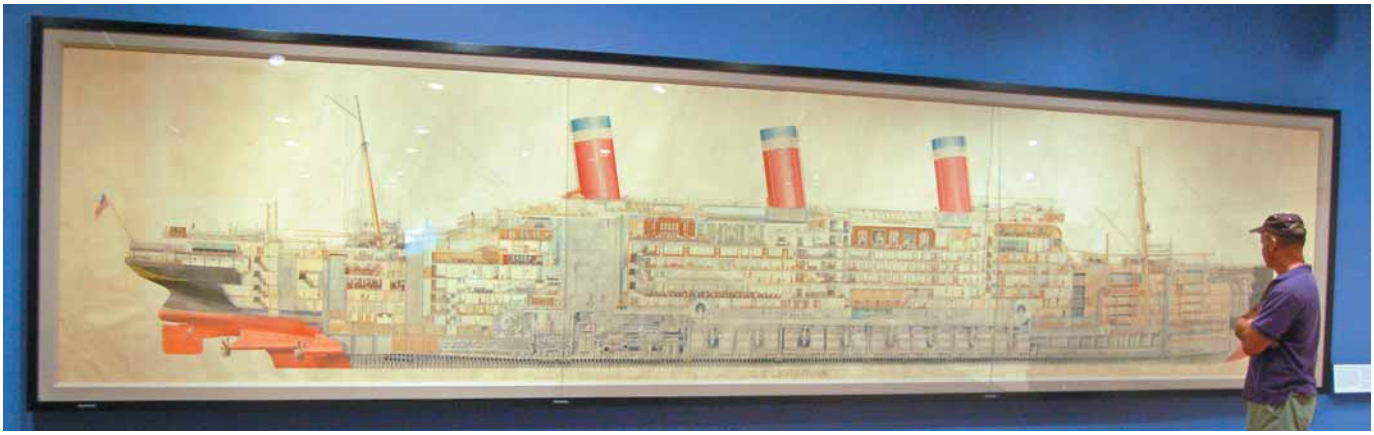
Big!

Creating an oversized frame for the National Archives required creative solutions and improvisation

By Bill Butler



The frame for the drawing of the SS Leviathan *at the National Archives was 25' long and 5' high and had a final assembled weight of almost 450 pounds.*

BIG! Celebrating the 75th Anniversary of the National Archives is an exhibition currently on view at the National Archives and Records Administration (NARA) in Washington, DC, that celebrates "Big Records, Big Events, and Big Ideas in American History." For Archival Art Services, also based in Washington, providing all of the framing, document mounts, and installation for the exhibit meant big challenges. The exhibit called for framing and mounting a number of works on paper that were 10' to 14' in length, but the most difficult challenge was framing a watercolor and ink rendering of the *SS Leviathan*, which needed a frame measuring 23'x5'.

The *SS Leviathan* was advertised as the largest ship in the world during its day and was converted from a luxury liner to a troop transport ship during World War I. The 1924 painting of the ship was made on a roll of continuous paper and backed with linen lining. Because of the size and storage problems this piece created for NARA, it had never been exhibited and had instead been stored in a rolled position. In planning and creating the oversized frame needed to display this artwork for the exhibition, safety and archival protection were the prime considerations.

Planning

On paper, the scaled drawings for the Leviathan frame as designed by Ray Ruskin, exhibition designer for NARA, seemed to be very carefully considered and the mechanics of the design were certainly straightforward. But at 23' long, every step of the framing was a logistical challenge.

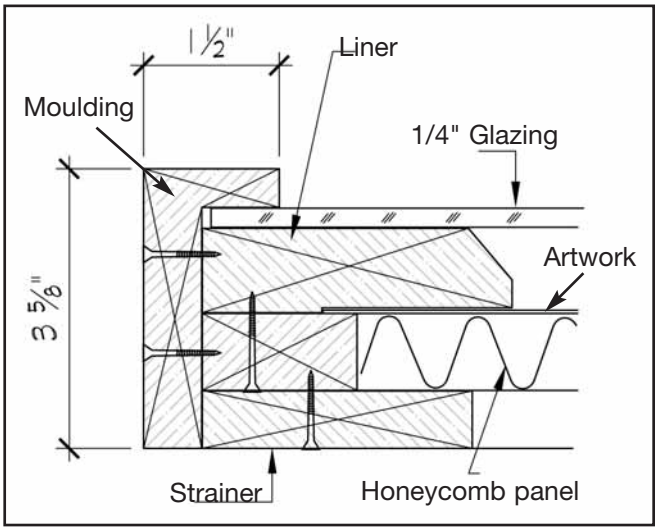
- The conservation labs at the NARA facility in College Park, MD, where the document was stored, was expansive enough to allow for all of the framing to take place there. However, the frame would have been too large to exit the building when assembled. So all the framing assembly would need to take place in the gallery, just a few feet from where it would hang.
- Considering all the components required for the frame, including three 5'x8' sheets of ¼" acrylic, the final assembled weight would be nearly 450 pounds.
- NARA could provide table space to work in the gallery, but only half of what was deemed necessary for fitting of the frame. It appeared that all the frame lengths, the support strainer, and the honeycombed aluminum panels used in the design would also need to be joined in the gallery, requiring significantly more space. A NARA conservation team of four to six people, headed by

Senior Conservator Susan Page, would hinge the art to the completed mount while six staff members from Archival Art Services worked on the frame components. This would make for a sizeable crowd working in the gallery, adding a potential risk to the painting.

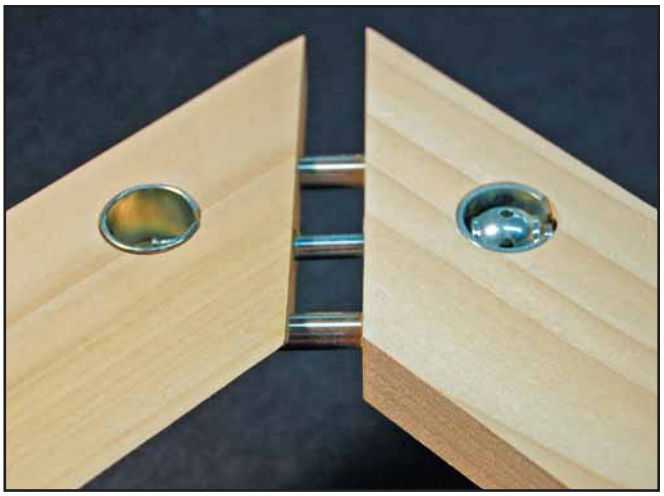
Frame Design

The design of the frame called for a number of customized elements. These included (working from the back to the front of the frame):

1. A wooden support strainer constructed of 1'x4' poplar with five vertical crossbars. The top member of the strainer would be cut at a 40-degree angle to provide a built-in hanging cleat.
2. Three ½" honeycomb aluminum panels with mounted museum board on the facing side (provided by Smallcorp) would then be screwed into place through the support strainer. This combination of strainer and honeycomb panels would provide the final solid mount to which the painting would be hinged.
3. In place of a conventional mat, a 3½" wide and 1" thick wooden liner would be used. The longest members of the liner would need to be spliced to provide the 23' length. After all four lengths of this liner were made and mitered, they would be sanded smooth and covered entirely with Lineco frame sealing tape to create an aluminum barrier that would prevent off-gassing and contamination from the wood. The liner frame would then be wrapped with Raphaels #884 natural linen. The liner also provided a 1/16" offset on the back to accommodate bulk from the wrapped linen. This portion would be in contact with the border of the painting. Volara foam



A cross-section sketch of a corner of the frame shows the construction.



The joints of the support strainer were secured with an expansion bolt and two stainless steel dowels that created a very strong joint that could be drawn together. The top member of the strainer (left) was beveled at a 40 degree angle to fit a reciprocal wall cleat for hanging.

A honeycombed aluminum panel with 4-ply Museum board laminated to the surface was secured with screws through the support strainer below, making a very rigid, solid platform to which the art was hinged.

The linen-wrapped liner was also joined with an expansion bolt and two stainless steel dowels for extra strength.

After the frame was joined, it received the final finish in the workshop.

Heat is applied to the fabric-wrapped liner to smooth the fabric and complete the adhesion to the 3M 465 double-sided tape.

The frame was held vertically in front of the display location, elevated off the floor and held away from the wall by standoffs before the glazing was installed. White vertical supports kept the frame from sagging while the glazing and art was added.

would be added later on to the back of the liner to provide a cushion and some compression to hold the painting in place. This liner would later be screwed to the mount from below.

4. The glazing for the frame would consist of three 65"x91" sheets of ¼" acrylic with polished edges. The three sheets would be butted together and the seams covered with J-Lar clear tape. This tape would be applied using a mist of water on the surface of the acrylic and on the adhesive side of the tape and then squeegeed to produce an invisible look.
5. The outside frame would be milled from white oak 1¾" wide and 4" deep and painted satin black with a clear wax finish. Like the liner lengths, the frame moulding needed to be spliced to create the two 23' rails. The frame would also be drilled along the outside to secure the frame to the support strainer and to the wooden liner during final fitting.

Preparation

Although much of the preparation could take place in the Archival Art Services studio, the joining of the frame, liner, strainer components, and honeycombed panels was to take place in the National Archives gallery, as the final assembly would be too large to get out of the building. To be certain, however, a wooden replica representing the outside dimensions of the completed frame was made. Surprisingly, it made it out of the Archival Art Services building with 3" to spare). This meant that the entire frame, liner, and mount could be delivered intact to the National Archives gallery. Twelve folding crate handles were attached to the back of the strainer to allow six workers to carry the 280-pound frame. The glazing would be delivered separately.

After the final weight of the frame had been determined to be more than 400 pounds, new logistical questions arose. Originally, the plan was for the conservation team to complete the final hinging on the mount face up on the set of tables in the gallery. The fabric-wrapped liner would then be set in place and secured with screws to the mount. However, it soon became clear that it wasn't feasible to then lay the glazing on top of the liner as originally planned because the seams of the glazing would need to be misted with water for the J-Lar tape. This would have introduced moisture to the painting. It would also be very difficult to finish the frame and then raise the 400-plus pound unit off of the tables and to a vertical position.

A New Plan

And so a new plan was devised for fitting the frame. It would take place with the frame in a vertical position. Hinging the art was done face up on worktables 10' away and parallel to the wall where the painting would hang. The liner was then set in place and secured, holding the painting firmly to the mount.

With the cleats already hung on the wall, four wooden

armatures were attached to the wall just below the cleats. These extended 5' out from the wall. At this point, the completed mount with the painting and liner was moved to a vertical position along the wall. The frame was raised up on blocks 16" off the floor while the armatures captured and held the frame in place at the top.

With the armatures and blocks holding the frame, allowing access to both sides, the three acrylic sheets were installed into the frame from behind and the J-Lar tape joining them was squeegeed from the front. After the glazing was cleaned, the final fitting was done by "walking" the art and its mount to the back of the standing frame, lifting it into place, and then securing it with screws around the exterior of the frame.

To install the completed frame on the wall, two sculpture lifts were positioned under the frame. With staff holding the frame, the wooden armatures were removed from the wall. The frame was then raised and lowered onto the cleats. In the end, the plan worked perfectly and met all of the challenges, providing a beautiful and safe presentation for this unique, oversized artwork. ■

The completed frame, minus the artwork and glazing, was carried up the front steps of the National Archives, the only possible entrance to the building. The frame weighed 250 pounds at this point.

Bill Butler is president of Archival Art Services, which has provided framing for museum exhibitions, private galleries, and collectors for more than 20 years. The company, which has a studio and design showroom in Washington, DC, has also made frames and displays for the Emancipation Proclamation, Gettysburg Address, and Louisiana Purchase.