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Introduction

Pisa –The 19th century stained glass windows of the Baptistery

History and Art

Premiss

Although interest of the 19th century stained glass windows in Pisa Cathedral Place has unexpectedly increased in recent decades, there is still much much to be discovered on this subject.

Any study of stained glass windows must be tackled from several different angles: stylistic and iconographic analysis, documentary sources and an examination of the complexity of stained glass techniques, not to mention the problems encountered when restoring ancient works. Stained glass, even more than paintings, is the perfect union of the artist who designs the work and the glassworker in charge of colouring and making each single piece of glass for the window .

There are still many little-known aspects and certain obstacles to be overcome before we have a full picture of this particular sector in Art History and Craftsmanship. The main reason for this delay is the lack of documentation concerning the works and the history of the single glass manufacturers. It often happens that we know where a work is, but any documents are lost, or we have contemporary descriptions or drawings of the work but the work is lost. Sometimes the name of the artist who drew the design is known but not the maker or vice versa. For this reason, a study of ancient stained glass may be incomplete.

Further study would lead to interesting discoveries. A good example is the stained glass windows in the Baptistery of Pisa Cathedral that signalled the re-birth of the ancient art of stained glass, not merely in this city but on a regional and national basis. More research will certainly follow from the restoration of the stained glass windows in the Pisa Baptistery, planned by the Opera della Primaziale (The Cathedral Works).

The Stained Glass Windows: Pisa and the Pre-eminence of the Baptistery

Restorations to The Baptistery

In Pisa during the 19th century, from the 1840s, the prime concern of the Opera della Primaziale was restoration of the monumental buildings in the Cathedral Place and in particular, the stained glass windows of the Baptistery. In Tuscany and in the Cathedral Square Vincenzo Carmignani was in charge of the work from 1839 to 1859, that was completed after 1864-1865, by Gaetano Poggesi, with more work between 1864 and Clerk of Works from 1859 to 1893.

The stained glass windows in question were created during this fervor for renewal, and gave birth to a local school of glassworker-painters who would later work on the stained glass treasures of the Grand Duchy of Tuscany and the Kingdom of Italy. The construction of the stained glass windows, placed in fifteen of the sixteen windows in the first order of the Baptistery, that dates from between the 12th and the 14th centuries, were therefore a direct consequence of restoration work on the building between 1841 and 1865.

Early contacts with France

In spring 1840, the Opera della Primaziale Pisana contacted manufacturers in States outside the Grand Duchy of Tuscany. Among documents concerning the Baptistery, kept in the Archives of Opera del Duomo, Pisa, there is one that testifies to exchanges with Maison Thevenot of Clermont-Ferrand for the construction of windows in 12th century style, a typical product of this firm. Maison Thevenot was famous for the restoration of the stained glass in Clermont Cathedral in 1835 as well as Saint-Germain-l'Auxerrois in Paris in 1839 (9). Although a certain Verani, representative of the Thevenot factory, came to Pisa, no agreement was made between the parts.

The First stained glass windows for the Baptistery

Thanks to orders from ecclesiastical bodies, stained glass became popular; in this respect, the cycle of windows commissioned for the Baptistery in Pisa by several bodies in mid 19th century, played a special role in about the mid 1800s. (10)

The earliest stained glass windows commissioned for the Baptistery in Pisa were ordered from craftsmen outside the Grand Duchy of Tuscany and were apparently the earliest in Tuscany to be installed in the 1800s.

A letter dated 1854 in the Archives of the Opera Del Duomo mentions windows constructed in Milan and Metz, information confirmed by Moroni in his *Dizionario di Erudizione storico-ecclesiastica*. He mentions two windows “made in France about ten years ago” and another made in Milan “made by Bertini Father, of Milan”. The article, with the title *The factory of stained and decorated Glass belonging to Giovanni Bertini*, published in the “Gazzetta Privilegiata di Milano” in December 1845, tells of “several glass windows with portrayals of Saints and Coats of Arms, for the famous Baptistery of Pisa”, in the laboratory of the Milanese artist. This has meant that present researchers include these windows in the catalogue of works by Bertini, without knowing the subjects. The number of windows sent to Pisa around 1847 is estimated to be eight.

In the light of recent research, two of the windows may be attributed to workshop of Bertini in Milan: these are St. Luis Gonzaga commissioned by the Chapter Vicar Luigi Della Fanteria, (Plan of the windows to be restored 13 pt) 16 and that of St. John the Baptist, made at the behest of Archbishop of Pisa, Giovan Battista Paretto, (Plan of the windows to be restored 12 pt) unfortunately badly damaged.

Both panes, inserted in the two lancet windows beside the closed door behind the Baptismal Font, and therefore straight ahead from the main door facing the Cathedral, displayed the coats of arms of the commissioners, whose effigies are in the bottom register. The style is in the Mittel-European taste, typical of Giovanni Bertini’s production, in common with other work by this craftsman in the stained glass windows in Milan Cathedral and the upper and lower Basilicas St. Francis at Assisi.

In spite of the international fame of Bertini’s workshop in Milan, the troubador style of these windows was not highly appreciated in Pisa so an alternative had to be found.

The windows commissioned by the Grand Duke

In the following years, The Grand Duke of Tuscany looked towards the French market, by-passing Maison Thevenot at Clermont-Ferrand, contacted the artist Charles-Larurent Maréchal (1801 – 1887) who since he opened his glassworks in Metz in 1838, had gathered much praise from the

public and the academic world (20). As Silvia Silvestri observes, Maréchal's innovations consisted in densely - coloured stained glass, dark and unsuitable for letting the light pass, that replaced coloured paste glass set in dense areas of mosaics and etched with to create decorations similar to jewellery or the 17th century Flemish paintings, that this artist freely took his inspiration from.

The Grand Dukes of Tuscany's commission for the windows portraying the Sovereigns' patron saints probably dates from the early 1850s: St. Leopold (Plan of the Baptistery windows to be replaced, I 1 Pt) and St. Anthony of Padua (Plan of the Baptistery windows to be restored, 14 Pt) to be inserted in the two lancet windows of the Baptistery in Pisa.. Until recently, these two windows were thought to figure St. Leopold and St. Ferdinand were attributed to Paul Le Forstrier, a Dominican oblate also known by the name of Fra Marcellino of Metz. Recent studies have denied this attribution, partly on stylistic grounds and partly by the signatures of the makers. In fact, Paul Le Forestier signs his name "Marcellino Le Forestier in ecclesia Pisarim clericus delineavit", as is the case of the window with St. Victor (Plan of the windows to be restored 6pt), while along the border of St. Anthony's pedestal the letter "M" can be distinguished, typical of the products of Charles-Laurent Maréchal of the factory in Metz. The same initial "M" also appears on the window with the Archangel Michael (Plan of windows to be restored, 3Pt), traditionally attributed to the firm of Bertini, Milan. Concerning St. Leopold, certain stylistic characteristics suggest it is by the same artist.

A letter dated 16 September 1855 addressed to the Clerk of Works of Pisa Cathedral, charged with the making and protection of the two windows, reveals that in the Autumn of 1855, the windows were on their way to Tuscany.

They were inserted on the left and right of the first two by Bertini, to complete the decoration of the wall behind the Baptismal Font. As Silvia Silvestri observes, the windows sent to Pisa were in the style of work during the 1840s – 1850s of the Maréchal e Gugnion workshop, that later adopted an industrial standard style and made works in series during the following decade.

Guglielmo Botti and Tito Gordini: Pisan Stained Glass window makers

During the first half of the 19th century, Tuscan artists chemists and pharmacists such as Lorenzo Turchini, Emilio Bechi, Lorenzo Ginori, Bernardino Pepi, Ferdinando Venturi and the painter Guglielmo Botti had re-discovered the art of painting on glass, which, as Tito Puliti wrote in

Rapporto della Pubblica Esposizione dei Prodotti Naturali e Industriali della Toscana fatta in Firenze nel MDCCCL “had reached “a degree of perfection not unknown to the Ancients. Modern glass painters use panes of a size suitable for their work [...]. Modern chemistry which has enriched the painters’ palette with such an array of shades of colour and melting agents: we are now able to paint well on glass with transparent vitrified like melted enamels on porcelain”.

Although Maréchal’s works were seen by his contemporaries as being the artistic synthesis of the long-gone artistic excellence of the Northern Middle Ages and Italian Renaissance, the style of the French stained windows did not meet with the approval of the Pisan artistic community, who aimed to promote the Tuscan tradition, in terms of both purist design and architectural environments as well as in originality of techniques. The insertion of Maréchal’s windows in Pisa’s Baptistery coincided with the earliest original works by local artists, who at the time were occupied with re-launching stained glasswork, rediscovered thanks to experience acquired in restoring ancient windows, and the study of sources, that derived from the more generalised rise of the craftsman’s *bottega* in 19th century Tuscany. This was the generation of Botti, Gordini and later, of De Matteis who, having learned the lesson from French glasswork artists in the use of enamels and their pictorial *ductus*, re-elaborated an original work method.

Pisan stained glass painters were trained in the environment of the local Accademia di Belle Arti, with the teaching of Tommaso Masi and Salvino Salvini who taught their pupils to appreciate Medieval art in sculpture in stone and metal, including skills that, in the case of Tito Gordini and Guglielmo Botti, met in the making of stained glass windows.

a) Guglielmo Botti

The four windows designed and made by the glazer Guglielmo Botti can be dated to between 1854 and 1857 to whom the four windows and therefore the sketches can also be attributed.

Of all the artists called on to create windows for the Baptistery, the name of Botti particular interest. His experiments in planning and building stained glass windows are widely recognised. Known mainly for his restoration work, Botti made windows for many Italian cities until at least 1870, and later set out the rules for the conservation of stained glass windows, first applied in the consolidation of the windows in the Upper Basilica of St Francis in Assisi in 1872. Around the second half of the 19th century, he made five stained glass windows with geometrical designs for the armoury of Villa Corsini (now Ferretti) at Crespina, using the technique of plating then using the *graffiti* technique on the glass. The windows in the church in Casciavola are also ascribable to Botti.

Guglielmo Botti exhibited a window with the figure of Moses at the exhibition at the I. e R. Istituto Tecnico in Florence in 1854.

Two years later, he made three panels for the church of St. Paolo a Ripa d'Arno in Pisa, and restored another Medieval one of the Redeemer Enthroned. It was probably during this experience that he discovered the ancient technique, thanks to Botti, who, together with Gordini was involved in restoring and refreshing the church of San Paolo a Ripa d'Arno. In 1861 Botti took part in the Italian Agricultural, Industrial and Artistic Exhibition in Florence, presenting a stained glass window made with a new technique that the artist called "painting by burning" in imitation of techniques used in making decorated windows during the 15th and 16th centuries. In June 1864, Guglielmo Botti presented the sketch for the central window in Pisa Cathedral apse. It figured Titian's Assumption, and the following year when in Pisa he received certain advice for the construction of the window, from the painter Antonio Ciseri (1821-1891). However, his design was not approved but between 1864 and 1869, he received a commission from the Archbishop of Pisa Giovan Battista Corsi for an Immaculate Conception. Once again, it is Antonio Ciseri who recounts how Botti called on him to show him his design for the new window in the Cathedral with Mary Immaculate. He advised him to show it to other artists saying that as far as he was concerned, no stained glass window should be put in that space. The window with the Immaculate Conception, for the Cathedral tribune was made by Botti in 1869 and displayed to the public in his home in via San Lorenzo, no. 1548.

Botti's originality in 19th century stained glass was his having "discovered a colouring substance to paint *chiaroscuro*, that at the same time could be melted and could withstand high temperatures". This also contributed to creating the legend of his rediscovery of the ancient art of the stained glass window. The main source for this myth was an article by an anonymous Tuscan correspondent, published in *Civiltà Cattolica* in 1856, concerning work on S. Paolo a Ripa d'Arno and Botti's methods. His work in collaboration with Pietro Bellini, the construction of the windows in the church of San Paolo a Ripa d'Arno, together with their emphatic success, mainly because of the fact that they had been produced by local labour, awarded Botti the contract for the Baptistery windows. Battistero.

The 'Opera della Primaziale' commissioned him the window with St. Ranier (Plan of windows to be restored, IO Pt). The upper register of the window is badly damaged while the lower register, with the initials OPE "Opere" (the possessive case of the Latin word for "Works" i.e. Pisa Cathedral Works) created on the instance of Carmignani, Pisa Cathedral Clerk of Works, is well preserved.

It took Botti two months to work on and finish this window. He used sixteen plates of opaque crystal glass, and seven of coloured glass, baking them.

In 1855 The Chaplains' University of Pisa commissioned this artist to make another window of St. Stephen Protomartyr (Plan of the windows to be restored, 4 Pt) the sketch for which, dated and signed 1855, still exists.

In the same year, the Chapter of Pisa Cathedral Canons commissioned Botti for a window with the effigy of St. Reparata, for Pisa Baptistery.

Botti's technique proved suitable for more than glasswork: he also discovered a new technique for decorating blind windows, already experimented in the church of San Paolo a Ripa d'Arno. The two blind panels (Plan of the windows to be restored 8 pt and 16 Pt) were inserted to cover the bricked-up windows facing onto the two spiral staircases that go from the ground floor to the women's galleries. Like the window with St. Ranier, the two blind windows, that show St. Torpè and St. Eufisio, were commissioned by The Opera della Primaziale.

These two windows are particularly interesting because they are in a position in the Baptistery where there is no sunlight, instead of being made of glass, they are of a material used for buildings that Moroni described as “translucid talcum ” and Ulisse De Matteis (who restored several windows in the Baptistery in 1905) called «talio». Shiny paint was used over this base, to give the impression of a stained glass window illuminated from outside by the Sun. Some are of the opinion that lighting was provided by a sheet of metal beneath transparent paintwork, while others that the mineral substance thalium, that was able to transmit light rays better than any other substance.

Whether real or not, Botti’s windows created a precedent in stained glass windows that began to develop in the 1870s, and fixed the character of Tuscan work. For the first time, a painter had observed and copied not only the stylistic traits of his figures but also the actual characteristics of ancient stained glass, such as the geometrical designs along the borders and replacing the Classical niche with a Gothic aedicule. However, for details, Botti continued to use enamels but with less skill than Bertini’s workshop in Milan.

b) Tito Gordini

Tito Gordini’s stained glass windows were more refined in the philological sense than those made by Botti. In 1854 he made a window with St. John the Evangelist commissioned by Pisa City Council, as results from the coat of arms of the city and the caption *Populus donavit* in the lower register (Plan of the windows to be restored, 1 Pt). The window with St. Charles was made at the the same time, or soon after (Plan of the windows to be restored, 15 Pt), of which only the bottom with a coat of arms remains. Gordini had the idea of constructing further windows for the Baptistery but his relations with the Vicar of the Chapter, Luigi Della Fanteria, who was overseeing the creation of stained glass windows for the Baptistery, became strained because of the exorbitant price the artist demanded: “It is true that I have quarrelled, for the moment at least, with Gordini: for the Baptistery windows he has asked a higher price than those of Milan and Metz. Personally, I have no particular reasons against his being assigned the job of making a window in the first order of the Monument”.

Gordini chose to imitate the design of 14th century windows. The figure of the Saint appears to be inspired by the busts of the Apostles in the large 14th century window of San Paolo a Ripa d’Arno and the crushed leaves that decorate the base appear to derive from similar motifs that filled the spaces around the medallions. As for his technique, the facial traits and the fabrics were drawn with the black lines typical of grisaille and the blue disc, criss-crossed with leading, is damaged. The biographical evidence concerning Gordini is insufficient to understand which direction his artistic career took but the archaic style of his saints did not awake the enthusiasm accorded to Botti’s work.

Gordini, a student at the Academy, had studied design since 1845, when the Exhibition at Pisa Academy on the occasion of the triennial prizegiving he presented a drawing of the frieze in the Temple of Jupiter at Rome and won a prize.

Interest in stained glass windows was born some ten years later; in 1854, during the Public Exhibition organised in Florence, he exhibited two glass panels showing St. Paul and St. John “in imitation of the ancient manner of representing figures on glass”. The same year he prepared a study of “coloured glass design” that, thanks to Filippo Corridi, was presented at the *Accademia di*

Arti e Manifatture in Florence. The following year, Gordini made the windows for the front of San Paolo a Ripa d'Arno in Pisa with Saints Peter and Paul. He also designed subjects to be reproduced on cloth and for this reason his activity had an honorable Mention at the Agricultural exhibition in Pisa in 1868.

The History of Restorations

The stained glass windows in the first Order of the Baptistery were restored on three occasions: at the end of the 19th century, in the early years of the 20th century and in the years immediately following the Second World War, to repair damage to the stained glass windows due to the events of the War.

The earliest interventions were carried out in the years 1896-1898 and on this occasion, window no. 9 was certainly restored (Abacus of the windows to be restored, 13 Pt). Work was carried out by the firm of Ulisse De Matteis of Florence, one of the best-known companies for projecting new windows and for restoring old, even Medieval ones. The society for the construction of artistic glasswork, run by Ulisse Federico and Sergio De Matteis with their partners Giuseppe Francini and Natale Bruschi, situated in via Guelfa number 97 in Florence, was specialised in making new windows in neo-Medieval style, for churches, town houses and Hotels. In fact, Ulisse De Matteis was the first to discover the esthetic advantages of stained glass and to experiment with Medieval recipes, adapting them to modern chemical methods.

One example of this perfect combination is the stained glass window commissioned by a charitable lay organisation, Opera di San Martino in Pietrasanta in 1915, from the Florentine workshop of Ditta De Matteis Firenze Vetrate Artistiche e Mosaici, for the round window on the front of the Propositura (Provostshil) and Collegiat of di San Martino at Pietrasanta. The firm of De Mattei also restored the badly damaged ancient stained glass windows, in such a state with broken panes of glass and accumulated grime that it was impossible to decipher the subjects portrayed.

In observance of the criteria of the time for restorations, broken, damaged or badly discoloured were replaced with new ones or with fragments taken from other windows, in the conviction – and perhaps the presumption – in this way they were emulating – or perhaps even improving on – the works of the past. In fact it is not unusual during restoration work on ancient windows, to find plaques fixed on completion of earlier restorations citing the name of the workshop and the number of new pieces replaced and the date of restoration work.

During the early 20th century, the firm of Ulisse and Sergio De Matteis, was once again called on by the Opera della Primaziale Pisana to make a new cycle of restorations on the stained glass in the first order of the Baptistery. According to an examination report dated 26 May 1905 Ulisse and Sergio De Matteis undertook to restore nine windows. Clockwise from the entrance of the Baptistery, the following windows needed to be restored: “The first (Plan of the windows to be restored, 5 Pt), the second (Plan of the windows to be restored 6 Pt), the third (Plan of the windows to be restored 7 Pt), the sixth (Plan of the windows to be restored, 10 Pt), the seventh (Plan of the windows to be restored, 1 Pt), the thirteenth (Plan of the windows to be restored 1 Pt), the fourteenth (Plan of the windows to be restored, 2 Pt) and the fifteenth (Plan of the windows to be restored 3 Pt). Many glass pieces were missing from all these windows. The eighth window (Plan of the windows to be restored, 12 Pt) was badly damaged, while the tenth (Plan of the windows to be restored, 14 Pt), the eleventh (Plan of the windows to be restored, 15 Pt) and

the sixteenth (Plan of the windows to be restored, 4 Pt) were not in need of restorations. The fourth (Plan of the windows to be restored, 8 Pt) and the twelfth window (Plan of the windows to be restored, 16 Pt) were blind windows made — as we have seen — of «*talio*», an opaque building substance. The ninth window (Plan of the windows to be restored, 13 Pt) had already been restored during the previous cycle of repairs.

The Town Chronicles report that on 22nd February 1944, during an air raid on Pisa, a cluster of bombs fell close to the Cathedral, and the consequent blast badly damaged the dome and windows of the Baptistery. In 1948-1949 The Opera della Primaziale artisans restored these windows, some of which were taken down and stored in the Opera's deposits, pending their restoration. Work mainly consisted in putting the original pieces of glass back in their place, where possible, and replacing lost ones with new; after that they were coloured and re-painted. Twelve windows were in need of restoration, as per the plan of the Baptistery included with the report on the restorations but as

Buperate most of the glass that had falle on the window sill, but as we were able to revover most of the glass that had fallen on the windowsill, and in consideration of the good state of the frame, we decided tho replace the original pieces of glass and fill the spaces with plain glass. So we could save as much as possible of the original glass, which was our aim which was to close the window space (see photo).

Window. No 11 Plan of windows to be restored,(15 pt) – We had thought to completely demolish this window end in fact we had to do so, because the whole window was completely destroyed, however we managed to recover some glass from the lower part and improve the conditions of the window so closed the space at the bottom and close the space, with the other part of the window, in the plain glass from the window, we strengthened it with the irin rods from the window., to hold the nwe part mounted in lead. (see photo).

Window no. 8: (Plan of windows to be restored, 12 Pt) – The glass in the best prts of the window (lower and upper portion up to the head, with plain glas cut to the shape of the pieced in the mid part, in a rectangular f shape. . Varnished inside abd out. Window no. 9 (Plan of windows to be restored, 9 Plan of windows to be restored, 13pt) We restored it by repositioning the fallen glass ib new leading and where missing, with plain glass, pianting it, with satisfactoru results. (Plan of windows to be restored Pt), Window n. 13

Window no. 6 [Plan of the windows to be restored, IO Pt] – was to be completely demolished but as we were able to recover almost all the glass beause it had fallen on the windowsill, and taking into account the fairly good condtion of the outer support, we decided to reconstruct it with the pieces recovered fill the gaps with plain glass. In this way saving as far as possible the original glass and at the same time achieving our aim of closing the window space (see photograph). Window I I [Plan of the windows to be restored,15 Pt]. The pre-existing material had to be destroyed, as planned because the window itself was totally destroyed; however, here too, we were able to recover pieces of glass from the bottom of the window and ensure the window was in good condition and completing the remaining part of the window with plain glass. The horizontal iron armatures were removed in order to insert the repaired leaded pane (see photo). Window no. 8 [Plan of the windows

to be restored, 12 Pt] : Dismounted and restorations to the pieces of glass in better condition, i.e. from the lower portion of the upper part of the window, up to the head, with the apposition of plain glass, cut to the size and shape of existing pieces from the mid part. We then worked with the lead support and rectangular pieces of glass. It was finished by varnishing internally and externally. Window no. 9 [Plan of the windows to be restored, 13 Pt] Restored by putting the fallen glass in place with leading and solder and replacing missing parts using painting the plain glass where it was in fairly good shape. Window no. 13 [Plan of the windows to be restored, 1 Pt] –Rather badly damaged having been totally blown out by the bomb blast. Putting it back in place was particularly difficult, the missing pieces were replaced with painted plain glass. Window no. 14, [Plan of the windows to be restored, 2 Pt] – was in a particularly bad condition, it was blown out where the glass was missing and caved in where it was not. It was necessary to remove the glass and replace it after flattening and soldering the frame. The bottom part needed a new piece 0,65 m in size, it was made from rectangles and fixed to bars then coloured. Window no. 10 [Plan of the windows to be restored, 14 Pt] Work was carried out with the window in place. Six or seven small pieces of glass were replaced and coloured, moreover the bottom portion of the frame was re-cemented. Window no. 7 [Plan of the windows to be restored, 10 Pt] work was carried out *in loco*: missing pieces were replaced with coloured glass. Window no. 15 [Plan of the windows to be restored, 3 Pt: the frame was taken out and taken to the workshop. Small parts missing below, but the upper part is badly damaged by shrapnel and it is blown in. The broken glass was replaced with new purposely shaped and coloured pieces of plain glass. Window no. 3 [Plan of the windows to be restored 7 Pt] – Not removed; 2 small coloured and plain pieces replaced. Window n. 16 [Plan of the windows to be restored 4 Pt] – Taken down and repaired in the workshop. Missing pieces replaced and the leading checked and re-soldered etc. Window no.1 [Plan of the windows to be restored, 5 Pt] Taken down and brought to the workshop the above. It was necessary to replace and re-insert what glass pieces we could recover , particularly in the halo, moreover, to add new pieces of glass where missing. Coloring and varnishing. Window no. 2 [Plan of the windows to be restored - 6 Pt] – Taken down and taken to the workshop. Iron frame removed, after which the glass was repaired, The crushed ones replaced and new ones where missing. Coloured and varnished.

In recent decades, the interest in restoration of ancient stained glass has increased. The situation was analysed recently at the *Conservazione delle Vetrate* Convention held in Pisa on 30 May 2013 and organised by 'Opera della Primaziale Pisana as part of the cycle of International Conventions

dedicated to *Cathedrals in Europe*, where the most important European experts in this sector met together. The Acts are considered to be an indispensable study instrument for all levels of those involved in ancient stained glass windows, because they provide a fundamental updating on new techniques and technology in stained glass restorations in use in the most important European centers for the conservation and restoration of ancient works in stained glass .