresh plaster.

CARTOON

The drawing was made on a sheet of paper and then transferred onto the fresh plaster by tracing the outline with a point. The type of mark is a slight groove, the edges of which are rounded by the paper placed between the point and the plaster.

Anonymous painter. Some robes and haloes show the slight grooves of the preparatory drawing through the paper.

DIRECT ETCHIN

Direct etching is carried out with a metal point, etching the contours of the drawing into the plaster while it is still wet. It is used especially for architecture but can also be found in circular lines created using a compass, usually for haloes, or to create decorations. Direct etching leaves a hard mark in the plaster with jagged edges.

Maester of Coignet. The artist outlines the frames, the architectural elements on the background sand the floor tiles using the direct etching technique. The circumference of the decoration is etched directly with the tip of a compass.

DIRECT DRAWING

Drawing carried out directly on the plaster immediately before painting.

Maester of Coignet. The painter made the preparatory drawing with a brush using a brown colour. If we look closely at the contours of the figures, we can see the brushstrokes of the preparatory drawing through the surface layers.

The preparatory drawing.

DIRECT DRAWING

Anonymous painter. In the areas where there were dry-painted sections or finishes, which have now been lost, it is possible to observe the ochre brushstrokes of the preparatory drawing.

The preparatory drawing.

Painting techniques through the observation of surfaces.
Colour application technique.

FRESCO

The paint is applied to fresh plaster and, thanks to the carbonatation process of the lime, the particles of pigment spread on the plaster are incorporated and firmly bonded to it. Layering usually consists of a base colour and, depending on the level of development of the paint, successive layers are applied to render the different tonal variations and chiaroscuro effects. Maestro del Coignet. The artist paints in successive layers, applying a first layer of base colour, followed by a medium shade which is completed with highlights, shadows and then the finishing touches. The presence of soft and gradual tonal transiTions and chiaroscuro effects indicates meticulous skill in the rendering of the volumes of the fabrics.

Anonymous painter. The fabrics are painted using a base colour onto which quick brushstrokes of the same colour, but in a darker shade, outline the folds. There are no tonal transitions or modulations of chiaroscuro and the technique seems less accurate and more approximate than that of the Maestro del Coignet..

LIME PAINTING

When overlaying colours onto the base colours applied to dry or drying plaster, they can be mixed with milk of lime to allow a second carbonatation.

Maester of Coignet. Lime white is used pure or mixed with other colours to lighten the tone. Areas painted with lime white appear opaque and full-bodied and grazing light allows the textural brushstrokes to stand out. Occasionally, some

white details can be painted with pure lime on a coloured background.

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DRY PAINTING

In dry painting, the colour is applied to dry plaster, mixing the pigments with an organic binder. These pigments are usually incompatible with the fresco technique as they interact chemically with the lime, deteriorating and altering in terms of colour. They are mainly blue, green and red pigments.

Detail of the Visitation

Bardonecchia

Detail of the Piety

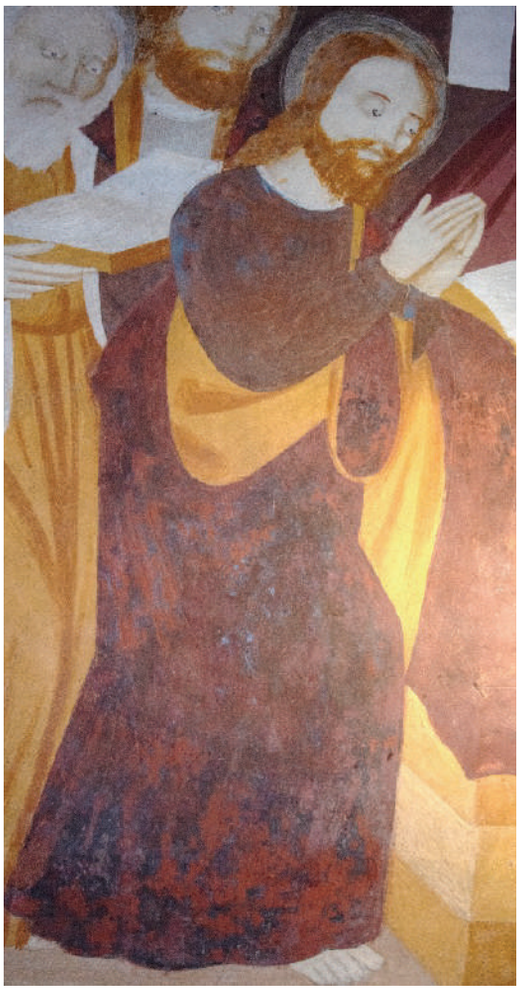
Maester of Coignet. The background of the Visitation and the robe of the Virgin in the Piety are two examples of dry painting. The reduced durability of the organic binder often results in problems with conservation, leading to a gradual loss of the layer of paint, leaving the frescoed colour base visible. The black frescoed base can be seen through the gaps in the blue of the Virgin's robe.

Detail of the Virgin's robe

DRY PAINTING

In dry painting, the colour is applied to dry plaster, mixing the pigments with an organic binder. In order to add intensity and depth to the colour, dry layers were often applied over a frescoed base colour.

Anonymous painter. The basic background for the upper part of the robe was frescoed with a reddish-brown tone overlaid with blue paint applied dry, while the lower part had to be red and was created with two successive layers of red, one frescoed and one dry-painted with a pigment that altered chromatically over time, becoming darker.



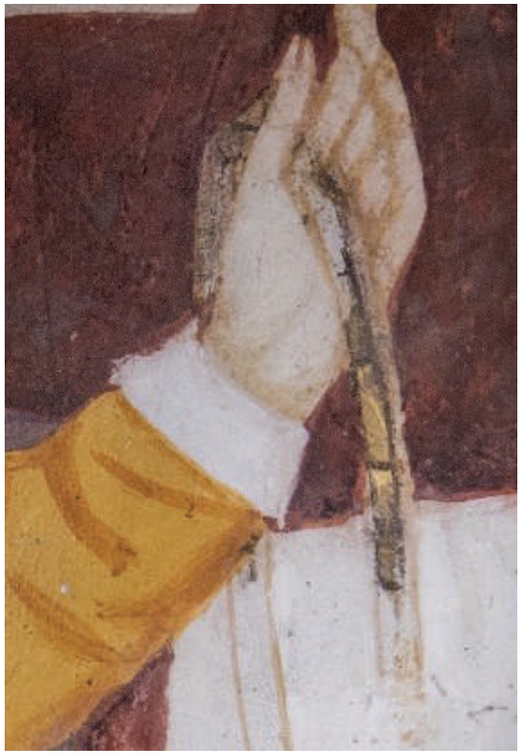
Colour application technique.

DECORATIONS WITH METAL FOIL

Paintings could be embellished with metal foils made of gold, silver, copper and tin, which were applied in leaf form on the dry plaster using an adhesive mixture.
The tin foil could be painted to imitate gold (mecca), or used as a support for gold leaf. Gold could also be ground into a powder and mixed with an organic binder that allowed its application with a brush to create highlights or decorations. Due to the intrinsic characteristics of the technique and adhesives, these applications are often missing or severely degraded.

Colour application technique.

Anonymous painter. The halos and numerous details of the robes show signs of the presence of metal foil. This was most likely gold leaf applied using an adhesive mixture. Traces can be seen on the collar and cuffs of the Virgin's robe, and most probably the crucifix, and some of the feathers on the angel's wings also had metal leaf applications that have now been lost.



Painting techniques through the observation of surfaces.
Painting procedures.

THE BACKGROUNDS

After creating the preparatory drawing, the background sections were laid out. The areas occupied by the figures were left out, quickly and roughly outlining the silhouettes. Generally, the backgrounds of the figures were painted in white or dark green; to give the latter a more intense tone, it was laid on a dark grey base according to a stratagem already used in antiquity.

Anonymous painter. Observing the outline of the angel's wing in the Assumption, it is possible to reconstruct the chronological order in which the sections were applied: the yellow of the wing slightly overlaps with the lime white of the background, roughly outlining the figures.

Painting techniques through
the observation of surfaces.

Painting procedures.

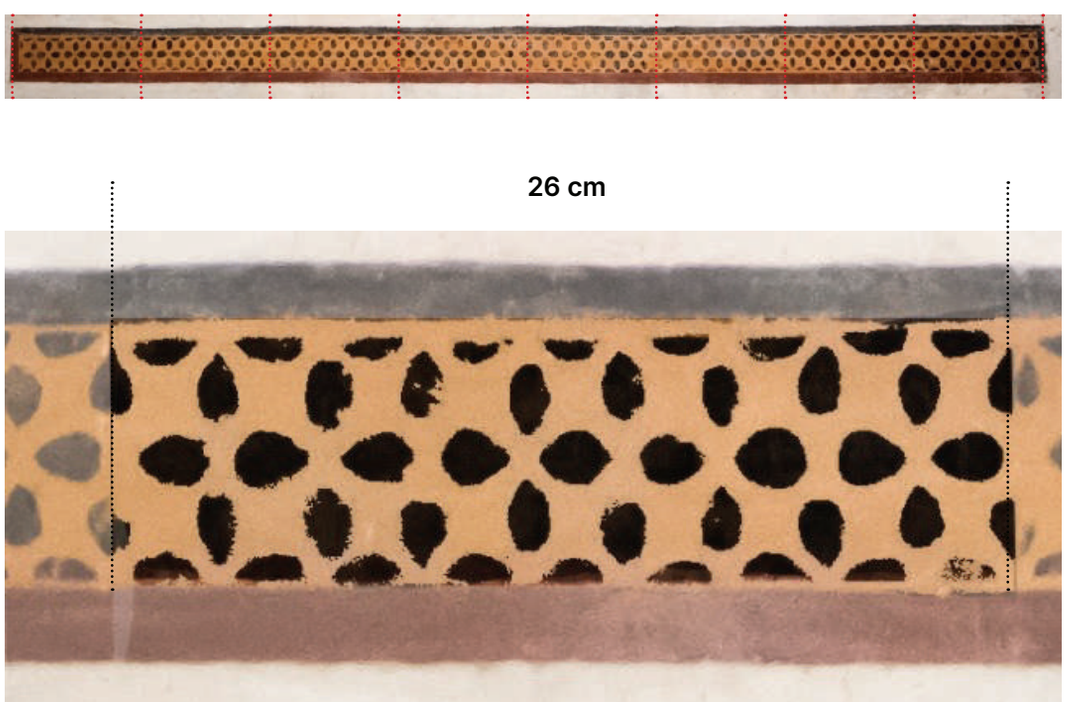
DECORATIVE MOTIFS APPLIED USING TEMPLATES

The motifs are created by applying colour using templates.

Maester of Coignet. Frame decoration using templates.

Master of Coignet: mask decoration of frames

Anonymous painter. If you look closely, you can spot the module of the template. Where the various modules are joined together, there are small imperfections in the alignment of the template.



THE LIME DECORATIONS OF THE PILASTERS AND UNDER ARCH

On the pilaster strips and the under arch separating the altar area from the hall, it is possible to see decorations of white faux ashlars with red pointing.

This decoration was carried out by painting a base section with lime white and then outlining the faux pointing with red lines.

A stratigraphic test carried out during restoration work on a corner between the pilaster and the wall painting indicates that the white faux ashlar decoration continues underneath the plaster of the wall painting of the death of the Virgin Mary. This indicates that the pilasters had already been decorated when the anonymous painter painted the walls.

Saluzzo

Cathedral of Santa Maria Assunta.

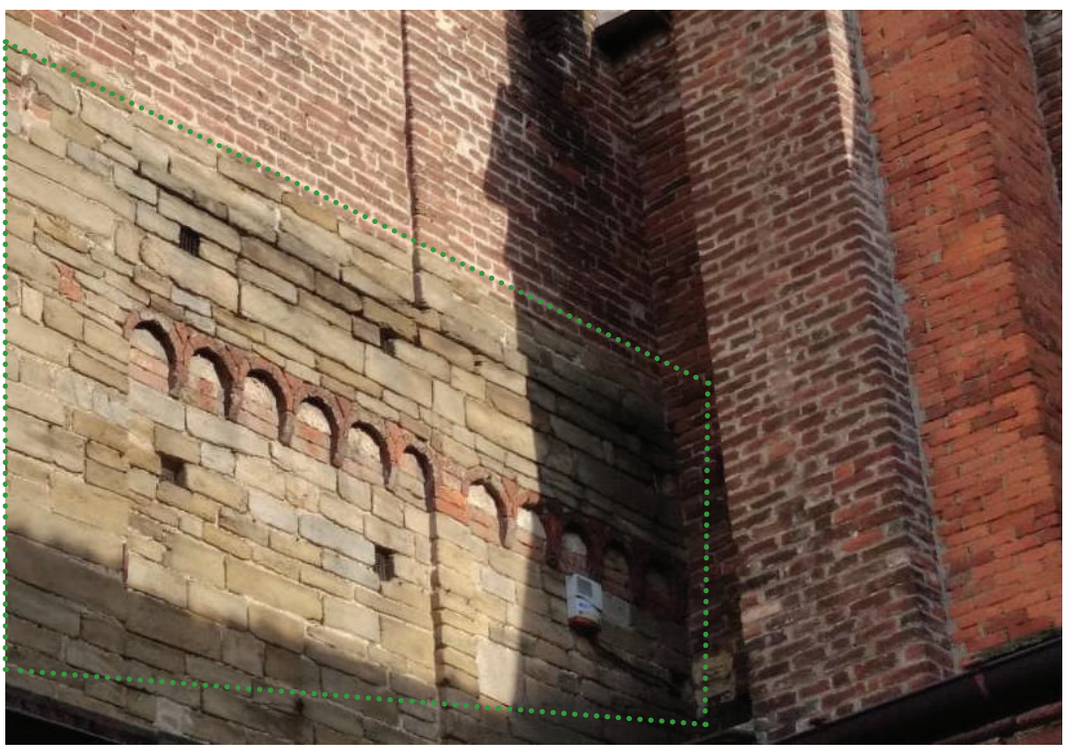
Rebuilt from 1491, the new collegiate church and later cathedral of Saluzzo is characterised by its powerful structure marked by the four slightly projecting pillars of the façade and the buttresses of the outer perimeter.
The façade is clad with an exposed brick face with the central section highlighted by white plaster.

On the right: the Cathedral

On the left: bell tower

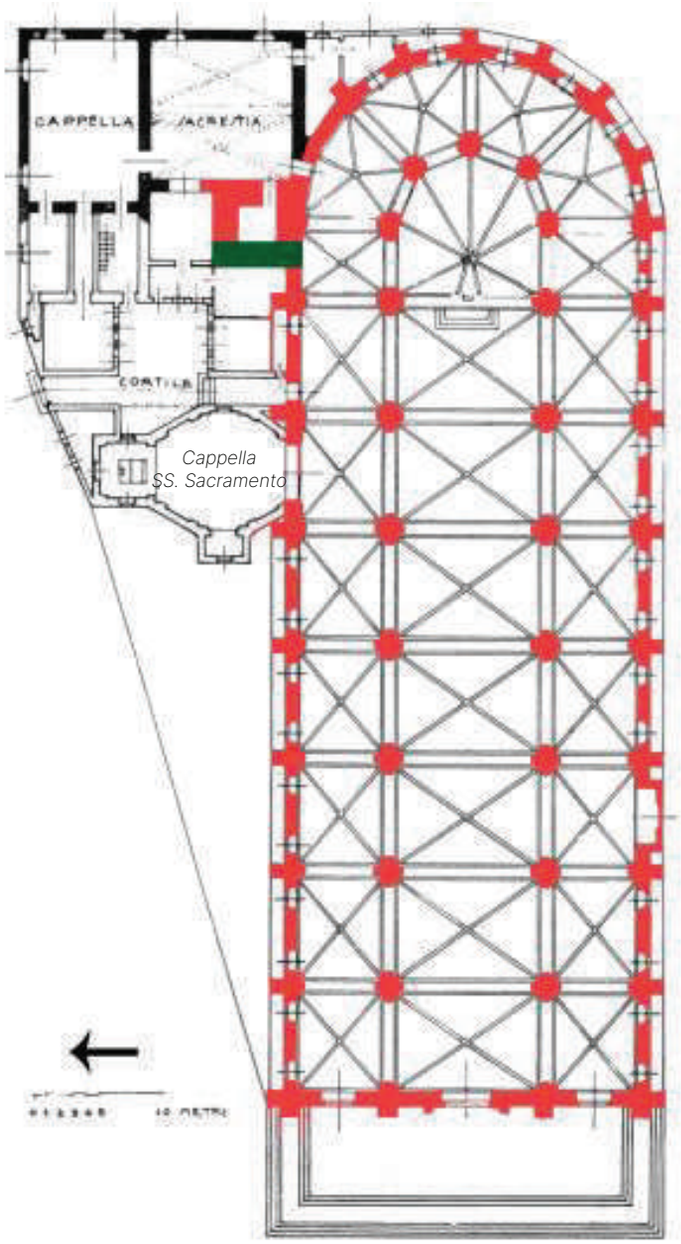
The Cathedral and its history.
The origins.

The first document mentioning the presence of a church in (Saint Mary) dates back to 1017.
There was a porticus, where public deeds were drawn up and from which liturgical services were attended, the claustrum, the cimiterium, and the bell tower, which is still visible at the base of the existing one (in green in the plan and photo).



Traces of the antique bell tower

The origins.



The even wall structure is characterised by brick courses, mortar beds and regular putlog holes. Observing the exterior of the naves, some alterations can be seen above the lintels that seem to have obliterated previous wimpergs that can probably be attributed to the late Gothic phase of the complex.

Possible previous wimpergs

Possible previous wimpergs

The decorative elements of the façade.

There are three portals leading to the interior of the building: the central one is surmounted by a tall wimperg, characteristic of Gothic architecture, which is a very tall and pointed pediment, with a terracotta frame, and flanked by two pilasters culminating in statues of St. Peter and St. Paul created between 1509 and 1510 by the workshop of sculptor Benedetto Briosco.

Statues of St. Peter and St. Paul

Terracotta decorations of the wimperg

Saluzzo

In the lunette above the central entrance are depicted the Apostles assisting at the Assumption of the Virgin, the work of the traveling artist **Hans Clemer,** who lived between about 1480 and 1512. Originally from the Diocese of Cambrai, on the border between France and Flanders, Clemer settled in the city, where he became the court painter of the Marquis Ludovico II of Saluzzo.

Lunette above the central entrance

Details of the lunette

Saluzzo

The lateral portals, of smaller dimensions, in turn bear in the lunette the figures of saints Costanzo and Chiaffredo, protectors of the city, with the Saluzzo-Foix coat of arms, created between 1501 and 1505 by the same painter.

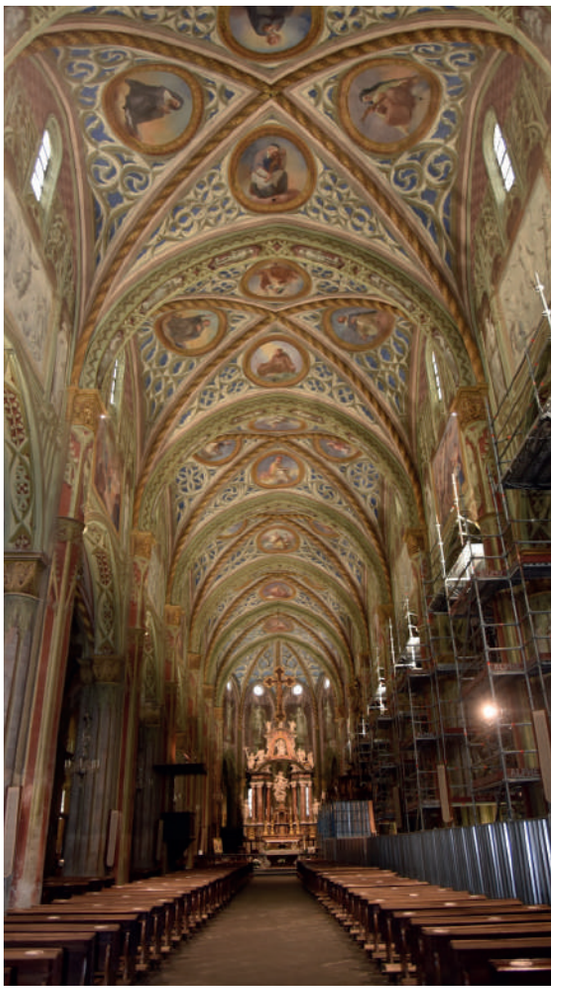
Detail of Saint Constantius with the Saluzzo-Foix coat of arms

The artist enjoyed great fortune in the early decades of the XVI century, as proven by the numerous commissions for ecclesiastics, monastic congregations and private individuals with prestigious roles at the Marquis's court.

Detail of St. Chiaffredo with the Saluzzo-Foix coat of arms

The Cathedral and its history. ***The interior.***

The interior space reaches a length of 80 metres and a width of 23.50 metres.
The impressive inner hall is divided into three wide naves, covered by ribbed cross vaults and separated by pointed arches on polystyle pillars with cubic capitals.
The Chapel of the Holy Sacrament in the left nave is part of the 18th century phase and now houses Hans Clemer's polyptych.



Central nave

Chapel of the Holy Sacrament

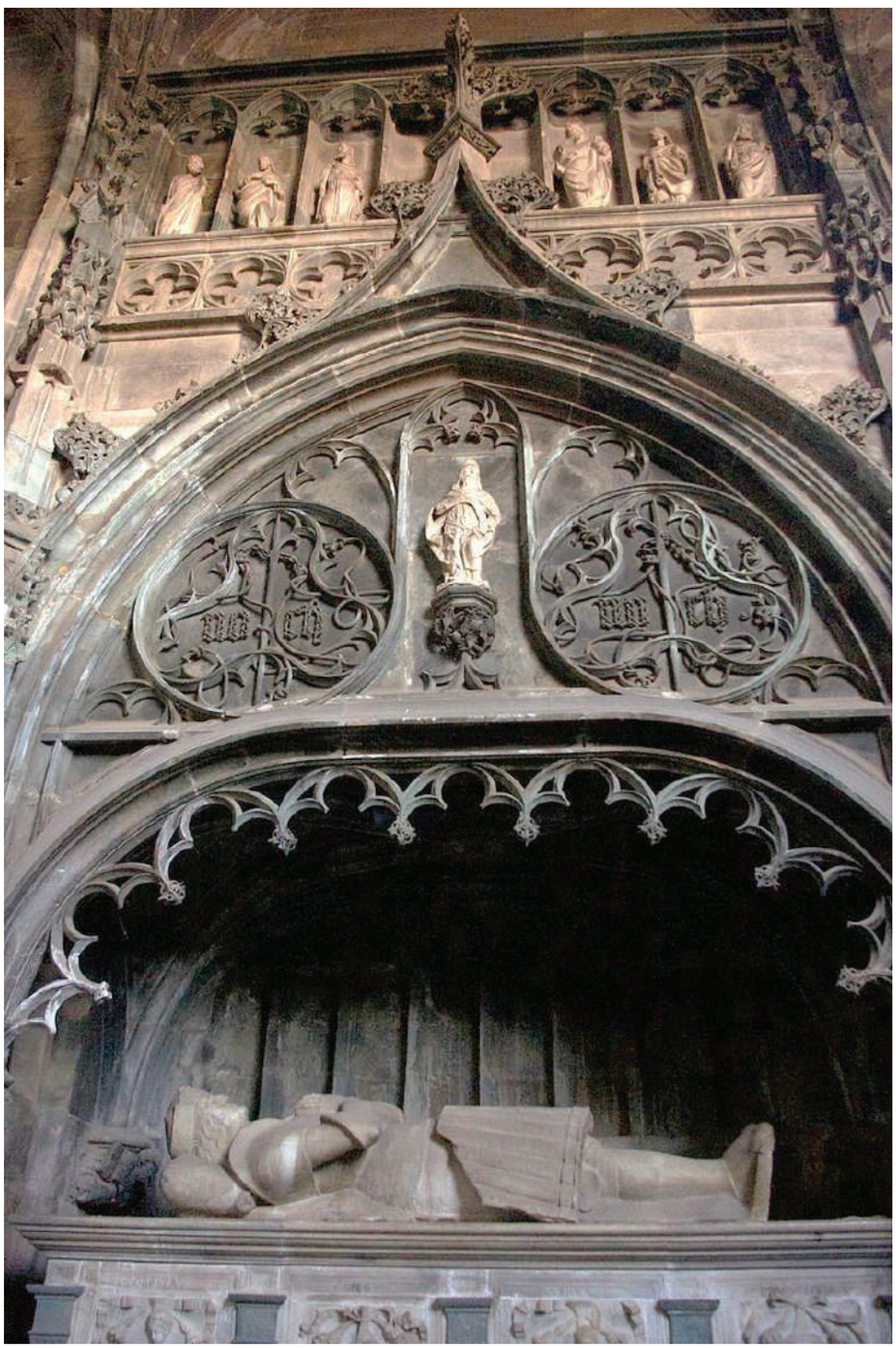
The craftsmen. ***Sculpture.***

Between the XVI and XVIII centuries, a lively presence of artists (painters, sculptors, carvers, stonemasons, decorators, plasterers, mortar preparers, etc.) and skilled craftsmen in the building trade in Saluzzo is documented, highlighting the technical-cultural osmosis.
Many of them came from the area between Lakes Maggiore, Como and Lugano (the so-called Artists of the Lakes, according to a terminology recognised in international studies of architecture and art).

In the marquisate of Saluzzo, these Lombard-Ticinese craftsmen also found success in a no less important sector: the exploitation of stone materials (i.e. the management of quarries).

In the first half of the XVI century, two illustrious sculptors were involved - as is well documented - both in the quarrying of stone materials and in the realisation of prestigious sculptural works in Saluzzo: they were **Benedetto Briosco** (1508, Funeral Monument of Ludovico II, St. John's Church in Saluzzo) and, later, **Matteo Sanmicheli** (1518 - 1523, Funeral Monument of Galeazzo Cavassa in Paesana white marble).

Matteo Sanmicheli, portrait of Francesco Cavassa, Saluzzo



Benedetto Briasco, funeral monument of Ludovico II, Saluzzo, St. John's church

Saluzzo

Hans Clemer: the polyptych of the Marquises of Saluzzo.

The large painting consisting of several panels arranged in two tiers, one above the other, (polyptych) was created in around 1500-1501 by the painter Hans Clemer, commissioned by the Marquises of Saluzzo, Ludovico II and Margherita di Foix.

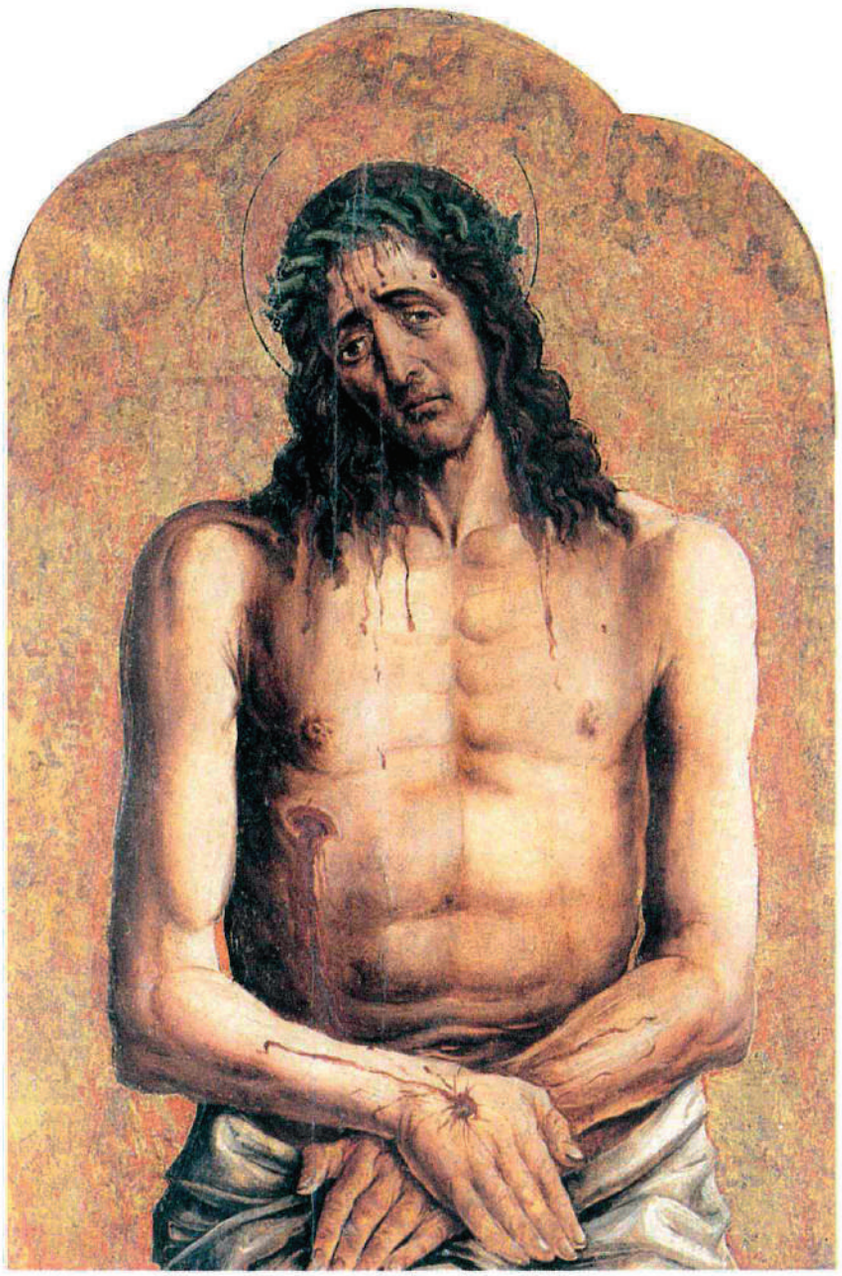
It originally formed the altarpiece of the high altar, of which seven panels remain today: in the central part of the main tier, sources attest to the presence of a panel, lost during the 19th century, depicting the Assumption of the Virgin Mary, to whom the marquises were presented by Saints Constantius and Chiaffredo respectively.

In 1809, two panels in the upper tier were destroyed when the polyptych fell during painting work in the church.

In 1847, the original wooden frame, which was presumably gilded, was also replaced by the one that we see today.

St. Sebastian

Hans Clemer: the polyptych of the Marquises of Saluzzo.



Christ of Piety

Photo courtesy of Galante Garrone, Ragusa 2002, p. 130

Painting techniques through
the observation of surfaces.
The polyptych of Hans Clemer (1500-1501).

UPPER TIER →

LOWER TIER →

Detail of
St. Chiaffredo

Right, photo courtesy of
Galante Garrone, Ragusa
2002, p. 115

The polyptych of Hans Clemer (1500-1501).

St. Bonaventure in cardinal's dress

Christ of Piety

St Dominic

St. Sebastian

St. Constantius presents Ludovico II Marquis of Saluzzo

St. Chiaffredo presents Margherita di Foix

St. George

Painting techniques through the observation of surfaces. ***Wooden support.***

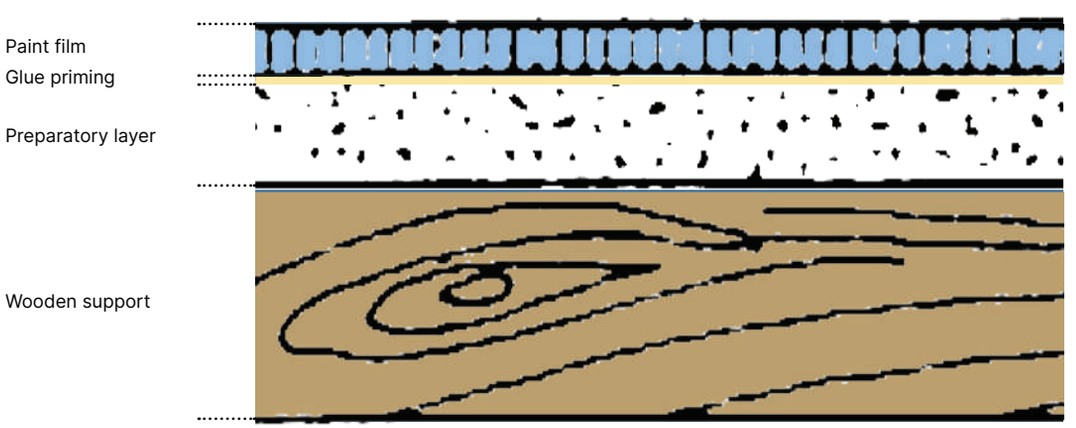
The wooden support consists of seven boards made of walnut wood, one for each painting. The polyptych, originally made up of ten sections divided into two tiers, is the largest known work painted on wood by Clemer and measured approximately 300 × 450 cm.
The polyptych suffered serious damage in 1809 following the collapse of the counter-façade, which is why there are poplar inserts in the structure, added to it to repair the severe damage to the wood, particularly to St. Bonaventure.

Wooden support.

G.Rolando Perino's carpentry survey, courtesy of Galante Garrone, Ragusa, 2002, fig. 17, p. 196

Painting techniques through the observation of surfaces. ***The preparatory layers.***

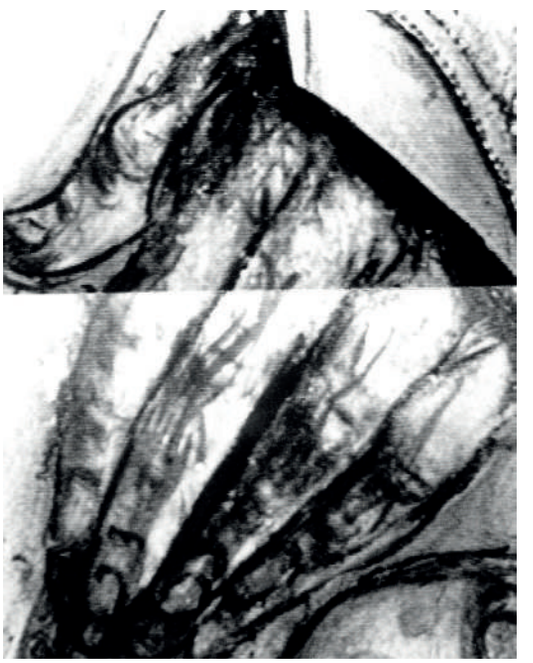
The preparation applied to the wooden boards is traditionally made up of chalk and animal glue, white in colour and about a hundred micrometres thick.
This layer was spread on the wooden board and carefully smoothed to level the surface and protect the paint film from the movements of the support. This smooth, white layer was the ideal base for painting. In some cases, in order to reduce the porosity of the surface, animal glue was spread between the preparation and the paint (priming) before painting. This reduced the absorption of the colour by the preparatory layers, meaning that it remained on the surface for longer and could be worked with for longer.



Painting techniques through the observation of surfaces.
The preparatory drawing.

THE UNDERLYING DRAWING

Drawn with fluid, confident black strokes, it denotes great skill, especially in the rendering of the physiognomies, anatomical modelling and the minute details of the draping of the clothing. The preparatory drawing can be seen in some places through the painted backgrounds, as in the case of St. Sebastian's face where, if we look closely, we can glimpse the dark strokes outlining the oval of the face and the folds of the skin between the eyebrows and the right contour of the lower lip.



Details of the head and hand of St Chiaffredo

IR reflectography investigations, which allow us to see through the layers of paint, have made it possible to clearly read the preparatory drawing which is of outstanding quality

Photo taken from Galante Garrone, Ragusa 2002, fig. 69, p. 236.

ETCHINGS

The etched outline marks of the images portrayed, used at the time of execution to determine the boundary of the parts to be gilded with respect to those to be painted, can be seen.

The backgrounds were gilded before the colour was applied, which is why, as can be seen on the hand of Saint Chiaffredo, the contours of the parts to be painted were etched beforehand, so that they would be visible after the application of the gold leaf. The contours of the halos were also etched for the same reason.

Engraving made to define the contour of the halo

Detail of St.Sebastian

Painting techniques through the observation of surfaces.
Gilding.

APPLICATION OF GOLD FOIL

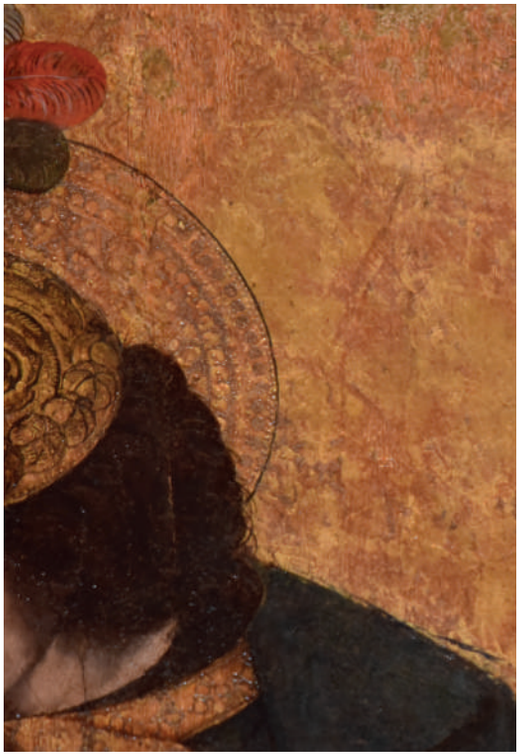
After completing the preparatory layers, the drawing and the etchings, the execution of the painting continued with the creation of the gold backgrounds.

A further preparatory layer of red clay called bole, diluted in egg white and water, was applied to the areas that were to be gilded. Very thin sheets of gold, previously cut into quadrangular shapes of the size the painter found easiest to handle, were then stuck to the bole.

In the most degraded places where the gold leaf has rubbed off, the red of the underlying layer of bole emerges. The bole had the dual function of being a base colour to convey greater intensity to the gold leaf while also forming a layer with special characteristics that allowed surface work that further enriched the painting to be carried out.

In some cases, in the areas where the gold leaf has rubbed off, it is possible to see lines where the gold appears more pronounced.

These lines correspond to the points where one gold leaf overlaps the next.



St. George. Detail of the gold background

Gilding.

St. Constantius and the particular of the gold background

The red of the underlying layer of bole emerges where the gold leaf has rubbed off

APPLICATION OF THE GOLD LEAF WITH PUNCHES

Once the gold foil was applied, gentle pressure was applied to the gilded surface with specific tools to polish and obtain a particularly bright and shiny surface.

Chisels or punches, i.e. tools with a metal tip that was pressed onto the gilded surface were used to create the decorations on the halos, the backgrounds and the borders of the mantles.

Detail of the halo of St. Sebastian

Gilding

Detail of the halo of St. Sebastian

RAISED DECORATIVE MOTIFS

The reflective power of gold was exploited to produce vibrant light effects through rich and detailed raised decorations. These raised decorations were made by applying a chalky, textured mixture . When this mixture was dry, the bole was applied to it, followed by the gold leaf.

Detail of the golden decorations of the mantle of St. Chiaffredo

Detail of the golden decorations of the mantle of St. Chiaffredo

CHROMATIC AND GRAPHIC EFFECTS

In order to obtain particularly refined decorations, the gold foil could be painted with the tip of a brush with dark-coloured graphic marks to render the details of the clothing.

To obtain various shades of shimmering reflections, the gold could also be glazed with very transparent and deep hued colours such as copper resinate (green) and red lacquer.

Detail of the headdress of St. George

Gilding.

Details of the robes of St. George

Painting techniques through the observation of surfaces.
The paint film.

STRUCTURE OF THE LAYERS

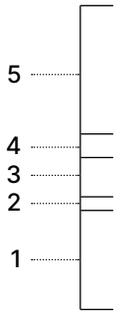
The paint film consists of one or two layers of colour, sometimes covered by glazes, generally containing a single pigment with varying amounts of white to adjust the shade, adding black in the shadows. In some cases, such as for green or orange and in flesh tones, the colour is made up of a blend of several pigments in order to obtain particular colours. The layers are even and uniform, with a thickness of approximately 30 to 40 µm.

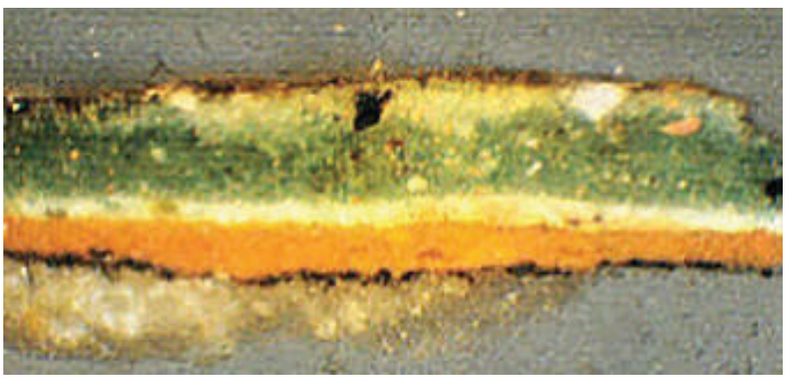
Generally speaking, it has been observed that dark layers are thicker than light ones.

Christ in Piety:

Stratigraphic section of the green of the crown of thorns:

5. Resinate-based green, lead and tin yellow, white lead
4. Lead-based white
3. Red bole (preparatory layer for gilding)
2. Black preparatory drawing
1. Preparation





Adapted from Galante Garrone, Ragusa 2002, n. 6, p. 208

Christ of Piety. Particular of the face

Saluzzo

BINDER

The painter dilutes the colours with egg as is traditional in the tempera technique, with traces of oil in the flesh tones. In the dark blues, such as that of the cape of St. George, the brown binder contains a small amount of oil.

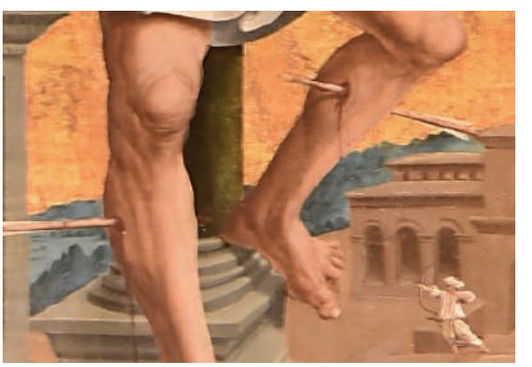
Traces of oil are found in the flesh tones and in the blue of St. George's cloak: **verdigris**, when not used for glazing, has a percentage of oil as a binder to ensure greater stability and to improve its appearance, and is transformed into resinate. **Azurite**, which is also copper-based, is a moderately unstable pigment due to its tendency to turn into malachite, and it can be assumed that this is why the painter wanted to adopt the approach used with verdigris, adding a proportion of oil to the medium.

Particular of the dragon of St. George

Painting techniques through the observation of surfaces.
The paint palette.

BLUE

The blues are made using **azurite** generally mixed with black or white or spread on chromatic backgrounds to vary the shade. In light shades, the azurite is fine to medium-grained, mixed with white lead, as the low degree of milling gives an intense colour, while in the shadows it is mixed with **vegetable black**.



St. Sebastian, examples of light blues mixed with white lead

Detail of St. Constantius

Examples of light blues mixed with white lead For the light blue colour, the painter applied a mixture of azurite and white lead on a white background to make the colour brighter

The **dark blues** are always made with azurite, but the background and glazes are made with vegetable black, also mixed with colour, azurite in large crystals and brown binder. In the dark blue of St. Constantius' robe, the black pigment is dominant, while in the blue of St. George's chest there is a little more azurite.

St. George and St. Constantius presenting the Marquis Ludovico II

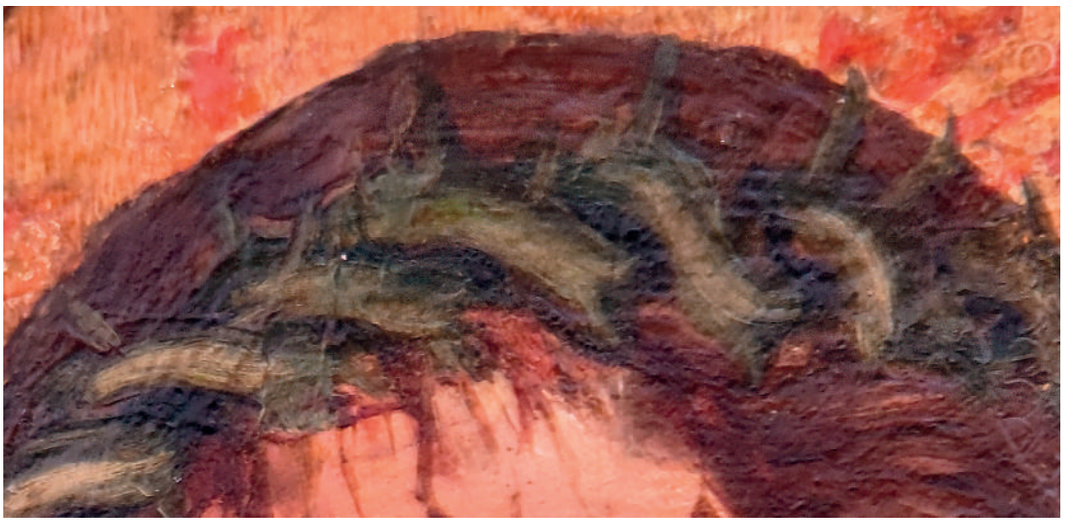
Examples of dark blues, mixed with vegetable black

GREEN

The green was obtained with **copper resinate**. In the crown of thorns of the Christ in Piety, copper resinate is combined with particles of **lead** and **tin** yellow to vary the hue. White points of light are visible on the surface.

The green of the dragon in the panel portraying St. George was obtained using of copper resinate, which can be mixed with white lead in varying amounts according to the shade. It is laid on a white lead background that accentuates the brightness of the light shades.

In the panel depicting St. Dominic, on the gilded background, the stem of the lily was created with **copper resinate**.



Crown of Thorns of the Christ of Piety

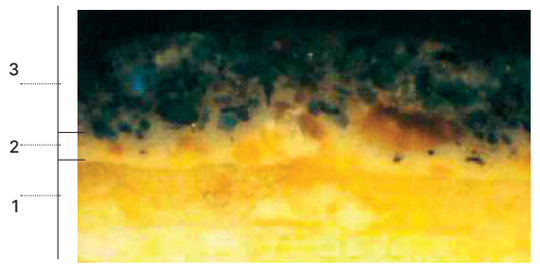
Details of the lily on the table of St. Domenico

YELLOW

Yellow is obtained using lead and tin yellow, but also with yellow lacquer.
Lead and tin yellow is used with cinnabar, in the flesh of St. Sebastian's chest and in some copper resinate greens.
Yellow lacquer is used as a background colour in a mixture with white lead to create a base for the dark blue of the mountains.

Stratigraphic section of the blue of the mountain:

3. Azurite in large crystals
2. White lead and yellow lacquer
1. Preparation



Detail of the bottom of St. Sebastiano with the mountains

Adapted from Galante Garrone, Ragusa 2002, n. 3, p. 208

The paint palette.

Detail of the Marquis Ludovico II of Saluzzo

RED

Red is obtained with **cinnabar** for the bright reds, while the glazes are created with red lacquer over some layers of cinnabar where it adds greater intensity and depth to the colour.

The red of St. Bonaventure's hat and cloak and the cloaks of Saints Constantius and Chiaffredo are made up of cinnabar and the shade is deepened by a glaze of **red lacquer**.

The colour of the flesh tones has been obtained by mixing small amounts of cinnabar with **white**.

The hat and cloak of St. Bonaventure

The paint palette.

St. Chiaffredo's cloak

WHITE

White is obtained using **white lead** which, when blended with various pigments in varying proportions, produces different shades. White lead has been identified in the white of St. Dominic's book and in the background layers of some light blues.

St. Dominic's book

Painting techniques through the observation of surfaces.

The paint palette.

Detail of St. Sebastian's loincloth

BLACK

Black is obtained from **vegetable black**. Black pigment is used in the background layer and in the glazing of certain blues. It can be seen, in varying proportions, in the shadows and dark shades.

Detail of St. Dominic

The paint palette.

St. Chiaffred presents Margherita di Foix, detail ofthe marquise

Painting techniques through the observation of surfaces.
Painting procedures.

APPLICATION OF COLOUR

Clemer applies colours by juxtaposition and fusion, also using very textural and raised strokes, especially when he creates light and opaque colours mixed with white lead.

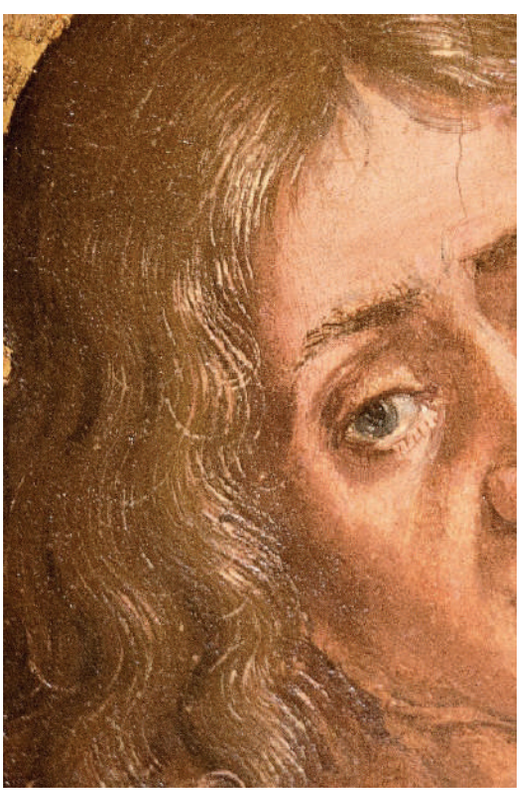
The chiaroscuro that adds shape and volume to the fabrics in this case is achieved with a thick brushstroke over the application of colour.

The hair is painted with very fine strokes using the tip of the brush.

The chiaroscuro of the St. George's fabrics

The flesh tones are created with thick brushstrokes applied with white lead mixed with particles of cinnabar, vegetable black and small traces of copper resinate.

In the decoration of Marguerite de Foix's headdress, small, raised dots created using full-bodied, textured brushstrokes can be seen.



Details of headdresse of St. George

The hair is painted with very fine brushstrokes

The artist also makes use of glazes, a XV century innovation: vegetable black to create the shadows of the blue cloaks, red lacquer to create depth on the areas of cinnabar.

St. Chiaffred presents Margherita of Foix, detail of the saint's cloak made with veils for shadows

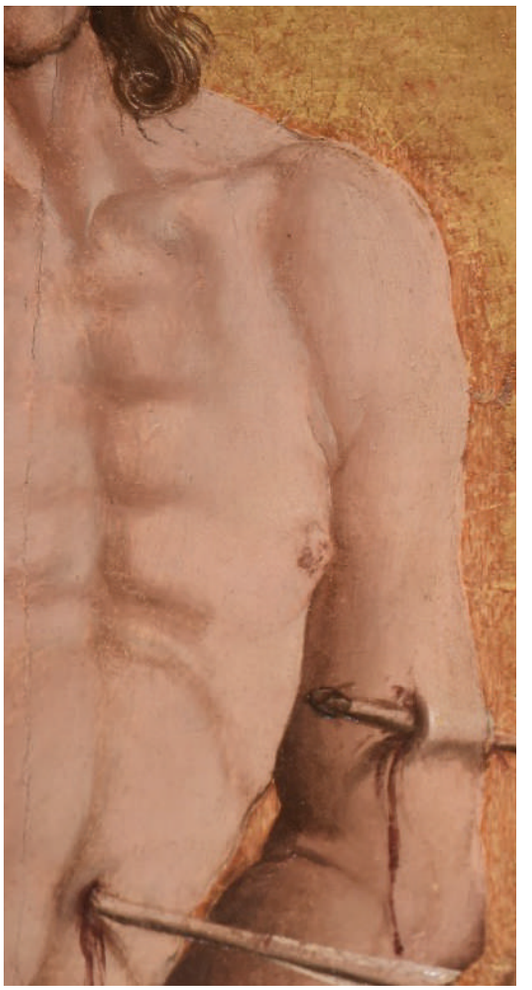
Detail of St. George

FLESH TONES

Their composition varies, with white lead being the predominant pigment.

On St. Sebastian's arm, the brushstrokes are thick and shining; particles of cinnabar, vegetable black and traces of copper resinate are included in the thick layer of white lead. The pigments used in the flesh of the saint's chest are white lead, cinnabar and lead and tin yellow.

Cinnabar is dominant in the flesh tones of the Christ in Piety's wrist.



St. Sebastian's chest and arm

The hands of Christo of Piety

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The data obtained from the reading of architectural surfaces and direct observation of the pictorial decorative apparatus of some ecclesiastical buildings considered exemplary for the complex historical stratification that has marked and determined their evolution and current appearance, such as the Cathedrals of the Assunta in Ivrea and Saluzzo, the collegiate church of Saints Peter and Ursus in Aosta, the mountain chapel of Notre-Dame du Coignet near Bardonecchia, and the parish church of Borgo San Dalmazzo, formerly the ancient Benedictine abbey of Pedona, all come together in this handbook, which is the result of collaboration between experts with both humanistic and technical skills, including archaeologists, restorers and art historians.
The work, carried out within the framework of the Piano Integrato Tematico Patrimonio, Cultura, Economia (Integrated Thematic Heritage, Culture and Economy Plan) (PITEM Pa.C.E) of Interreg V-A Italy-France ALCOTRA (2014-2020), proposes an initial framework of knowledge to read the cultural heritage in its intrinsic characteristics, materials and techniques, paying particular attention to wall paintings, integral parts of the architecture to which they are united and also essential for planning effective actions to guarantee their conservation.

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