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The Craft of Color and Light

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Stained glass is often called a lost art, - and indeed, one need not travel far in most any community to find abundant evidence in support of this statement. Deplorable windows abound throughout the land.

However, the craft was never actually lost in the sense that secret processes and materials were possessed by the masters of the middle ages. We can duplicate any glass color that was ever made, and we are entirely familiar with all the methods of craftsmanship practiced of old.

What was very much mislaid was the instinctive understanding and appreciation of color, design and symbolism that distinguished the creations of the early craftsmen. That knowledge is being regained by many of our modern designers and craftsmen in stained glass, who look upon their work, not as a commercial venture, but as an urgent responsibility to provide a lovely accompaniment for Christian worship.

The monk Theophilus who lived in the middle ages, - probably in the twelfth century, - gives us an excellent account of mediaeval technique in his Essay Upon Various Arts. His work makes it clear that the craft is practiced today in very much the same manner as it was eight hundred years ago. It is true that paper now replaces the chalked board on which old designers made their drawings in crude, homemade charcoal; and that the diamond or steel wheel has done away with the hot iron that was used to fracture the glass in the old days, but the principle remains the same.

Stained glass is well called the handmaid of architecture, and that term implies its significant relation to architectural settings; but good stained glass is not fundamentally a question of style or period.

Its effectiveness has to do with inherent qualities of the material itself. A modern window should reflect something of our modern times. It must be related to contemporary thought in order to be alive. But it must be designed in terms of glass and lead, and with its architectural setting in mind. It must convey spiritual qualities to be reached through symbolism rather than realism.

Nowadays we have become so accustomed to looking at photographs and realistic pictures that we have lost something of our appreciation of symbolism. We are inclined to glance at the outer surface of things and fail to take the time or make the effort to look for the inner meaning, especially in works of art. If they are pretty and natural we are satisfied!

But stained glass is not a medium for realistic pictures or portraiture. Its significance is in terms of pure color, symbolism and design. It can be more closely compared to music than to the usual easel painting in oils or water color. Notes and compositions of vibrant color in ever-changing light are not unlike vibrating chords of sound,and their emotional appeal to the eye is comparable to the ear's reception of music.

A little lad was taken to Notre Dame Cathedral in Paris for his first visit there. As his father led him down the aisle they came in sight of the great north rose window just as the organ began to play. The boy looked up in amazement. "Listen Father", he exclaimed, "the window is singing". That boy, - the young Viollet-le-Duc, - grew up to become the celebrated architect who led the return to a true appreciation of stained glass after its degeneration during the Renaissance.

The vibrant, radiant quality of pure transmitted color in light is the most enduring charm of all great windows, although it represents the window-maker's greatest hazard. It is a common phenomenon. Most of us have noticed how a pin-

prick in a dark curtain against the sun seems to spread and grow to amazing proportions as we move farther away from it. The same principle applies to the painted pattern, lead and stay-bars of a window. They appear to be devoured by spreading light. Colors react in much the same way, but some radiate - or spread - more than others.

Blue possesses the most active radiation. Green, red and yellow follow in lessening degrees, and their power is retarded or increased by the translucency or transparency of the color.

Viollet-le-Duc rediscovered this phenomenon, so well known to the old masters of the craft, but so long overlooked during the Renaissance. He recorded it in his Dictionnaire de l'Architecture that was published in the middle of the nineteenth century. It did not make much of an impression on his contemporaries; even the glassmen seem to have ignored it entirely. But in his article, under the heading "Vitrail", is to be found the basic principles of color, light and optics as they have always applied to the stained glass craft. He explains how a powerful true blue will,under certain conditions, turn red areas violet, absorb yellow, and tinge whites and blacks alike with its own shade. He shows how thoughtfully placed patterns of paint and interposed lines of color can modify and control color schemes and make them function pleasantly. He demonstrates how the old masters in glass designed in terms of color and light, just as the composer arranges his scales and melodies in music.

The Renaissance craftsmen were not the only ones to go astray in their conception of stained glass. Lesser practitioners, following the lead of the artist, John LaFarge, adapted his materials and produced opalescent "picture" windows that violated every rule of good taste as well as the principles of the craft. Their glass, made with "opal" that gave it a milky appearance,

streaked with varying colors, was tortured into forms resembling folds of drapery, feathers for angels' wings and wool for the backs of sheep. They entirely forgot that a window is primarily an opening in a room to admit light, and that it is part of an architectural ensemble. They tried to disguise the lead-lines and to create illusions of romantic landscapes seen through holes in the wall.

Not only does the window's alliance to its architectural surroundings dictate its general character; the very nature of the materials of which it is composed suggests its treatment: glass, - hard, but brittle and transparent; and lead, - a comparatively soft and pliable metal.

The design is first studied in a small scale color sketch, developed further in a full size drawing. This serves as a guide to cutting the glass by tracing the leadlines through carbon paper onto heavier sheets that can be cut up to form individual patterns for each piece of glass.

The glass is cut from a sheet of the desired color and any definition or refinement of detail is painted on it with a metallic pigment that can be permanently incorporated with it by baking to the melting point. The pieces of glass are then assembled with strips of lead molded in the shape of the letter H. All meeting points of these strips are soldered so that every piece of glass is securely framed. A water-proof cement is rubbed into all the crevices between glass and lead to insure its resistance to the weather.

No matter how large the window may be, it is made in sections that a man can easily handle. Finally it is assembled in the frame, reinforced with metal bars at intervals sufficiently close to prevent warping and to provide protection from the strain of wind pressures.

The craft involves as many structural problems as other architectural forms, and to preserve its structural integrity, its inherent materials should not be

disguised.

A window need not be elaborate in order to be good; and,indeed, good design and color are just as essential in a simple and inexpensive window as in a more complicated composition.

All stained glass windows are made of practically the same materials. Their great difference lies in the artistry and skill with which these materials are used. Just as all composers of music use the same notes with vastly different results, so the craftsman in glass uses the same colors with varying degrees of success. Their arrangement, proportion and treatment make all the difference.

In evaluating stained glass, one should first look for pure, clear color, and sound structural composition. No matter how heavily a window is painted, it should not appear muddy or turgid. It should sing in the light. Even in its deeper, most somber passages there should be a quiet glow. Distinguished windows quicken the emotions; they appeal to the sentiments without becoming sentimental. In the hands of master-craftsmen this apparently hard and brittle material takes on elusive qualities of movement and life. It comes alive in the ever-changing light.

But stained glass is at the mercy of the light it receives. Obstructions and reflections in the path of light from without are sometimes responsible for damaging effects that are quite beyond the appreciation of the untrained observer. A neighboring wall or buttress may smother the illumination of a window at one time and increase it through reflection at another. The color scheme may be thrown off key by sunset reflections from red or yellow brick surfaces. Windows may receive a greenish cast from adjacent foliage, changing to autumn colors, and only be seen at their true value in winter or early spring. Surface light that attacks from within the building presents an equally troublesome problem. A brilliant

interior light will turn the most glorious window into a dull thing.

But disturbed and conflicting light-streams can generally be foreseen and, to a degree, controlled by expedients of painted patterns and textured glasses. The experienced and resourceful designer of windows is equipped to meet and overcome the challenge of adverse light conditions. The knowledge of the skilled technician is essential to the creation of distinguished works in color and light.

The master-craftsman and artist, Charles J. Connick, announced the significant splendor of stained glass: - "Windows are trumpets of rallying colors on sunny mornings; they defy dour skies on rainy days and buttress shadows in sunny weather. As you come to know them you will discover favorite moods in them. And while I hope you will remember all the hazards that threaten to mar their beauty, I am more eager to remind you of the fascinating discoveries you will make as you learn to look at active windows. You may also enjoy the thought that your growing appreciation of color in volatile light strengthens the hand and the eye of the creative artist in glass. For, as our own great craftsman, Walt Whitman once said,

'To have great poets
There must be great audiences too.'"