

SAVING MAINE'S COLOURS: STRATEGIES IN FLAG CONSERVATION & EXHIBITION AT THE MAINE STATE MUSEUM

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ABSTRACT — Maine has an extensive collection of flags and banners dating from statehood in the 1820s to Desert Storm. There is a long tradition of flags being displayed in the Hall of Flags, in the State House. The Hall, Maine's ceremonial center of government, has widely fluctuating environmental conditions, detrimental to the ceremonial artifacts the space held. The challenge to the Maine State Museum team was to make the flags more accessible through interpretation and visibility while retaining the original presentation in the Hall of Flags. Cramped storage conditions and prior treatments complicated the matter: in the 1960s a third of the collection were machine sewn between layers of nylon netting. Only a small percentage was returned to the State House. Working with conservation consultants, Museum staff replaced the flags in the Hall of Flags with replicas, cleaned and stabilized the originals, mounting them on exhibit-ready panels, and organized exhibits where flags are rotated every size months. The two-year project employs highly capable conservation technicians with project-specific training. It uses a system that combines display and storage, designed such that mounted flags are easily rotated from closed racks below to a slanted top surface, allowing ease of rotation with minimal staff. Rotation, interpretation and on on-line photo gallery dramatically increase public access to the collection. At the same time, the Hall of Flags, Maine's ceremonial heart of government, retains its historic appearance without compromising fragile symbolic artifacts.

SALVANDO LOS COLORES DE MAINE : ESTRATEGIAS PARA LA CONSERVACIÓN Y EXHIBICIÓN EN EL MUSEO ESTATAL MAINE

RESUMEN — Maine posee una extensa colección de banderas y estandartes que van desde la época del Estado de Maine en 1820 hasta los años de la Guerra de la Tormenta en el Desierto. Existe una larga tradición de exhibir las banderas en el Salón de las Banderas, de la Casa Estatal. Este salón, centro ceremonial de gobierno presenta amplias fluctuaciones en las condiciones ambientales, lo cual es perjudicial para los artefactos ceremoniales que se encuentran en este lugar. El reto planteado al equipo de trabajo del Museo Estatal de Maine era hacer las banderas más accesibles para su interpretación y visualización, manteniendo al mismo, tiempo su presentación original en el Salón de las Banderas. Las condiciones inadecuadas de almacenamiento y los tratamientos anteriores complicaron la situación: En el año de 1960, un tercio de la colección fue cocida a máquina entre dos capas de redicilla de nylon. Apenas un pequeño porcentaje fue devuelto a la Casa Estatal. Trabajando con consultores de conservación, el personal del museo procedió a reemplazar las banderas del Salón de las Banderas por réplicas; los originales se limpiaron y estabilizaron, y se hizo el montaje de las mismas en paneles listos para exhibición, donde las banderas son rotadas cada seis meses. El proyecto de dos años requirió conservadores técnicos capacitados especialmente para este trabajo. Se uso un sistema que combina exhibición y deposito de tal manera que las banderas montadas se puedan rotar fácilmente de los estantes a las inclinadas superficies para exhibición dando la posibilidad de ser rotadas fácilmente con el mínimo de personal. Rotación, interpretación y una galería de fotos a través del internet aumentaron dramáticamente el acceso del publico a la colección. Al mismo tiempo en el Salón de las Banderas, el corazón de la gobernación de Maine etuvo su apariencia histórica sin comprometer los frágiles y simbólicos artefactos.

1. INTRODUCTION

The proper display of historic flags is often expensive and their mounting cumbersome. Flags are fragile and have often been poorly stored. The conservation and preservation of the State of Maine's flag collection is a story of preservation, access and affordability. Much of this was possible due to the collection's past history and restorations.

The Maine State Museum wanted to have a protected long-term, climate-controlled display of their collection. An exhibit space was designed to both store and display their collection. The collection was mounted on covered aluminum honeycomb panels and stored in carts. Three short

carts, each holding eight flags, were installed in the exhibition gallery behind glass. The space on top of the carts was designed to display the mounted flags on a slope. Given the limited Museum staff time, having the storage within the display allowed for ease of a twice-annual rotation. When the rotation of all 24 flags is complete, these flags are to be replaced with others from off-site storage.

2. HISTORY

The Maine State Museum has over 330 flags in its collection, dating from the 1820s to the 1990s. They range in size from a few inches square to over 85 feet long. About half of the flags in the collection came from the Hall of



Figure 1. View of the Hall of Flags, ca. 1872. Note the careful arrangement of flags in the case. This design involved tacking flags to the wall and cutting off many staffs so flags would fit. Captured Confederate flags are visible through the arched door to the left. These flags were repatriated in the 1920s.

Flags in the rotunda of the State House. The Hall of Flags is the ceremonial heart of State government and honors Maine's veterans. For many people, Maine's historic flags offer a way to connect with history or with ancestors who fought in our nation's wars. The State's flags therefore hold a profound symbolic value to both the State's government and its citizenry.

The Civil War flags in the State House have suffered many indignities, including being arrayed in the open in the late 1860s and early 1870s, during which time they were extensively handled and many suffered loss to souvenir hunters. In 1871, the State approved the purchase of an oak and glass case for the Hall of Flags (fig. 1). The arrangement was dramatic, but flags were stretched and tacked in place, and staffs were cut off to fit them into the case. During renovations in 1907, the legislature purchased the two large cast iron cases that still grace the Hall of Flags. Two smaller cases followed in the years after the First World War.

By the 1960s, many of the Civil War flags in the Hall of Flags were in tatters. As with several other states, Maine encased its Civil War flags in nylon netting, a treatment that was popular at that time. The netting process provided the illusion of strength, while hastening the disintegration of the flags. The deterioration caused by handling and well-meaning restoration measures was aggravated by

environmental conditions. A 1993 IMLS Assessment of the museum's collections identified the flags in the Hall of Flags as a high conservation priority, and called the Hall's environmental conditions "the foremost threat to the collection."¹ Light levels in the Hall ranged from a low of 33 foot-candles (fcs) to a high of 166 fcs. A year long survey of the light levels was undertaken and found that controlling the light levels sufficiently in the Hall could not be done². In 2000, when the State House was undergoing renovations, the Museum staff removed the flags from the Hall of Flags.

Recent efforts to preserve the State's flag collection began several years ago. In the mid 1980s, Maine State Museum curator Brian Sipe began research on the flags in the Museum's care. The flags not displayed in the Hall of Flags were moved to a storage building with better environmental controls. In 1992, the newly founded Friends of the Maine State Museum adopted the flag collection for the Museum's first-ever external fundraising campaign, "Save Maine's Colors." In the mid 1990s, Museum staff photographed many of the flags and stored them in newly purchased cases.³ Douglas Hawes succeeded Sipe as curator in 1996. Under his tenure a conservation condition survey revealed the serious nature of the threats to the collection. Hawes was an avid proponent of removing the flags from the Hall of Flags. Public access to the flags was the sticking



Figure 2. The front of the mid-size case in the gallery. The adapter bar is attached to the front and back of the mounted flag with Velcro buttons. Other small mounts are visible in the installed cart.

point for State legislators, who remained determined to keep the flags in the State House, despite the deteriorating conditions. Hawes was able to convince the reluctant legislators with a rational approach⁴, stating that not removing the flags would, in the end, cause more damage, with possible solutions being very costly.

When Laurie LaBar came on board as curator in 2000, she was able to capitalize and elaborate on Hawes's education campaign and implement the program. Working with conservators Gwen Spicer and Ron Harvey, she approached the Legislative Council with a detailed plan to replace the flags in the Hall of Flags with replicas. The originals would be cleaned, stabilized and housed appropriately. The public would have greater access to the flags than ever before by way of a long-term exhibit in the Museum, as well as by having images and background information on the Museum's web page.⁵

3. OVERVIEW OF CARTS & MOUNTS

3.1 CART DESIGN

Each of the carts or "Rolling Storage Carts" are designed by SmallCorp, made with a powder-coated aluminum frame and shelf supports for each mount. The sides, top and bottom are covered with 3 & 4 mm thick sheets of rigid aluminum sheet with polyethylene core⁶. UHMW tape (ultra high molecular weight polyethylene) was applied to the top edge of each shelf support and allows the mounts to slide easily, especially the larger mount sizes.

Each cart has heavy-duty, total locking swivel casters appropriate to the size of the cart⁷. One of the exhibit cabinets was put on gliders to fit a space under stairs. The large

and short-sized carts were shipped in five pieces that were clearly labelled for easy assembly. This allowed for ease of handling and lower cost of shipping, due to their more compact size. It also allowed them to fit through smaller doorways.

3.2 FLAG MOUNTING

Each flag was mounted onto an aluminum honeycomb panel in one of four sizes⁸. The panels were each covered with needle-punch batting and cotton display fabric. Glides made of "L" shaped aluminum powder-coated strips were attached with screws to the two sides. The flags were laid on top, positioned and secured.

3.3 ADAPTER BAR

During the course of the project, a new size mount was introduced, made possible by Adapter Bars. These bars are "L" shaped in cross section, are as long as the width of the storage cabinet, and secured to the front and back edges of the mount with Velcro buttons. While storage unit size was based on the size of the majority of flags in the collection, several important flags did not conform to the "standard" sizes. With the adapters in use, a few smaller panels could be ordered and stored in place of larger panels, allowing a custom fit for these unusually sized flags (fig. 2).

4. CONSERVATION

4.1 SURVEY

The collection was surveyed in the summer of 1997. This laid the groundwork for better understanding the condition, sizes, and variety of types as well as a general overview of the collection. A notable finding was the extent of the collection treated by netting by Mrs. Josephine Rosser in the 1960s. Ninety-eight percent of the Civil War flags were treated. The flags in the worst condition were those that had been exhibited the longest in the Hall of Flags. During the 1970s, some rotation of the flags occurred. However, over time this practice had stopped and the flags in the last group showed severe diagonal losses due to the light exposure. These were determined to be the flags being most at risk. Fortunately, black and white photographs of most of the flags were taken as they were removed from the cases in the Hall of Flags before they were sent to Mrs. Rosser. This allowed us to locate her fills and determine the condition of each flag before her work.

Also in 1997, dataloggers and Blue Standard fading cards were placed in the Hall of Flags to accurately monitor temperature, relative humidity and light levels. This data was then used to convince the State legislators and others of the importance of the flags' removal.



Figure 3. The flag being unrolled onto the mount with the attached tubes in place.

4.2 CONSERVATION TEAM

A dedicated team of qualified workers with varied, complementary backgrounds was selected. The team was made up of the curator, two conservators and two flag technicians. In addition, Museum conservation technicians provided support, set up the initial lab, and oversaw both the environmental monitoring and material selections of the final exhibition in the Hall of Flags and museum. Both flag technicians had extensive sewing backgrounds. Marion (Toosie) Scharoun was a coach trimmer and has operated a custom sewing business. Dona Smith has worked in the conservation lab at the museum since 1993 and was familiar with the philosophy and ethics of conservation. These two women were to treat the collection with the oversight of the conservators and curator.

4.3 TRAINING OF TEAM

The team was trained in an intensive week of basic flag conservation techniques. The techniques included: documentation & photography, vacuuming, humidification & relaxation, conservation stitching, preparation of the mounts, attachment to the mount, and fringe stabilization. During the first week, the technicians learned to understand the nature of fragile fibers, especially silk. Training first focused on the mounting of the netted flags. Procedures for record keeping, note taking and photography were established. Since they would be performing the duties mostly on their own, there was extensive discussion on knowing when to stop and ask questions while encouraging them to think on their own. All techniques and steps were originally performed under the guidance of the conservators. During the course of the next two years, more extensive training occurred encompassing stabilization treatments on the non-netted



Figure 4. The assembled humidity chamber. The plastic is supported by the arching PVC pipes secured at the corners of the foam insulation board. (In the background is the "wall of progress" The pictures of the flags that have been treated.)

flags. Therefore, in the course of each visit by the conservators, the technicians gained more breadth and in-depth experience.

4.4 SPACE

As with many institutions, storage space at the Maine State Museum is tight. Due to the downsizing of the Natural History Department, staff was able to clear the former taxidermy lab and retrofit it for flag conservation. The space measures 36' 8" by 12' 8" (456 square feet), which is barely wide enough, but it is located adjacent to the Museum's storage areas, which is critical to the project. Adjustable-height tables were built in 1997 for the flag conservation survey, and these were moved into the new flag lab. They have lockable casters, so they can be pushed together when the team is focussing on one flag. To increase working space, a spare mounting panel was placed atop each table so the technicians could work on two flags simultaneously. The lab was already outfitted with a sink and fume hood. The hood serves simply as a makeshift cupboard.

The first two flag cases that the Museum commissioned in the 1990s were designed to fit into a gap in existing floor-space. As a result, Civil War flags, which measure approximately six by six and a half feet, must be stored folded⁹ within these cases. Because the current stabilization plan involves laying flags out flat, the new storage cases from SmallCorp were sized to fit the flags, and not floor-space. Based on the size of the flags that make up most of the collection: Civil War guidons and regimental flags, as well as military regimentals from the mid 20th century, three panel and case sizes were established.

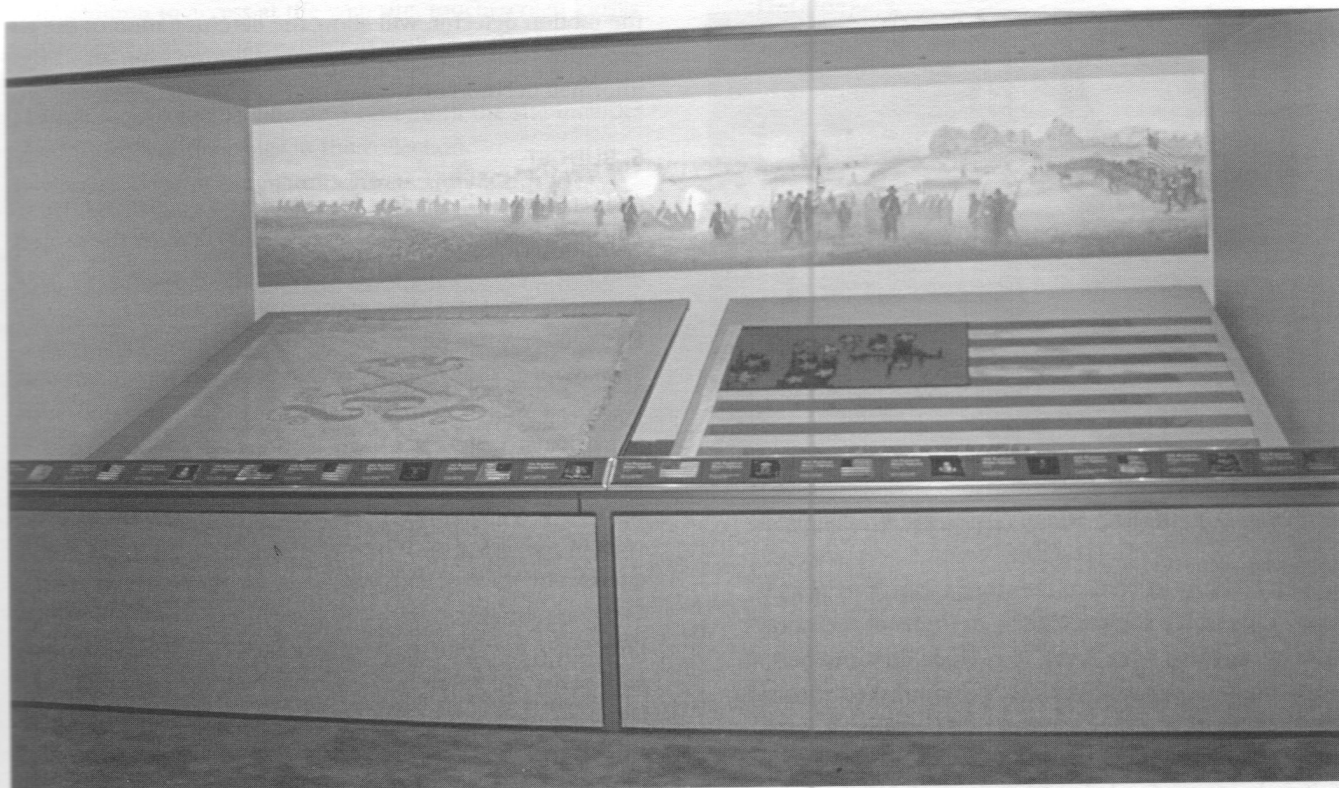


Figure 5. The large, double capacity, flag case in the exhibit. Storage for flag rotation is hidden behind the cloth-covered panels below the flags.

4.5 TOOSIE TUBES

In the course of the project, the technicians came up with solutions for various situations that solved the problem better than the more conventional methods. Throughout the project there was a sense of "thinking outside the box". One such technique that became known as the "Toosie Tube," consisted of localized pillows of needles-punch batting covered with display fabric attached to the mount to ease the excess amount of flag. Much of the excess, or bulging in the fabric, was caused by the applied fringe and sewed seam. Once the flag was laid down on the mount and smoothed, it was then fully supported (fig. 3).

4.6 NETTED FLAGS

For several flags, the treatment was in essence treating the applied netting. None of Mrs. Rosser's netting was fully removed from a flag. This was felt to be outside of the overall approach to the project, as well as unnecessary. However, stitches were locally clipped to allow the silk to lie flat. There were several occasions where the silk had small creases held by the machine sewing. Flattening the creased netting required longer and repeated procedures.

4.7 HUMIDITY CHAMBER

An example of creating solutions on a budget was the design of the humidity chamber for the projects by the Museum conservation technicians. It was constructed of

two panels of 2" thick, 4' x 8' sheets of blue board insulation¹⁰. PVC plumbing junctures were secured to the corners and were slightly angled to receive PVC 1/4" piping. Once the two panels were fit together and the piping inserted, plastic could be easily draped (fig. 4). As treatments progressed, one of the foam panels was cut in half to allow for easy access for smaller flags. The foam was also found to be useful for the occasional pinning.

5. EXHIBIT DESIGN IN THE MUSEUM

Great care was taken to ensure that the climate in each of the exhibit cases was as stable as possible. The Museum is of a 1970s design with minimum climate and no relative humidity control typical of that era of construction. A method was needed to limit fluctuations. Through testing with dataloggers, it was found that simply creating a sealed case would remedy this.

Museum staff designed two display cases that incorporate hidden storage units. The large case accommodates two of the largest size panels and storage units, positioned side-by-side. It also accommodates a datalogger. The smaller case displays a single flag. With the use of extenders in the storage areas and covered label panels to fill in display areas, each exhibit case can accommodate two different sizes of panels. This allows for the greatest flexibility to display all of the flags from the collection.

The flags on display are supported by "extra" honeycomb panels. These panels are held in place by angle iron

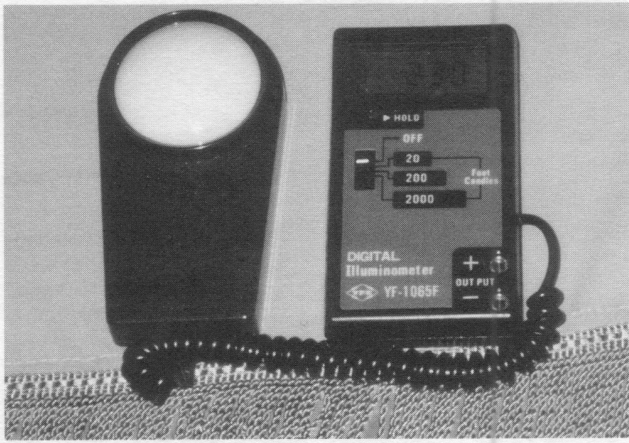


Figure 6. The fiber-optic lighting in the gallery allowed for the low 2.5 fcs measurements. Replica flags were used during lighting adjustment.

supports. Short versions of the storage carts are located below the display surface. The open fronts of the storage cases are covered with Tyvek to exclude dust and permit air circulation. Their top surface is camouflaged with cloth that matches that used elsewhere in the gallery. Cloth-covered panels disguise the storage cases from the front. Visitors have no visual clues that upcoming flags are stored within the gallery (fig. 5). Each storage case within the exhibit holds eight flags. Rotating the flags takes less than an hour of staff time. The displayed flag simply slides out and is placed into storage, and a new one replaces it.

Lighting the flags was a major concern for Museum staff. Fiber optic lighting proved to be the solution. The double display case contains two fiber optic units, each of which can accommodate 32 strands. This enabled exhibit preparators to light the case and its back lit label panel, as well as an adjacent case displaying flagstuffs. Most of the light on the flags is directed from the front, where a narrow screen of painted aluminum hides the fixtures from view. In the back ceiling of the case, preparators created custom recessed light boxes to hold each fiber optic fixture. These consisted of black film canisters with a hole drilled in each base to accommodate the fiber optic cable. The smaller display case also houses a fiber optic lighting unit, which is used for the flag case as well as an adjacent case.

The exhibit team's goal in terms of lighting was to illuminate each flag with no more than 5 fcs. With fiber optic lighting, preparators achieved light levels of 2.5 fcs (fig. 6). Because the overall lighting in the gallery is subdued and the lighting provided by the fiber optics is even across the flags, this low light level of 2.5 fcs is adequate. In addition, case lighting is tied to motion sensors, further reducing the amount of light to which each flag is exposed. Concerned with the total light exposure time of our most sensitive flag, the Museum conservation staff installed a light on/off datalogger. This device, along with

the motion detector, will allow the determination of the fcs exposure /season or year. Given this information an informed decision on display time can be made.

6. BUDGET

At first glance, the budget for the project appears robust. The State Legislature appropriated \$200,000 for the project that was subsequently used as match for a grant from Save America's Treasures. This grant provided another \$200,000.¹¹ Some additional monies were available from Save Maine's Colors. This provided support for an assistant curator as well as donations earmarked for the stabilization of particular regimental flags.

Because the flags are being stabilized in-house, and the panels are designed to go from storage to display, the costs of stabilizing each mounted flag is one-third to one-quarter the price of early estimates for their conservation. There are, however, over 330 flags in the State collection. Funding is not sufficient to allow each flag to be mounted on a panel. Decisions on which flags will be mounted are based on each artifact's history, as well as its materials and exhibit potential¹². Some flags in the collection are simply too large to be mounted practically. These include a ship's pennant that is over 85 feet long.

7. CONCLUSION

The goals of the Maine State Museum's flag project are two-fold: to stabilize the flag collection and to increase public access to the flags. Through the stabilization plan, the installation of replicas in the Hall of Flags, an exhibit, and web access, the Museum achieved those goals. In the process, the project produced innovations such as "Toosie tubes" and extenders. Thanks to such a creative-thinking and able team, the Museum was able to accomplish this work far below original cost estimates.

NOTES

1. Ron Harvey performed the assessment of the museum's collections in 1993.
2. These particular measurements were made on a grey morning in mid-November with light streaming in from under a blanket of clouds through the east-face windows of the Hall of Flags. Because of the historic integrity of the Hall, and its frequent use for public events, the space could not be altered in a way that would reduce light levels sufficiently.
3. Crystallizations Systems, Inc constructed the case. They measure 6' by 10' by 7' tall.
4. This approach included replacing the flags in the Hall of Flags with reproductions and creating a rotating exhibition in the Museum. Hawes was aided by Ron Harvey who spoke to many textile conservators.

5. In addition to access at the web site, touch-screen kiosks are located in the flag exhibit as well as at the State House. Initially these venues included over 150 flags. More flags will be added over time until the site includes all of the 300-plus flags in the collection.
6. Dibond is one of the manufacturers. SmallCorp uses Alpolic by Mitsubishi.
7. The wheel materials, which are made of hard composite that does not mark the floor, vary depending on caster size.
8. The four sizes are: large, 89" x 90"; intermediate, 63" x 71"; medium, 52" x 62"; and small, 36" x 44".
9. The flags that required folding are all netted and the fold supported with fabric covered, teardrop shaped tubes of acid-free mat board.
10. This is also known as Gray Dow, R-10.0.
11. Save America's Treasures is administered by the National Endowment for the Arts.
12. Several heavy wool guidons from the mid-1900s, for example, are in very good condition. This enables them to be stored and potentially displayed without mounting.

ACKNOWLEDGEMENTS

The authors would like to thank the many people who provided support and ideas that only made this project successful and who helped in editing this paper. This was truly a team effort of Maine's "can do" approach. Linda Carrell and Judy Ritchie provided thorough technical support and environmental monitoring throughout the project, as well as equipping the lab with all of the necessary sewing supplies. Ron Harvey has been an important advisor throughout the project, from the early 1990s onward. He coordinated and supervised the environmental assessment of the Hall of Flags, and helped with exhibit case design. Dr. Steven Cox and Robert Lewis at the Museum archaeology lab cheerfully tolerated an invasion of conservators and were always willing to lend a hand, from loaning slide loupes to unpacking case shipments.

SOURCES OF MATERIALS

Batting

Troy Mills, Inc
18 Monadnock St.
Troy, NH 03465-1000
603/242-7711

Carts, Support Panels & Adapter Bars

SmallCorp Inc.
P.O. Box 948
Greenfield, MA 01302
800/392-9500

Dataloggers

Onset Computer Corp.
PO Box 3450
Pocasset, MA 02559-3450
800/564-4377

Fabric

Philips Boyne Corp
135 Rome Street
Farmingdale, NY 11735
631/755-1230

Humidity Chamber & Fabric

PVC Piping & Insulation Board
Local Hardware store
Dura-Vent(Polypropylene, non-woven)
TestFabric
P.O. Box 26
West Pittston, PA 18643
570/ 603-0432

Mounts & Storage Cart

SmallCorp Inc.
P.O. Box 948
Greenfield, MA 01302
800/392-9500

Staples

Monel (1/4", 6mm)
(Local hardware store)

Storage Cabinets

Crystallizations Systems, Inc.
1595A Ocean Ave.
Bohemia, NY 11716
516/567-0888

Tapes

Double-sided tape
University Products

Thread

DMC Embroidery Floss

Polyester Thread, Skala

TestFabrics

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MARION SHAROUN worked with several restorers on early autos and horse-drawn vehicles, doing the upholstery and top-work from 1980. Clients included the Stephen Phillips Memorial Trust, Salem MA, Amesbury, MA Historical Society and private collections. She also worked in the trim shop at Gullwing Inc., Essex MA that specializes in early Mercedes Roadsters, from 1989-91. She has done custom sewing for the home since the mid-70s.

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