

the tribune:—the Resurrection, designed by Paolo Uccello, and the Ascension and the Prayer in the Garden, by Lorenzo Ghiberti, although by this time Francesco di Lievi da Gambassi had been some time in Florence. Bernardo del Boni is also recorded to have painted the Annunciation designed by Uccello, removed some years ago, and the Ascension described as being either by Ghiberti or Uccello; the uncertainty is curious. In 1448 the same artist painted the Presentation in the Temple, which was designed by Ghiberti. What windows then did the artist from Lübeck really execute? Born an Italian, he was instructed from his youth in Germany, and it is reasonable to suppose that his style would be German. Now several of the upper windows of the transepts contain figures which have a decided affinity with German ideas, and it is not unreasonable to suppose that these were by the new comer. He established furnaces by special permission, and it has therefore been hastily assumed that he manufactured coloured glass; but these no doubt were to burn his painted glass. The letter inviting "Francesco Dominici Livi de Ghambasso comitatus Flor., magistro in omni et quocunque genere vitreorum de musayco et de quodam alio colore vitreorum," dated 15th October 1436, was preceded by another written on the 26th August 1434, which is thus recorded:—"Letter written to the master glass-painter Gambassi, then in Scotland, and who made works in glass of various kinds, and was held to be the best glass-painter in the world." It is now vain to express the feeling with which Scotch people must regret the destruction of the works of this excellent artist in Holyrood Chapel; the blow then inflicted upon ecclesiastical art never has been remedied.

Many other glass-painters executed windows in the cathedral, the last of whom, Sandro di Giovanni Agolanti, in 1486 glazed the windows of the lantern, showing that it was finished, and in 1503 inserted glass "in an aperture for the astrologers to see the sun through." The windows of the cathedral of Florence are of rich deep colours, but unfortunately they are incrustated with dirt inside and outside. Many of them which have been broken have been wretchedly repaired, and the modern glass is toned with glazings of oil paint. They darken the church to such an extent that works of art within it are seen to disadvantage. Michelangelo's group of the Pieta is merely a dark mass, and it may be mentioned that his statue of Christ in Santa Maria sopra Minerva is similarly sacrificed to the painted glass lately introduced.

The history of glass painting is illustrated by windows in other churches in Florence; those in Santa Croce have been alluded to, with the exception of the magnificent circular window of the façade designed by Ghiberti. It is of special interest, as showing this great sculptor's ideas of colour as well as of form. The subject is the Descent from the Cross, and the colour strongly recalls the bright clear system of Fra Beato Angelico. In Santa Maria Novella there is another very fine circular window of the 14th century, the history of which seems to be forgotten; but in design it recalls the style of Andrea Orcagna, to whom also may be attributed the fragments of a window in the Strozzi chapel, which he partly painted in fresco, and for which he also provided the admirable altarpiece. In another Strozzi chapel in the same church, painted by Filippino Lippi in fresco, there is a very rich window which is obviously also of his design, but so completely has all critical knowledge of glass painting disappeared in Florence, that this and other noble works excite no attention and no remark, and are in danger either from removal or from the clumsiest renovation. The great window of the chancel, a large tripartite, is so excellent that it places Sandro di Giovanni Agolanti in the foremost rank as a designer and glass-

painter of the 15th century. He was born in 1446, and of his numerous works this superb tripartite, which was erected in 1491-2, is the only example now remaining, whilst there are twenty-one records of his productions, evidently a small portion of them; the last describes him as decrepit in 1515, and mentions that Niccolo di Giovanni di Paolo, master glass-painter, took his place.

A window in St Francis at Assisi by the Umbrian Angioletto da Gubbio, an artist of the early part of the 15th century, deserves special notice in connexion with the admirable works of this great age of the art. It was erected about a century after the death of Cardinal Gentili (who built the chapel) by his heirs. The window is so full of light, so delicate in its arrangement of colour, and so tenderly and skilfully painted, whilst the prevalent white ornament is so brilliant, that it is perhaps the most perfect type in existence of a painted window suitable for a building containing works of art, or where the climate is unfavourable and consequently the light imperfect. The close of the 15th century was in important respects the greatest epoch of painted glass in Italy: the general style of design of the great quattrocentista masters, their monumental and decorative methods of composition, simplicity of attitude and form, and rich unbroken colour, were eminently adapted for reproduction in glass painting, whilst the prevalent style of ornament was singularly graceful and pleasing. The influence of the Italian style was felt in France, Germany, and the Low Countries, in which very noble works of glass painting rivalling the Italian were produced by eminent artists, examples of whose works may be seen at Bourges and Rouen, at Antwerp and Brussels, and in various cities in Germany, although singularly enough one of the finest typical examples of this great epoch of German glass painting exists at Assisi,—the glazing panels of which the noble window has been composed being dispersed through two or three windows of the upper and lower church. The technical execution of the windows of this period in all these countries was superb, showing how thoroughly the artists were trained in every process of their art. In England the feeble Perpendicular style was contemporaneous, entirely devoid of good drawing, pallid in colour and weak in execution, a singular contrast in every respect to the state of the art on the Continent.

Amongst the most active and able glass-painters of the prolific 15th century in Italy the Gesuati monks, whose convent was close to Florence and was razed to the ground during the siege when Michelangelo aided in the defence of the city, were celebrated. They prepared colours for artists, supplying Michelangelo when he painted the Last Judgment, and they executed numerous windows of which there are records from 1467 to 1562. As glass-painters they painted the designs intrusted to them with forcible execution, but their drawing was less happy and their ornamentation heavy. There are several windows by these Brethren in Florence: in Santo Spirito the great circle of the façade shows every indication of having been designed by Pietro Perugino; in San Salvatore, near San Miniato, the east window, evidently by a Gesuato, has very probably been designed by Andrea della Robbia. In another window in the same church a figure of St John is a very fine specimen of their art. Several windows filled with small round panes of white glass, with richly coloured borders and sacred monograms or heraldry in the centre, are especially noteworthy as admirable types for domestic architecture. There are also works of the same character as the above in the church of Santa Maria Maddalena dei Pazzi.

A glass-painter was now to make his appearance in Italy who was destined, although a foreigner, to eclipse in the opinion of the Italians all previous masters of the art; this was Fra Guglielmo di Marsillat, born in the diocese of

Verdun in 1475. It is not known under whom he studied glass painting, but for protection from the consequences of some escapade he entered the Dominican order. Claude, an eminent French glass-painter, being summoned to Rome by Julius II. to decorate the Vatican with painted windows, induced Marsillat to accompany him. Of the numerous windows which they must have painted only two remain in the church of Santa Maria del Popolo, so complete has been the destruction of painted windows in the Eternal City. Marsillat executed a number of magnificent windows in his manner for the cathedral of Arezzo. The following is a form of contract made with him:—"The board of works of the cathedral have commissioned three windows of painted glass for the cathedral from Master William, son of Peter, Frenchman, that is, one window above the chapel of St Francis, one window above the chapel of Matthew, one window above the chapel of St Nicholas, for the price of fifteen livres the square braccio,"—nearly 2 square feet,—"to be burnt in the fire and not painted in oil, and they are to be finished by the end of June 1520." Marsillat, who painted well in oil and fresco, was the designer of his own windows. He was so impressed by the works of Michelangelo that he imitated his manner, and one of his windows at Arezzo, representing the Raising of Lazarus, is almost a transcript of the picture of the same subject designed by Michelangelo, and painted by Sebastian del Piombo, which is now in the National Gallery, London. The design of the Frenchman is rather more crowded, but is characterized by more life and action. He introduced into glass painting the magnificent architectural backgrounds, with figures on balconies and terraces, made familiar by the works of Paul Veronese; he drew the human figure admirably, and was very successful in the representation of motion, and his arrangement of colour was perfect in harmony. It is not to be wondered at that his works produced so great an effect upon the minds of his contemporaries. They also show upon his part a consummate knowledge of technical conditions, and his windows are so perfectly executed that except where injured by violence or carelessness they are in admirable condition at the present time. Marsillat also executed some fine glass paintings at Cortona, which have been removed and are now in Florence.

Without entering upon the description of a considerable number of interesting works of glass painting in various parts of Italy, and of detailed notices of the artists, enough has been done to illustrate the history and progress of the art from the 13th century to nearly the first half of the 16th. Later much less coloured glass came to be used, and a considerable change in taste took place in this art as in architecture; it is shadowed forth even as early as 1501 in the following record:—"Quod in dicto loco semper et pro omnia tempore in dicto loco et ecclesia sunt media die tenebre et ut vulgo dicitur buio et habeto colloquio cum consilibus Sancter Johannes de vietro faciat sumptibus opere unam finestram ex vitri cum oculi biacchi fregio d'allato et cum arma popoli." The desire for windows admitting more light led to the invention and adoption of a beautiful variety containing much white glass varied with yellow stain, and the introduction of a small quantity of coloured glass. These windows were painted with graceful arabesques executed in enamels and burnt in, and they never have been surpassed at any time for excellence of drawing and skill of execution. Such are the windows in the Laurentian library at Florence, attributed to Giovanni da Udine, but erected after his death. Other examples might be referred to, and they are now of great value as showing the best description of ornamental window suitable for buildings of the developed Renaissance style,

adorned with works of painting and sculpture. They have enough of colour to harmonize them with painted decorations, and enough of white glass not to destroy the chiaro-scuro of sculpture. It should be remembered that the 13th century produced beautiful windows possessing similar advantageous qualities suitable for mediæval buildings containing modern sculpture, such as the famous five sisters of York cathedral, or the white windows of the same period at Chartres.

The technical execution of the glass paintings still existing in Italy resembles that prevalent elsewhere, and the method of the old masters is clearly described by Theophilus. The glass used was either pot metal or coated; that is, the colour either pervades the whole body of the metal or is applied as a film over white glass, invariably the case with ruby, which would seem black but for this contrivance. The artist employed to design a window prepared a full size working drawing, which, according to Theophilus, was executed on a whitewashed board in his time; but later these were made on paper, as is proved by the following contract from the archives of the cathedral of Florence (1437):—"To Lorenzo di Bartoluccio (Ghiberti), sculptor, seven florins, being the half of the price of his skill and labour for drawing four figures on paper of bombagia (coarse cotton) for a window to be executed by Bernardo di Francesco, glass-painter, at three livres per figure." Guided by the firmly marked outlines, the glazier cut his mosaic of glass of the requisite colours by the aid of a hot iron, the diamond not being used for this purpose till the 17th century. The pieces of glass were further reduced to the shapes and sizes needed by the aid of the grozing iron, still a familiar instrument; thus prepared they were ready for the painter, and at the present time are attached to a transparent easel formed of a large sheet of glass. Theophilus thus describes the enamel colour prepared for painting with:—"Take copper beaten small, burn it in a little pipkin until it is entirely pulverized, then take pieces of green glass and sapphire" (a blue paste used in mosaic work), "and pound them separately between two porphyry stones; mix these ingredients together in the proportions of one-third powder, one-third green glass, and one-third sapphire. Grind them on the same stone with wine or urine, put them into an iron or leaden vessel, and paint the glass with the utmost care. For with the three colours" (that is, shades of one colour), "if you are diligent in the work, you can make the lights and shadows of the draperies in the same manner as in coloured painting. When you have laid on the first touches in the drapery with the aforesaid colour, spread it in such a manner that the glass may be pure" (that is, untouched) "in that part which you are accustomed to make light in a picture, and let the touches be dark in one place and light in another" (that is, graduated), "and again yet lighter and distinguished with much care, that it may appear as if three shades of colour had been applied. This order you should observe below the eyebrows, and round the eyes, and nostrils, and chin, round the naked feet and hands, and other portions of the naked body; and thus let the glass painting have the appearance of a painting composed of many colours." It must be obvious from this description of the most ancient method of glass painting, in important respects the same as that still followed, that the art is regulated by certain necessary conventions distinguishing it from painting upon opaque surfaces. The features and accessories are drawn with sharp black lines making them out clearly to be seen at a distance, and in a very different way from the representation of such details in a picture. The highest lights are the local colour, that is, the pure colour of the glass; the deepest shadows are solid black produced by laying on the enamel thickly; all this is precisely the reverse of the system pursued at the same early period in

painting pictures in which the shadows were the local colour and the lights white. As painting advanced it gradually approached more nearly to the scale of colour of the glass-painter, the lights instead of being white were painted of appropriate shades of the local colour, and the shadows were graduated into black in their deepest parts. It may have been that glass painting suggested this important change in ideas of colour and chiaroscuro. The glass being painted as described must be burnt to fix the enamel thereon with its flux. The separate pieces with the painted side upwards are placed upon the shelves of a kiln or iron box, covered with whiting; the kiln is placed in a brick oven, and a fire kindled which surrounds it with flames. Much experience is needed to determine when the glass is sufficiently burnt to fix the enamel. When this has been done the fire is withdrawn, the oven is hermetically sealed, and the glass is left to cool gradually, so as to be annealed. From the appearance of many Italian windows as compared with those executed elsewhere, it is reasonable to infer that the Italians were less skilful than their northern contemporaries in firing their glass. The next process is to unite the numerous pieces of mosaic, thus painted and burnt, into panels of a given size, which is done by means of ribbons of lead grooved on both sides, the ribbons being soldered at all their angles, thus firmly tying the mosaic together. When the painted window is erected, the leads are seen internally in contrast with the transparent glass as intensely black lines, but externally, where they catch the light, as meandering lines of metal dividing the surface. Mistaken attempts have repeatedly been made to get rid of these lines, but they are constituent parts of the art, can only be got rid of by changing its true character, and are only disfiguring when injudiciously introduced, as for instance in some 14th-century glass in Santa Croce, in which the white of the eyes are fixed with leads of the form of spectacles, so that all the saintly persons represented appear, ridiculously enough, to wear these aids to defective vision. The panels, which are technically called glazing panels, are inserted in their places in the windows by means of grooves prepared in the stone work, into which they are secured with cement and strengthened at intervals with cross bars of iron called saddle bars, to which the glass is made fast by ties of copper wire. Thus fixed, experience has shown that painted windows if duly cared for will last for many centuries. Regarded in their connexion with past history, no monuments of art surpass painted windows in interest; they are only equalled by the paintings still extant in the tombs of the Egyptians as illustrations of faith, history, and customs. It was almost the universal usage that persons of every rank and position, as well as corporate bodies and guilds, made offerings of painted windows to churches. Whilst they give the most vivid ideas of ancient taste and methods of decoration, the religious opinions of successive ages are interpreted by the manner in which sacred subjects are selected or represented; the actual state of art at different times, from its rudest forms to the most perfect, is admirably exemplified; and, as it was customary to introduce the donors in appropriate part of their gifts, the prince or noble in knightly panoply, with his armorials, is seen kneeling, sometimes accompanied by his spouse. In like devout attitude the ecclesiastic appears in the robes and with the insignia of his office, or the wealthy merchant and his wife in appropriate costume. In other examples tradesmen, surrounded with the objects and materials of their commerce, sell to their customers articles of clothing or of food. Every occupation is illustrated in these ancient pictures in glass. How great then has been the loss to art and history caused by the reckless demolition of painted glass which has taken place in all parts of Europe, but especially in Italy, where the clergy have been the chief

offenders! The Italians have not been impelled to this lamentable destruction of these precious records and beautiful creations by any of the convictions, changes of faith, or fanaticism, fatal to so many works of art in other countries, but by unreasoning transformations of taste, by ignorance, or by the paltry desire of gain. In northern climates ancient glass is found to have been affected by the action of the weather, its outside surface is roughened and pierced to a small depth by little pits, or is so altered as to resemble sheets of zinc; it is also covered with dirt, especially internally, the enamel rougher than the surface of the glass favouring this incrustation. These injuries and accumulations veil the glass paintings, and produce a mysterious confusion of form and colour, admired by many, who to obtain in modern work such effects of age, and to conceal the inharmonious crudity of colour, soil it artificially with varnish, paint, or enamel applied externally, or with dirt applied of set purpose, showing thereby their ignorance of art and their bad taste, by having recourse to processes which are outside the domain of art, for perfect harmony of colour and effect of chiaroscuro ought to be the results of the artist's cultivated knowledge and skill, and nothing should be done to hasten the obscuration of the windows or to anticipate the effects of time. Important improvements have been made in the art of glass painting, as well as in the manufacture of glass, since Theophilus wrote his treatise, but some of these have not been favourable to the art; for instance, old glass is much quieter in colour than modern, and as it was less diaphanous, and less smooth in texture, it was better adapted to the operations of the glass-painter. This being observed, eminent manufacturers of coloured glass in England and on the Continent have prepared imitations of the soft, pleasing hues of old glass, and of its varied texture, with considerable success. The addition of an enamel brown from iron, and much warmer in tone than that made from copper, has been an important aid to glass painting, whilst about the middle of the 16th century numerous coloured enamels were invented, which, however ingenious and beautiful, subsequently modified the art unfavourably. Vehicles composed of spirits of turpentine, fat turpentine, or gum senegal have advantageously replaced the primitive distempers already alluded to. An important addition was the discovery of the yellow stain, made from silver, the only purely transparent colour applicable to the surface of glass. It has been described as the invention of the Beato Giacomo of Ulm, who practised glass painting at Bologna, and died in the odour of sanctity in 1491; but the yellow stain was characteristic of glass paintings for more than a century before his time. The introduction of the system of coating white with coloured glass in the same way as it had been coated with ruby glass, and the invention in the 15th century of removing portions of the coloured glass by abrasion or with the wheel so as to lay the white bare in conformity with special designs, together with the practice of staining such white portions yellow, led to important modifications in the art. Embroideries on coloured garments and other ornaments were thus easily represented, and the system is very useful in painting heraldry. Instead of the wheel fluoric acid is now chiefly used to remove the film of coloured glass from its white backing. The leads with which the mosaic of glass is brought together in glazing panels have undergone various changes. Early lead-work is massive; but at the beginning of the 15th century it becomes lighter in appearance but without loss of strength, for although the grooves were made shallower, the lead was increased in thickness and was rounded on the outer surfaces. Alterations also were made in the method of fixing painted windows: the saddle bars, according to climate, were made more or less robust; and, instead of crossing the

windows in straight horizontal lines, they were frequently bent to suit the design. Generally speaking, horizontal bars are not objectionable unless they cross faces, or hands and feet,—an arrangement which ought carefully to be avoided. Mosaic windows should be made waterproof, and the saddle bars should be painted at intervals of time, as otherwise the rust injures the glass.

Enamelled glass, that is to say, white glass enamelled with colours, finally took the place of mosaic glass. In England in the last century glass-painters of merit who practised enamel painting have left considerable works, amongst whom Francis Eginton, Forrest, Henry Giles, Robert S. Godfrey, Jarves, and especially Jervais, who in 1717 executed from designs by Sir Joshua Reynolds the great east window of New College, Oxford. Whatever may be thought of their method, these glass-painters were meritorious artists. Reference has been made to some of the works of the admirable glass-painters of other countries besides Italy, but the object of the present paper has been to illustrate the history and practice of the art by Italian specimens hitherto little observed, and very inadequately and generally inaccurately described.

At the present time the art of glass painting is practised in different countries with very divergent views of its character and limits. Some think that the more nearly it can be assimilated to pictures in oil or fresco the better, whilst others maintain that all such resemblance is beyond its distinctive conditions as a branch of decorative art. It is a common but erroneous belief that the art of glass painting was lost, and that it has been revived in the present century. It survived in its latest form of the enamel method, classed by Mr Winston as the intermediate style, which is still carried out with unsurpassed skill in Germany. Undoubtedly the mosaic system had disappeared, and it has been judiciously and ably restored wherever glass painting is now common, although with different modifications and ideas of its nature. In England glass-painters possessed of much technical skill and cultivated knowledge of old forms of the art, have produced meritorious works within the limits of almost servile imitation, insisted upon by prevalent but mistaken sentiment; and in too many instances this imitation has reduced the art to the state of mere trade, so that at no period of its history have worse specimens been executed, too often found in the windows of the grandest monuments of mediæval architecture, which ought to have been preserved from such profanation. Of the great value and interest of early painted windows, as well as of those of more matured art, every one who studies them with intelligence must be sensible; and this value and interest are increased by the fact that they illustrate, with perfect truth, the tastes and ideas, the faith and customs, of the periods during which they were created, but modern counterfeits do nothing of the kind, and can convey no such impressions to future times. It is only by the restoration of the old union which existed between the great artist and the glass-painter, dwelt upon in these columns; that the beautiful art of glass painting can be really restored, nor are we without a completely successful instance of the happy results of this union. A window in the parish church at Alnwick, designed by the late William Dyce, R.A., and painted on glass at Munich, is a magnificent specimen of the art, equal in design and execution to the works of its golden age.

In Germany the arts ornamental still flourish as branches of fine art. There, as generally throughout the Continent, the acquirement of a knowledge of ornament forms part of the curriculum of study of most artists; to the entire neglect of this in England, in academies of fine art, may be attributed the low estate into which these branches have fallen. The most eminent German artists of the present

century have made designs for painted windows, which have been executed by highly-trained glass-painters, with that care which is so characteristic a national attribute. Such being the case, it remains a source of wonder that artists surrounded by precious remains of ancient genius remarkable for exquisite colour should notwithstanding show so little ability as colourists. They assimilate the coloured glasses of the best qualities, with every attention to the laws of harmony, but they do not bring them into union as the old masters did by forcible painting of the shadows and half tints. The shadows generally are too transparent, and the general effect is weak. The finest work of the Munich school of glass painting, and one of the best windows produced in the present century, is in the Parliament House Edinburgh. It is richer in colour than is usual; and, having been designed by the illustrious Wilhelm von Kaulbach, the general composition is of a noble character.

In France an imitative school, resembling that which has been dominant in England, has executed skilful mimics of ancient glass painting, and has restored successfully ancient windows broken or otherwise injured in revolutionary times or by neglect. Glass-painters of this class may be found in France, who dispute the supremacy in bad art of their island rivals. In efforts to escape from this abject imitation, trained artists have produced original works of considerable power of form and colour, but too many aim at a picturesque eccentricity, and an affected design, inconsistent with the grave beauty of the art; and Jean Cousin and other great masters of the grand period of French glass painting have no successful followers, nor has any painted window been produced in France in the present century which equals that by the Scottish artist, William Dyce, or that by the German, Von Kaulbach.

In Italy there are glass-painters whose merits as draughtsmen, designers, and executants place them in the first rank, but their windows are almost invariably laborious imitations of pictures in oil; they have undoubtedly lost the methods as well as the ideas and style of their great predecessors, whose windows they not unfrequently injure deplorably by their restorations. It is to be regretted that artists so admirably trained in many respects should so little comprehend the magnificent works of former times which would be their best models, and which they have skill enough to rival but for their vicious method of execution.

In Belgium the art is practised with considerable skill, and works of merit have been executed, but here, as elsewhere, the modern glass-painter is inferior to his predecessors, although he is surrounded by so many admirable specimens of ancient art.

The following works on glass painting may be advantageously studied:—Ferdinand de Lasteyrie, *Histoire de la peinture sur verre d'après ses monuments en France*, Paris, 2 vols. folio, 1852; Id., *Quelques mots sur la Théorie de la peinture sur verre*, Paris, 12mo, 1853; Id., *Notice sur les vitraux de l'abbaye de Rathhausen, canton de Lucerne*, Paris, 1856; A. Lenoir, *Histoire de la peinture sur verre et description des vitraux anciennes et modernes*, &c., Paris, 1803; Id., *Notice historique sur l'ancienne peinture sur verre, sur les moyens pratiques dans cet art depuis l'époque de son invention jusqu'à nos jours, et par suite sur Jean Cousin, qui a excellé dans le même art*, Paris; E. H. Langlois, *Essai historique et descriptif sur la peinture sur verre ancienne et moderne*, Rouen, 1832; Pierre le Vieil, *L'art de la peinture sur verre et de la vitrerie*, Paris, 1774; *Glass: the manner how to anneal or paint in glass: the true receipts of the cullors*, 1616; Gessert, *Rudimentary Treatise on Painting on Glass*, London, 1851; Mrs Merrifield, *Ancient Practice of Painting in Oil, Miniature, Mosaic, and on Glass*, &c., London, 1849; Charles Winston, *An Inquiry into the difference of style observable in ancient Glass Painting, especially in England*, Oxford, 1847; Padre L. V. Marchese, *Memorie dei piu insigni Pittori, Scultori, e Architetti Domenicani*, Florence, 1846; G. Gaye, *Carteggio inedito d'artisti dei secoli xiv., xv., xvi., 3 vols.*, Florence, 1839; Gaetano Milanesi, *Le Opere di Giorgio Vasari con nuove annotazioni e commento*, Florence, 1879. (C. H. W.)