

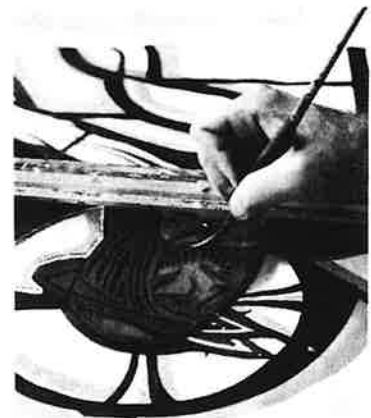
PATTERNS



SELECTING GLASS



CUTTING



TRACING

Good stained glass windows in church usage are not intended to be mere decoration. Not only are they to help provide an atmosphere of reverence and worship in a sacred place, but beyond this, they teach by the visual method and lead the mind of the worshipper away from the things of the world to those of the spirit. For centuries good stained glass has been, in the best sense, a visual aid perpetually and silently telling the story of God's love. Indeed, in the ages when few people could read, it performed a vital function of visual instruction. The church windows themselves preached and taught the Gospel.

Stained glass art is an art of its own. It does not seek to imitate the art of painting. Thus it does not use the principle of perspective, as painting does, and as the stained glass art of the earlier part of this century did, with its so-called "picture windows" which attempted to be paintings in glass. Nor does good stained glass strive as the "picture" windows did, to be "pretty" in a sentimental way. The good stained glass artist remembers that the window is part of a wall, which is a flat surface and makes his figures and scenes flat, without perspective or roundedness. He strives to be eloquent in his presentation, but he avoids sentimentality; he seeks beauty, but avoids "prettiness". Thus his art has an enduring worth and a lasting interest, no matter how often seen. As with good music or any other good art form, appreciation only grows with familiarity. Moreover, the figures in good stained glass are always more stylized. Any photographic likeness is thereby avoided since this would destroy the feeling that religion is timeless, sacred, apart from and above material things, and eternal in value. For these reasons, the famous works of the medieval stained glass artists, who founded the art in the 12th and 13th centuries, remain among the great art treasures of the ages, worth going thousands of miles to see.

The glass used in good windows is mouth-blown antique glass, most of which must still be imported from Europe. The thin, opalescent glass used so often in America in the past decades, or glass painted with enamel colors is not real stained glass. In good stained glass there are variations in the thickness of as much as one-quarter inch in one piece which adds to the interest by its shading and feeling of texture.

The color in glass is in the substance itself. While the mass of colorless glass is still in its molten state, various metallic ingredients such as gold, cobalt, chromium, etc., are added to produce an endless number of colors. This method of staining or dyeing glass is the same as that used in the Middle Ages. For this reason it is called antique glass or pot-metal from the pot in which it is made. A lump of the bubbling mass is caught up at one end of a blow pipe, blown into a cylinder, cut, flattened, and cooled. Its very imperfections are often a part of its glory.

With the exception of a stain painted and fired to produce yellow tones in white glass, the only pigment used is a reddish brown or black powdered oxide to delineate features and form, drapery, and pattern. The pigment is rendered permanent by fusing in the surface of the glass at a high temperature.

The most important step, of course, is the original design of the window. The artist must know the exact measurements and shape of the window. He must also take into consideration the location and amount of light allowed for this window. He is then able to make a small sketch in color, incorporating the theme that is to be used in the design of the window.

When this design has been approved, a large full scale drawing is made in accordance with the sketch. This large drawing, done in charcoal or ink, is called a cartoon. It is drawn very exactly, showing the wide, thick lines which will allow for the lead around each segment of glass. From this cartoon, several carbon copies are traced for the exact pattern. Each segment of the pattern is now cut with double blade scissors which simultaneously cut away a narrow strip of paper, allowing sufficient space between the segments for the core of the grooved lead. With these individual pieces of the pattern, the selection of glass can be made.

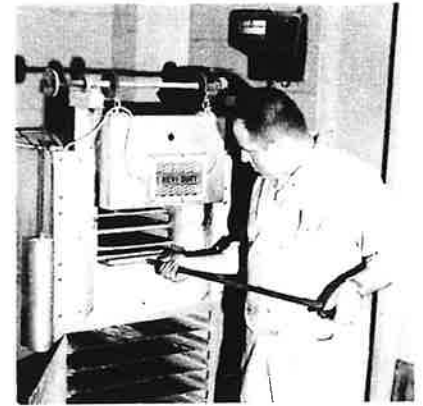
After the various pieces of glass have been selected and cut to the correct size, they are placed over the original cartoon and a light is cast from beneath the cartoon to aid in painting and tracing on the glass. A special paint, metallic oxide is traced on the individual pieces of glass, bringing out the individual characteristics such as facial expressions, fingers, hair, ornamentation, etc. All tracing is done in black, no colored paint is used since the glass itself portrays the colors used.

When all tracing is completed, the glass segments are firmly fastened to a large plate glass easel with beeswax. The easel is then tipped to allow actual daylight to shine through the glass segments. From this vantage the stained glass receives careful scrutiny and if any changes are made in glass selection or in tracing, the pieces are then removed and replaced at this time.

The glass is now removed from the easel, placed on asbestos sheets, and put in our electric kiln to fire at 1200° temperature. At this degree, the paint becomes fused with the glass so that it cannot be washed off, scratched off, or worn off. Firing this glass is actually an all-day procedure, including the slow cooling process.

Following this step, the glass is removed from the cooling chambers and now is ready for the lead. A very pure, soft lead is used, shaped around each segment of glass and cut to fit exactly. The lead strips are approximately 3/8" to 1" wide and the glass fits closely in either side of the grooved lead. Each joint is soldered on both sides. Finally the stained glass is cemented on both sides to make the windows waterproof and air tight.

The entire window is now completed. There may be as many as thousands of individual pieces of glass in the window, all combining their color and sparkle to the glorious beauty. The symbolism serves to remind you and to inspire you, quickening the emotions in the warmth and beauty that is spread throughout the interior of the church.



FIRING



GLAZING



SOLDERING



CEMENTING
WATERPROOFING