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The Fall and Rise of “Owl”

Robert Oddy

To my knowledge, only one of my windows, Owl, has suffered a really devastating accident. Owl is a 22" x 39" residential stained glass window (figure 1) that I made in 1988, three years after I began working in this medium. However soundly we construct our stained glass artwork, we cannot avoid the simple fact that glass is a fragile medium. Like Humpty Dumpty, Owl did not respond well to falling a few feet to the floor. The window's owner had moved house and taken the window with him. It was temporarily displayed on a window sill in the new home, awaiting a decision on where to re-install it, when a draft caught it and tipped it onto the floor.



Figure 1: Owl (1988) 22" x 39" stained glass

Robert Oddy, the original window

Fortunately, the distressed owner called me instead of depending on all the king's horses and all the king's men!

This article is an account of the work of restoring Owl back to good health. Although the task was initially daunting—and I put it off for a while favoring new creations—it turned out to be interesting. I was able to relive the experience of building one of my early windows, going back to an early stage in my career as a stained glass artist. I hope you will find this account good reading. One of the features that makes the Owl repair interesting is that many parts of the window are plated. In other words, they are made with more than one layer of glass. Plating is a technique that can be used to produce many interesting artistic effects in stained glass, but it comes with a price. If a plated window ever needs repair, the job will be difficult, time-consuming, therefore expensive.

Assessing the Damage



Figure 2: Broken Owl

Before I could undertake the repair work, I had to lay the pitiable wreck on the bench (figure 2) and examine every square inch for cracks. In addition to the very obvious state of the sky, much of which had fallen out of the window, several pieces in the rocks and tree on the left-hand side were cracked, the craggy stump at the bottom was ruined, and about twenty pieces in the bird's wings and body were broken. Some were not immediately obvious because they were in the lower layers. In all, about 25% of the original glass pieces would have to be replaced, accounting for about 80% of the total area of glass.

The first question I had to answer was whether I should repair the window or make it again from scratch. I decided that enough of the intricate and therefore time-consuming work in the owl itself had survived that the window was worth repairing. I made an estimate of the new glass needed and the time for the job, which was rather approximate because I do not usually undertake repair work unless the piece is one of my own. I quoted a cost to the owner, and the repair work was approved.

Finding Replacement Glass

Some of the opalescent glass, particularly in the sky, proved difficult to find. The glass I used in the original in 1988 was not newly manufactured even at that time. One factor in the choice of a replacement was that the window was destined to be installed in a light box, rather than in an exterior window, as it had originally been. I found a satisfactory substitute in a sky-blue and white opalescent by Kokomo. You can see in (figure 3) that this glass is much bluer in daylight. The whites are more prominent, and a little more yellow in white fluorescent light, more like the original glass appeared in daylight. Some of the glass in the rocks, tree and stump is also different from the original. I had no problem finding glass from stock in my studio to match the original glass in the owl's wings and body.



Figure 3: Glass for the sky in daylight (left) and in white fluorescent light (right)

Dismantling the Damaged Window



Figure 4: Old frame cut into pieces

While I was dismantling the broken window, I took many close-up photographs of both sides of the glass, so that I had a record of how it had originally been made. Although I still have the original full size drawing, it is not a fully fleshed out pattern. As usual with my work, some of the detail is decided as I go along and never gets onto the drawing.

The first task was to remove the glass from the frame. The old frame was made to fit the window opening in the original site and would not be needed for the new installation in a light box. The easiest way to remove glass that I wished to salvage was to cut up the frame (figures 4 & 5). I then separated the owl from most of the surrounding glass.

If a copper foil panel is well made, it does not readily come apart! To separate the individual pieces of glass along a foiled and soldered joint, we need to get rid of most of the solder and peel back the copper foil. I have found that solder wicks are not very effective for this job.

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Figure 5: Wood removed to release glass

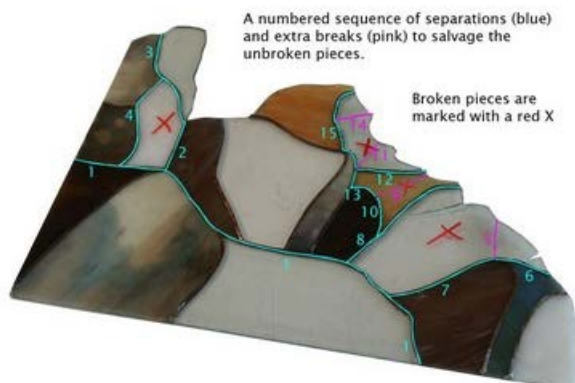


Figure 6: Separation lines for a damaged section

My method was to apply flux to the old solder and hold the glass vertically in the air, orienting the solder joint vertically

free. This is difficult if the joint is curved. Too much bending can break a piece that we are trying to salvage.

too. Working from the top, I slowly moved the iron along the joint, and gravity made the solder run down. I might need to do this two or three times so that the foil under the solder can be easily bent. Then I repeated the process on the other side of the glass. The next step was to peel the foil off the surface of the glass by either using a knife or by pushing it back with the soldering iron. Then I was able to try gently wriggling the glass

Sometimes I first separated undamaged pieces, and sometimes I made extra breaks in already cracked pieces to make the separation easier (figure 6).

The wings and body of the owl are all plated—three layers of glass in some places—and separating plated sections can be difficult. I first separated the wings from the body (figure 7). This turned out not to be too difficult, because I had originally made them separately and then joined them together as whole units.

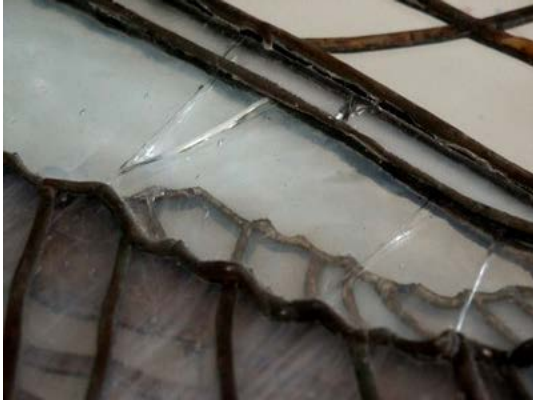


Figure 8: Some cracks in plated wing

This meant that the glass layers were not interlocked where the wings met the body, and the solder joining them did not penetrate beyond the surface. I examined the sections carefully for cracks, to determine which plates would need to be separated (figure 8). In this case, they all needed to be separated. I melted off as much as possible of the old solder from the edges of the plated section (holding the section vertically), then looked for a place where I could insert a thin blade between the layers as a wedge. Gently twisting the blade to provide outward pressure, I melted the solder close to the blade to widen and lengthen the gap (figure 9).

Working this way all around the plated section, eventually the layers came apart (figure 10). More important than skill is patience!

When the undamaged parts were separated from the broken pieces, the old copper foil was scraped away from the edges with a knife. Then the edges were thoroughly cleaned, the old adhesive was removed, and the pieces were refoiled (figures 11 & 12).



Figure 10: Three layers of a wing separated

I kept the broken pieces until I had selected and cut replacements so that features such as streaks in the glass would be replicated.

Rebuilding the Window

Fortunately, as is my habit, I had kept the original cartoon for the



Figure 7: Wing separated from body
(Note: Blue glass is easier to remove from corners after taking off wings...)

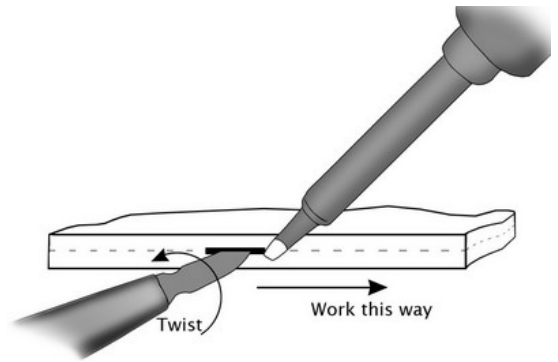


Figure 9: Prizing plated layers apart





Figure 12: Parts salvaged from the middle layer of wing

so long as the effects were the same. After all, I had had 19 years more experience since Owl was made. But I found that I actually wanted to change very little. In the wings, the only change was to use copper foil overlays instead of cutting separate pieces of like glass and in place of some wire. These overlays were sandwiched between layers, so they were quite secure.



Figure 14: Rebuilt middle layer of wing

where my performance has improved over the years!) Each layer was finished, patina'd and cleaned thoroughly, and the three were joined together by tacking around the edges. Finally the wings were attached to the body (figure 16), thus completing the bird (figure 17).

Owl window (figure 13). It was a little the worse for wear, showing historic evidence of the original fabrication that included burns and stains from flux, patina and blood! However, it was usable. I tackled each wing and the bird's head/body separately, as I had when first making it.

I was not, in principle, wedded to my original construction techniques

Figure 11: Parts salvaged from top layer of a wing



Figure 13: The original cartoon

I began with the middle of the three layers in the wing (figure 14). This is the most intricate and has all the color. I made new pieces to fit with the old and soldered them together.

The other two layers were rebuilt in the same way, with additional care given to making sure that they matched the middle layer closely (figure 15). (This was one aspect of the work



Figure 15: Rebuilt three layers of wing

The rocks in the lower left corner are made in two layers of glass to give the impression of 3-dimensionality by shading. Some of the glass in the second layer is plain window glass where I did not wish to change the appearance of the front layer glass (figure 18). Several pieces needed to be replaced, and since I could not find exact matches for all of these pieces, the new rocks look slightly different from the original ones. As the original artist I felt free to do this!

In the original dead tree on the left hand side, the shading effect was



Figure 16: Rebuilding head and body

produced by adding a thin strip of light brown glass along the back (figure 19). In the repair, I decided that I could get the same effect more simply by putting a copper foil overlay on the reverse

side of the tree trunk and branches.

As I have already mentioned, the sky had to be rebuilt with a different glass. Originally, the glass above the owl was blue/white and that below the bird was a white mottled glass. I replaced both with the same Kokomo blue/white, using whiter parts of the sheet below the owl.



Figure 17: Owl rebuilt



Figure 18: Rocks rebuilt with two layers yet to be joined

I also eliminated some of the extra lines that can be seen in the original. I have a confession to make at this point regarding my original work. The large blue-and-white piece above the owl cracked as I was cutting it.

Very large pieces are always harder to handle, and I was relatively inexperienced at that time. I was very upset, because it was such a beautiful piece and I knew I would have difficulty finding a similar piece, so I simply foiled the broken pieces and

joined them together. In the repair, the line from the owl's tuft to the top of the panel was necessary, because the glass sheets were not wide enough in the direction of the streaks to reach from tree to right wing tip (figure 21).



Figure 19: Tree, reverse side, before repair showing plated shading

The phantom wings are made in plain window glass. These had to be completely rebuilt. They were soldered along the reverse side of the tops of the real wings. The wing tips are glued to the back of the sky glass with tiny dabs of two-part epoxy adhesive. Notice that the copper foil lines get narrower as you go further away from the real wings (figure 20).

I framed the panel with brass bar for reinforcement, ready for



Figure 20: Reverse side of the panel showing phantom wings

installation in the light box.

Closing remarks

My aim in this article has been to share with you my experience of repairing one badly damaged window. In my regular work, I focus on doing original art, and am rarely called on to do repair work. Please do not accept this account as the last word on repair. You may very well be able to improve on my techniques. Also, I do not consider myself an expert restorer. There are important procedures to follow when restoring an historical window, which I did not think necessary in this case. Julie Sloan's 1993 volume from Art in Architecture Press, *Conservation of Stained Glass in America*, would be a good place to start if this topic interests you.



Figure 21: The restored Owl window

Finding replacement glass when the original was made many years ago can be difficult. One way to avoid this problem is to buy extra glass when you are preparing to make the panel, just in case it ever needs restoration. Such foresight might make sense for a very unusual glass or for small quantities, but to make a habit of it would be rather expensive. In the case of the Owl repair, I was willing to make compromises.

It is important to have a detailed record of the original panel. I was fortunate to have the original cartoon, but I still wanted close-up photos of various parts of the window (both sides) before I dismantled them. If you don't have the original cartoon, I suggest you draw an approximate one by tracing the solder lines over the damaged panel before taking it apart. It would also be a good idea to record the exact dimensions of the original, and draw an accurate outline within which to work.

Finally, although I would never wish Owl's fate on any of your creations, it can be a very satisfying and joyful experience seeing a ruined window brought back to life.