



The History of Stained Glass

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THE TERM "STAINED GLASS" is used to describe colored windows with patterns, symbolisms or stories. Pieces of clear or colored glass joined together by strips of lead are called "leaded glass" or "stained and leaded glass."

Windows are used in churches, as in other buildings, primarily to admit light while excluding wind and weather. Colored windows make it possible to control the quantity and quality of light let into the structure, and to separate the white daylight into its component colors. They can produce endless color and lighting effects. The many sizes and shapes of colored glass joined by a network of lead lines produce intricate forms and patterns, which are restful and pleasing to the eye. The windows are component parts of architecture. They present the characteristics of the style, whether it be Gothic, Romanesque, Renaissance or Modern. The value of stained glass lies in its color effects and designs. Ornament and figure work are the subject matter. The glory of the window lies in its life and movement in light. From sunrise to sunset the colors change, each according to its own particular nature. The blues grow prominent when the light wanes. The reds and yellows gain brilliance at mid-day. Thus through the day, there is an ever-changing, living pattern of tones and hues.

Production of Stained Glass

Glass is made by fusing together at high temperatures the various forms of sand, soda and lime. This fusing takes place in a large pot or vat. Various metals, chemicals and metallic oxides are

added to produce a full range of colors, shades and tints. The principal colors are obtained from:

- Oxides of iron — various greens, browns
- Cobalt oxide — blue
- Oxides of copper — blues and reds
- Selenium — reds and yellows
- Silver salts — yellow
- Particles of gold — ruby

The glass blower with a long tube takes the amount of glass needed and blows it into a mold, usually in sheets fifteen by twenty-seven. The painted lines of the design are rendered with an opaque pigment, varying in tone from black to shades of brown. It can be made from lead, sand, borax and copper oxide, to which is added a vehicle of water, vinegar or oil. This is called tracing color. Shading is also done with the same and similar pigments. Some glass can be surface stained by the application and firing of silver nitrate. This produces lemon and dark orange tones.

Cutting Shapes

Early glass was cut into desired shapes by wetting the glass and passing a hot iron over the lines to be cut. The glass cracked under the iron. Later a diamond was used to scratch the glass, which broke along the scratched surface. Modern glaziers use a little steel wheel that rotates at the end of a steel tool.

The art of making colored glass was known in the ages before our recorded history begins. It is known that in the East, chips of colored glass, set in wood or plaster, were used as windows. The Cathedral at Rheims was among the first in formal use. Another early existing example of the eleventh and twelfth century are the figure windows to be found in Augsburg.

During the latter part of the eleventh century, the Bishop of Le Mans, France, installed in his cathedral a window of the Ascension. This window, which is now quite famous, is Byzantine in character. The design of figures is simple and the color is rich in tone. Viollet-le-Duc, the nineteenth century French artist and architect, an outstanding authority on medieval stained glass, contends that the craftsman of the twelfth century exhibited the greatest skill in the use of colored glass. They seemed to understand the strange characteristics of light passing through colored glass. Thus the churches of the twelfth century were famed for their rich deep colored glass.

The Greatest Age

The early Gothic period of the thirteenth century, however, was probably the greatest of all ages in the history of stained glass. In no time was the color more vibrant and jewel-like, nor design and leading more concordant. The windows of the Cathedral in Chartres are of this period. Here are found both the best and the greatest of medieval windows. In the middle Gothic period, silver nitrate was discovered to be useful in the production of lighter tones of yellow. It became possible through this new discovery that coloring could be more complicated and elaborate. The late Gothic period embraced new styles.

In the early Renaissance, a gradual passing from Gothic style took place. The windows became more pictorial than glasslike. Some of the changes were due to the discovery of enamel. Enamel is a mixture of ground colored glass, gum and water, fired onto the surface of the glass. The Swiss excelled in this use of enamel.

The seventeenth and eighteenth century brought even greater elaboration. The windows of this era grew more and more opaque, and lost the depth and richness of color of pot metal.

Gothic Revival

In the nineteenth century, under the influence of the Romantics, a revival of the Gothic style was brought into focus. Viollet-le-Duc was the great stimulating force toward a re-establishment of the medieval crafts.

In the United States, the first historical conference took place in the seventeenth century. In the year 1638, Evert Duychinck, a Dutch artist, came to New Amsterdam. Soon afterwards, he was commissioned to make and install windows in both the City Hall and the executive mansion. He was regarded as a master craftsman. The 1840's marked the beginnings of the Gothic church architecture along the Eastern coast, but stained glass at this time was mostly imported from abroad. In the early 1880's, the American Opalescent school came into vogue. The American painter John La Farge produced many windows of outstanding artistic merit. The work in this type of glass by Tiffany and others who followed have since failed to win professional recognition. This opalescent glass lacked the brilliancy of the pot metal. However, there arose a tremendous demand for this style of window, which reached its peak in the early 1900's and lasted until about 1930.

With the passing of time, new and more different ideas in stained glass have become popular. Modern trends and materials need decorative glass suitable to their style. Whether the craftsman of this era will be able to supply the talent and genius to fill this need will depend on their ability to think of colored light in new and appropriate terms. ●