

The Conservation and Renovation of the First Parish Church Interior, Brunswick, Maine: A building designed by Richard Upjohn and built in 1845

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Abstract

This paper will focus on the interior conservation work executed at First Parish Church, Brunswick, Maine. Designed by Richard Upjohn and built in 1845, the building had escaped aggressive restoration and had retained all of the decorative treatments specified by Upjohn. Lack of maintenance and inherent structural and environmental problems required extensive building conservation. A combination of design, conservation and craft skills were necessary to complete the project. Conservators assisted in the design of a new organ loft and developed finishing treatments essential in blending the loft with existing grain painted woodwork. Conservation work included cleaning, isolating, stabilizing, consolidating and in-painting of the historic decorative treatment and its substrate. Conservators worked closely with the parish budget committee, an architect and several tradesmen to insure a high level of preservation within fiscal constraints. A large group of church volunteers was utilized to assist in conservation procedures. Participation of volunteers presented unique leadership challenges while making possible the completion of a large scale project. The Society for the Preservation of New England Antiquities Conservation Laboratory provided microscopy services which proved invaluable in developing treatment protocols and cost projections.

Historical Background

The prominent hilltop location of First Parish Church exemplifies the importance this structure plays in the spirit of the community in which it resides. “There is an air of dignity and repose about the whole building, exceedingly appropriate to a Christian temple, and the passing stranger will be repaid for the trouble of seeing what the taste and liberality of our neighbors have achieved.”¹

By the year 1844, the coastal town of Brunswick, Maine had become a busy manufacturing town. A succession of revival meetings had swelled the congregation of First Parish Church so much that by February 1845, the Parish had voted to “take down, or otherwise dispose of the present Meeting House, and erect a new one on the premises, according to the plans of Richard Upjohn, Esq.”²

Designed by Anglican Architect Richard Upjohn, the structure represents the new ideology of the picturesque.³ The building’s design incorporated board and batten sheathing, deeply recessed openings, turrets, pinnacles, quatre-foil and lancet stained glass windows and a grained painted finish. Upjohn received \$250.00 for his limited services.⁴ He visited Brunswick twice during construction and corresponded with Professor Smyth of Bowdoin College over details and problems concerning the design and construction of the building.⁵ Church records document nearly one hundred local craftsmen and members of the congregation as being responsible for the supervision and construction of the meeting house. These community residents produced a structure that is a uniquely American interpretation of a British Anglican style of architecture. However in 1844, the building committee expressed disappointment in securing local tradesmen to complete the painted and grained finish. Upjohn had specified a quarter-sawn oak grained painted finish for all interior plaster and woodwork and recommended to the building committee a Mr. William Wingham of New York City to execute and oversee the finish.

In an account of the March 1846 dedication, the editor of the *Christian Mirror*,⁶ wrote a favorable description of the building including words of appreciation for the interior painted finish. “The whole interior is of one color and apparently of one material, timber, plastering, and wooden panels, all grained

in imitation oak, and so admirable that every plank furnishes something to admire.”⁷ Reminiscent of medieval woodwork, the interior’s impressive graining and open timber truss system made up of “beautiful arches, braces and pillars, which sustain the immense roof”⁸ portray a sense of theater evoking the spirit of the Gothic Revival movement.

Interior Conditions: 1990

In 1988, First Parish began planning for a complete restoration of the exterior and interior of the building. The church, suffering from structural defects and lack of maintenance, exhibited a wide range of deteriorated conditions. These deteriorated conditions can be attributed to the following structural problems; design miscalculations, difficulties in construction and building settlement. Pockets created by the junction of the double-pitched roof and the pinnacles combined with the exposed end grain of the board and batten sheathing assisted moisture retention in the exterior walls. The structure’s flexible light weight frame proved inadequate in resisting the hammer beam roof construction’s lateral thrust causing diagonal cracking within the plaster. Difficulties in the raising of the building’s frame lead to misalignment with its supporting piers. Lack of centered supports contributed to plaster cracking, aggravated by the church’s location within a traffic circle. During plastering of the interior unfavorable conditions resulted in its freezing, substantially reducing its strength. Water saturation of the plaster prior to re-roofing, flashing and re-painting the exterior provoked deterioration of the interior grained dado and decorative stencil. Radiators located along perimeter walls combined with water in-migration to accelerate plaster decay through condensation freeze-thaw cycles occurring within the wall cavities. Subjected to thermal stress, horizontal cracking developed with the expansion and contraction of the lath. Moisture infiltration caused areas of the plaster to lose self-adhesion and its keying ability to the lath, resulting in visible bulges. Softened by the presence of moisture and subjected to wear by church activities, the plaster exhibited extensive areas of loss and overpaints.

By May of 1990, neglect and water damage had resulted in the unstable and unsightly condition of the plaster dado. Advised by the architect, the building committee was considering complete removal of the grain painted plaster dado and replacement with a painted wallboard system. At this time, only one member of the building committee was concerned about preserving the original integrity of the interior finish.

An Arts and Craft style stencil design stained in rivulet patterns and located along the perimeter walls directly above the dado displayed paint delamination. Painted in 1969 with latex paints, church members recalled its re-painting by Paul Gruenwald, a local artist who replicated the decorative stencil below the present visible one. Portions of the underlying stencil were revealed by the peeling latex paint and its pattern appeared coated with an oil resin varnish. Upon removal of a brass plaque mounted within the stencil design, a third stencil pattern was discovered. Readily soluble in water, this layer was thought to be distemper. Severe moisture problems coupled with incompatibility of paint materials caused paint layers to bubble up or peel away from its plaster substrate. No sampling for microscopy was done for any of these layers as the building committee expressed desire to have the 1969 stencil cleaned and repaired.

According to the *History of First Parish Church* by Ashby, it is “doubtful” that the reredos was in place when the church was built and the pulpit was a “full section higher than it is today.”⁹ Unlike other grained surfaces, the reredos was badly crazed and its substrate brittle to the touch. Accretions of dirt and coal dust gave it a more ashen color than that of the interior grained woodwork. Sections of the reredos were blanched, fret work broken, gilded balls within cove molding painted over and its crosses so dirty that the original gilding showed no luster.

With study, the pulpit revealed an entirely different graining than that of the pews and dado. More red in color and not as skillfully executed, it verified church documentation and microscopy results for a later coating of graining corresponding to a renovation of the pulpit.

The quarter-sawn oak grained painted finish on the sanctuary pews and dado was remarkably preserved despite the wear it had sustained. Perhaps the combined seacoast location with a more consistent humidity, the tenacity of lead paints and driers and little exposure to ultra-violet light created the resilient and highly readable mid 19th century decorative finish. Also remarkable was the vast amount of detailed graining and its consciously planned arrangement of pattern. The scale of oak graining found on the reredos and gallery fronts is similar to that found in natural wood while a slightly larger scale is found on the pews and dado. Elaborate medullary ray configurations are found in locations most visible to pew owning parishioners with the odd exception of a recessed arched panel found on a gallery front. Very realistic, this example exhibits such flourishes as small painted stress lines radiating from a painted knot. Graining on pews alluded to butted board construction by utilizing a straight edge to break the grain pattern into 8-10 inch wide false boards. The plaster dado is broken into 10 inch wide panels delineated by wooden battens grained to match.

With eight painters working under Mr. Wingham's direction, individual styles of graining and skill levels are detectable although the whole is so artfully blended together that careful study is needed to differentiate the various grainer's work. Highly figured sections of medullary ray configuration are interspersed with sections of plain combing. The larger medullary ray sections on the pews and dado do not appear to have been accomplished by the use of a hand method of wiping out the glaze to reveal the lighter ground coat color. Conforming flawlessly to natural oak, the position and shapes of these medullary ray configuration suggest that Mr. Wingham might have used a mechanical or transfer process to wipe out the lights.¹⁰ Decorative finish sources from the 19th century describe various types of roller devices covered with leather and embossed felted paper with raised medullary ray or heartwood patterns. Rubber covered rollers such as "Bellamy's Patent" (London),¹¹ enabled a grainer to use either distemper or oil for the graining medium. These devices were rolled through the colored distemper or oil glaze absorbing the medium and leaving the pattern in the negative on the base coat of paint. Repetition of medullary ray patterning is not present throughout the church eliminating the possible use of any roller device known to cause repeats. "Gransorbian" or "English Graining Paper"¹² may have been utilized as it was available at the time. These papers offered a wide selection of figures to choose from and could be cut and manipulated to avoid patterns. Available in 24 inch widths, these thick absorbent papers with raised ray patterns were pressed into combed sections to remove the wet glaze. A section could be used 12 to 16 times with an oil glaze and was produced in 14 varieties of wood.¹³

A 20th century organ loft constructed in plywood and simply finished with a dark stain was clumsily perched on the wall opposite the chancel. Application of a dark murky varnish coated the graining on all the upper building elements in an attempt to blend the later organ loft addition into the sanctuary. Numerous drips on lower elements resulting from the dark coating applied above contrasted with the lighter oak graining below. Addition of the dark over-varnish gave a gloomy appearance to the impressive complexity of Upjohn's design.

Contractual Arrangements

A conservation and preservation approach to the interior restoration work would be accepted only if executed within a limited budget. A slide presentation was presented to the parish financial committee focusing on conservation and preservation principles. At the financial committee's request, conservators trained church member volunteers who would execute the necessary and large amount of wood work cleaning. In order to lower per diem costs the conservators agreed to lodge, while in Brunswick, with church members. Agreement was given to these requests.

All other phases of the restoration work had gone to bid and were contracted on a firm cost basis. The church requested a similar contract with conservators for what was, at this point, an unknown scope

of work. Conservators declined and instead, proposed estimates based upon time and materials were submitted for sampling and testing in order to develop cost projections and scheduling.

The conservators requested a commitment to the conservation of the interior from the building committee overseeing the restoration. The contract began with the following: *Herein, the term "Conservation" is defined as "conserving to the greatest extent possible the original painted and grained finish and stencil design above the dado." Any suggested or desired embellishment for the surface treatments that can not be substantiated historically will not be supported.*

Because there was no preservation architect involved with the project, the building committee presented conservators with a variety of problems and challenges. Conservators requested assurance that design plans for the proposed organ loft and conservation treatments would be adhered to by the architect, tradesmen and church volunteers. In addition, the contract clearly stated that responsibility for the conservation work completed by volunteers resided with the church and not the conservators. Conservator's responsibilities were described in the contract accompanied with cost estimates. Building committee responsibilities, such as the designation of a church member as the volunteer supervisor and readily available liaison between the committee and the conservators, were also included in the contract. The contract was signed by the church and became very important in the later working phase of the project.

Microscopy

Eight samples were taken from interior painted surfaces, cast in Extec polyester resin and polished to expose cross sections. Susan Buck, Furniture Conservator, at SPNEA¹⁴ prepared and analyzed the cross sections at 125X and 250X using an Olympus BH-T Series II ultra-violet microscope. Samples were also examined under visible light. The samples were stained with;

1. (ITC) Triphenyl Tetrazolium Chloride 0.1% in acetone to detect carbohydrates
2. (EITC) Eosin Isothiocyanate .25% in acetone and (FITC) Fluorescein Isothiocyanate 2.5% in ethanol to detect proteins
3. (DCF) Dichlorofluoroscein .2% in ethanol and (RHOB) Rhodamine .06% in ethanol to detect oils

Samples were taken from the following surfaces; a column, plaster wall above the stencil design, balcony pew, dado molding, plaster dado, sanctuary pew, reredos and pulpit. Microscopy revealed that all samples except for the pulpit sample matched in their seriation of decorative paints and all layers seemed appropriate in their composition materials for a 1845 date. The pulpit cross section exhibited two separate layers of graining as expected. Analysis disclosed the original overall wall color to be a reddish-orange layer coated with a plant resin. Presence of this plant resin layer suggest the original walls exhibited a sheen while sealing the dado's ground coat color from sequential graining layers. Examination of the stained layers under the microscope displayed a positive reaction for carbohydrates, proteins and oils. This information conforms to descriptions of decorative finish procedures stated in 19th century guide books. These decorative finishes frequently called for emulsion paints followed by separately applied oil and distemper glazes then enhanced and protected by a plant resin varnish.

Through analysis it was discovered that no graining existed on the dado molding and that the plaster dado had thick coat of red lead paint applied prior to the application of a cream colored ground paint. Although the reredos is assumed to be a later addition to the church interior, the cross section is similar to all other grained surfaces.

Comparative analysis showed that the thick, dark over-varnish appearing on the upper church elements was applied to a pitted and therefore aged surface, confirming earlier speculations. This coating exhibited an absence of resin and its waxy appearance resembled in character the colored shoe polish often used by restorers in the past to artificially patinate surfaces. Based on the microscopy findings, and

considering that a group of volunteers would execute the cleaning, it was decided that a surfactant system would be tested to remove the dark over-varnish coating.

Cleaning

Due to many variables involved and church member participation, each aspect of the project requiring cleaning was subjected to a number of tests. Testing was conducted to establish effectiveness, surface retention and user safety. Charts including; the cleaning solution, location and size of test, and observations and comments were used to record results. Results of these tests were used to determine cleaning treatments for the grain painted woodwork, reredos and stencil design.

The following soap and water solutions were tested in a transept gallery on the over-varnished grained woodwork: Ivory flakes, Orvus, Triton X-100, Murphy's Oil and Vulpex. There were no appreciable effects by any of the soap solutions except for the Vulpex. A 5% solution of Vulpex in warm water had dramatic effect upon both the dark over-varnish on the upper elements and on the dirty woodwork and dado below. Saturating a section with the Vulpex solution and allowing it to remain damp on the surface for a few minutes swelled the coatings so that the over-varnish could be taken up with a clean, warm moist rag leaving graining glazes intact. If the surface was rubbed with too great an effort or for too long a time, graining glazes were dissolved exposing the ground coat color. Numerous red-brown overpaints were reduced or eliminated by additional applications of the Vulpex mixture. Conservators, concerned about surface swelling, rinsed with 30% solution of white vinegar in water immediately following the sudsings in an attempt to lower the surface pH level. Areas were then wiped dry with clean cotton cloths. Tested areas were left for six months to check for any visual changes caused by the Vulpex. There were no changes.

Organization to utilize approximately 140 church member volunteers began with an introductory meeting for all those interested in contributing their time towards the massive amount of cleaning. Conservators then trained, in greater detail, eight church member volunteers to act as work crew supervisors to be present at each work session. Supervisors were responsible for mixing all solutions, organizing supplies and overseeing the work performed by 5 to 10 volunteers. Members of all ages and ability working side by side in cleaning caused conservators to be concerned about differences in the degree of cleaning possibly presenting a patchy overall appearance. There was no proposed treatment for a final blending varnish that could have aided disparately cleaned areas.

Supervisors proved to be intensely interested in obtaining the desired results with their crews and were able to successfully oversee large volumes of cleaning in which all elements blended and no decorative coatings were dissolved. Volunteer management and scheduling was done by the Project Director and Volunteer Supervisor independently of conservators. A work journal kept in the supply room allowed volunteers and supervisors to communicate with conservators over problems, log times and request supplies. Conservators presided over regularly scheduled meetings to instruct supervisors and praise efforts. During the lengthy cleaning process, conservators recognized that within this group of supervisors and interested volunteers, a valuable resource of labor existed for the large amount of in-filling, in-painting and in-glazing that would need to be done.

All of the upper elements such as beams, struts, braces and purlins required staging to access the work and were cleaned by the General Contractor's crew using the Vulpex mixture. Conservators were concerned about potential tide lines appearing as lengths of beams were washed. There was the possibility tradesmen would work so hard at cleaning that graining glazes would be removed. Conservators worked with tradesmen for several days in order to instruct and organize the cleaning procedure. In the conservators absence, tradesmen soon discovered that if a 5% solution of Vulpex in water worked well than a 50% solution would work much faster! A greater effort was made by the project director to supervise the General Contractors cleaning crew.

After four months time in the fall of 1991, 13 gallons of Vulpex, enough white vinegar to seriously curtail the home pickling activities of the residents of Brunswick, 6 tradesmen and 140 church member volunteers with over 4000 hours of time, had cleaned all of the painted and grained woodwork and plaster in the sanctuary. The visual difference of the cleaned graining elicited a unanimously favorable response by a now committed congregation.

Plaster Consolidation and Stabilization

Fraught with a multitude of problems, stabilization and restoration of the plaster dado and its decorative treatment presented several challenges. Areas of crumbly plaster needed to be consolidated and loose plaster needed to be reattached to its wooden substrate with minimum disruption to the painted finish. Testing of various isolating coats and the proposed reattachment process was necessary to develop a conservation treatment compatible in materials and with surrounding areas. After cleaning, Liquitex Soluvar varnish adjusted to match the sheen of adjacent areas, was used as a protective coating over the original grain painted finish. The varnish provided adequate protection while remaining reversible until completion of the reattachment process.

Sections of crumbly plaster were saturated and consolidated with a solution of Acryloid B-67 in mineral spirits. Areas of loose-bulging plaster were reattached to the wooden lath by a technique developed by Morgan Phillips.¹⁵ Small holes were drilled through the plaster itself in order to inject the pre-wet and adhesives. Dust and debris were removed from these drilled areas with a vacuum cleaner in preparation of injection. The pre-wet solution was squirted vigorously into the drilled holes through the use of a hand pump sprayer. Amount of plaster failure determined which of the two types of acrylic resin adhesives were applied. Where the space between the lath and the plaster was small (3mm or less) an unfilled adhesive was injected through the use of a syringe. For larger voids, a formulation with a shrinkage compensating ingredient was injected with a specially adapted caulking gun. These adhesives, traveling behind the plaster, were injected until all the voids in the vicinity were filled or sufficient back-pressure indicated areas were full. After application of the acrylic adhesives, the loose plaster was keyed back to the wooden lath during the set period. For areas that received the unfilled adhesive, a spring-loaded padded framework with silicon paper was used to bring the plaster into alignment with its surrounding areas. For sections that received the filled adhesive wood screws, large plaster washers and silicon release paper protectors were fastened into the sound lath to achieve alignment with adjacent areas. After the prescribed set period all mechanical fasteners were removed.

Various plaster patching compounds; Polyfilla, Permafill, Red Devil Spackle and a mixture of Thoroseal Acryl 60 and USG Moulding Plaster, were tested to determine their compatibility with the original plaster and their ease in application. Repair of small cracks and voids by a select group of church volunteers required a ready mixed material that was easily available. Both Polyfilla and a traditional mix of Thoroseal Acryl 60 and Moulding Plaster were rejected as they required mixing. Permafill was dismissed because it was subjected to shrinkage. Red Devil Spackle produced a surface compatible with the original, was easy to apply and required no mixing. Once determined, Red Devil Spackle was tinted by conservators with dry pigments to reduce the necessary in-painting. Large cracks and voids were filled by conservators with in-kind materials. The select group of volunteers also completed the in-painting and touch up work essential in blending these filled voids into the existing dado. Areas of color loss were in-painted with Maimeri Colours in Soluvar.

Conservators requested one section of approximately 44 square feet of damaged plaster dado be removed and replaced by the General Contractor. A traditional plaster system was used to replicate the deteriorated area. Metal lath was installed over the existing wooden lath. Application of a scratch coat followed with a smooth level finish coat blended the new plaster with adjoining areas. This new section of plaster required replication of the grain painted finish.

Cleaning tests prior to the plaster stabilization of the stencil design revealed that the majority of the area could be effectively cleaned with a solution of Ivory flakes in water. Stubborn and heavily stained areas were further cleaned with the same xylene emulsion used in cleaning the reredos. Plaster stabilization of the stencil design followed the same procedures utilized in the dado stabilization. Displaying signs of paint delamination the stencil design required re-adhesion of peeling paint, filling of paint loss areas and in-painting. Brittle edges of the delaminated paint were softened with heat and successfully re-secured with the injection of an adhesive. Testing assorted adhesives revealed gelatin to be effective without causing staining in re-securing paint edges. The warm gelatin was applied with a syringe. Delaminated paint sections protected by silicon release paper were held into position using a warm tacking iron. Once paint edges were secured, voids and adhesive injection holes were filled with Permafill and leveled smooth. An acrylic isolating coat provided a protective barrier between the plaster fills and their in-painting. In-painting was completed with gouaches and the entire stencil design area was given a protective coating of Soluvar. All areas which received conservation treatments including work completed in the dado were indicated on treatment report drawings.

The Architect recommended installation of a vinyl wall covering to cover the numerous cracks in the plaster walls of the sanctuary. Conservators raised concerns regarding the wall covering and its effect as a vapor barrier. A decision to eliminate the wall covering was made and plaster repairs above the stencil design were performed by the General Contractor's crew. Standard building trade procedures, utilizing fiberglass mesh tape and patching materials, were used to repair the cracking wall plaster.

Replicating the Quarter-sawn Oak Graining

Removal and replication of one section of the plaster dado was necessary due to its extreme state of deterioration. This one section of 11 panels had also received dark and glossy coatings of varnish obscuring the graining. Conditions of this section presented the only objectionably disruptive area in the entire dado. Because of this section's location on the South transept chancel wall, on sunny days, it became flooded with warm afternoon light making it imminently visible.

Prior to the removal of the plaster, conservators traced the original graining patterns in all 11 panels in order to replicate patterns in their original placements. Three panels exhibited medullary ray configuration and others were plain combed. When the battens were removed from the walls, it was discovered that the dado had been grained with the battens in place providing an excellent source of the graining's base color.

Testing of all glazes and base coat colors was necessary to insure that combined layers would produce a correct match when finished. Masonite was cut into 10 inch widths imitating the dado. Microscopy results, various decorative painter's guides dating from 1845 to 1936, conservator's previous experience and study of the original graining allowed for the speculation upon the mechanics of matching the finish as it appears presently. Conservators agreed the original layering sequence of the grained finish may have been; base coat of paint, oil based glaze (combed or manipulated), distemper over-graining glaze and protective coat(s) of varnish.

After applying a close match of base coat color, a color matched oil glaze reflected too stark a contrast between glaze and ground to match the softer quality of the old. By mixing a warm grey distemper glaze and applying it over the base coat color, the subsequent oil glaze combined with the base gave a softer, slightly dirty appearance. The distemper glaze was made of sweet white wine and water, colored with universal dry pigments. It was quickly found that this distemper needed a stronger binder to remain hard and in place when the oil glaze was applied over it. After unsuccessful trials of adding gouache pigments (gum arabic) to bind the distemper, success was achieved by adding acrylic matte medium to the glaze. This glaze was applied with a Rake Brush after rubbing the panels with whiting

and dusting off to prevent sissing.¹⁶ Addition of this glaze over base coated plaster gave a cool, lightly distressed and stone like quality to the base paint and brought the color into a closer match with the original. Time spent in color formulations was crucial as new work had to lie ultimately within a body of original work and be undetectable. Conservators then faced the problems of mixing an oil glaze which would be the correct color, have a similar density of pigment, be “me-gilped” properly so as to “stand the comb”,¹⁷ dry sufficiently to be re-coated the following day, and come to tack within 30 minutes while holding that tack for 1.5 hours. Although timing of the glaze would not have been nearly so important to the original grainer’s, it was essential now to allow for the laborious method planned for putting in the medullary rays. Conservators were planning to take out ray patterns within transferred lightly penciled lines with a chamois cloth and Q-tips, therefore the glaze had to maintain a similar tack for a long enough period of time to provide uniform removal of the glaze.

Differing glaze formulations were tried beginning with historic formulas. After combining many historic materials in various proportions, conservators were pleased with a combination of; linseed oil, turpentine, colophony, universal dry pigments, japan drier and whiting. This combination formed a viscous glaze supplying all the desired working properties. Due to known degradation properties of colophony, conservators decided to use an alkyd resin varnish to replace the colophony and turpentine component of the glaze. The final oil glaze consisted of; satin alkyd varnish, boiled linseed oil, dry pigments to match in color and density and whiting to give me-gilping properties. This glaze was set enough for combing in 45 minutes and remained wet enough to take out the lights for up to 3 hours. The glaze required no additional drier due to the alkyd varnish and was hard enough the following day to coat.

Following the formulation of the oil glaze, another distemper was mixed to match the over-graining glaze seen in the original painting. White wine, water, pigments and acrylic matte medium were combined and tested over the combed and figured oil glaze. Bristles of a pipe over-graining brush were cut to match the width of striations observed in the original graining. Distemper glaze was picked up on the brush and lightly brushed down the length of the sample panels, the glaze being deposited on the oil graining in a positive manner as in the original. Although samples were rubbed well with whiting or coated with a thin layer of shellac and sanded, the distemper glaze sissed badly and would not brush down the panel in an even run to achieve the fluidity or softness of color perceptible in the original. After coating the sample panels with a mixture of bleached and orange shellac, a thin oil glaze was mixed to mimic the distemper in color and viscosity and satisfactory results were achieved. The shellac coating isolated the first glaze from the second while imparting color necessary to aid in matching. The glaze was composed of; alkyd varnish, flattening oil, pigments to match and mineral spirits to thin.

Steel combs wrapped in silk and a triangularly shaped rubber comb were used to match the combing done by Wingham and his men. Combing techniques were practiced in the oil glazed surface for enough time to become relaxed and discover both maneuvers and nuances that produced the same patterns as the original. Following descriptions in historic painting manuals can be relied upon to give similar results to the historic. Badly damaged battens were successfully re-grained by using fine nylon scrubbing pads copying the procedure recommended in painter’s manuals suggesting the use of a worn piece of sisal carpet.

The over-graining glaze was succeeded by a coat of Soluvar. When dry to the touch but not yet hard, the surface was artificially aged with abrasion from burlap, 400 grit sandpaper and nylon pads. Artificial dirt was added with acrylic pigments mixed into thin glazes scumbled over the panels and blotted. All graining glazes, shellac, Soluvar and acrylics were coated over each other before thoroughly dry to intentionally cause fine crazing lines resulting from the curing of coatings. A final coat of Soluvar matching in sheen to adjacent panels was brushed on to unify the section.¹⁸ The building committee requested 3 other panels in separate areas be re-grained due to their unsightly conditions. The plaster

treatment drawing includes locations of newly grained panels. Conservators utilized no volunteer help for the re-graining as it was believed it would not have been cost effective to do so.

Wall Color Selection

“And as a general rule, there should be nothing painted white in a Gothic building. The lightest tint should be a shade of drab color. This does not seem a very desirable hue for any thing, according to the common judgment; but being in fact a stone color, it forms the most sober and pleasing finish, for the inside walls and woodwork of a church. It is solemn without being gloomy, and shews the workmanship of every part to the best advantage.”¹⁹

Since the plaster walls above the dado had been painted white since the beginning of the 20th century, no member of the congregation had remembered viewing any other color than white on the walls. Conservators presented researched information along with microscopy results and color samples to the building committee to aid in their selection of a wall color following the repair of the plaster walls. SPNEA prepared a color card sample based on the study of the wall paint sample. The color card sample was a reddish-orange color of medium-low value and intended to mimic the 1846 wall color. The building committee considered the proposed color too dark for their already dark interior. Conservators prepared additional color cards after considering the building committee's concerns, the color of the existing rose-red carpet, the microscopy and the research.

The walls were painted with a latex low lustre Sherwin-Williams paint matching color cards prepared by conservators and approved of by the building committee. The final color is described as a rose-sandstone, pleasing to members of the congregation and blending well with existing colors in the sanctuary.

Organ Loft

The building committee asked that conservators review and make recommendations in the design of the proposed new and much larger organ loft intended to serve the active music program at First Parish. Rather than a constructed pine organ loft requiring a grained finish to match the original graining, conservators recommended that the loft be constructed in quarter-sawn white oak veneered plywood finished and distressed to match the grained woodwork. Conservators suggested that all moldings, newel posts, balustrades, battens and plastering match in design and scale to the North and South transept galleries. The recommendations differed significantly from the Architect's design. Recommended changes were made to insure the organ loft's blend into the whole of the interior while being as cost effective as possible. The Architect allowed the many changes to be made and the building committee requested that volunteer labor be utilized by conservators for the organ loft's finishing work. Conservators refused to work with volunteers on this phase of the project because of difficulties in the proposed treatment and volunteer scheduling restrictions. Experienced finishers were hired and imported by conservators to assist them in the execution of the organ loft finish.

Reredos

When the Vulpex solution was tested on the reredos, unlike all other woodwork, there was no appreciable cleaning effect. The aforementioned surfactants tested also had no appreciable effects. Acetone and isopropanol gels made the surface gummy and caused surface blanching. Xylene emulsion was tested by leaving it on the surface for 3 minutes and by rolling with swabs, the grime was lifted from the crazed and dirty graining. All surface accretions were removed with emulsion and cleared with Stoddard solvent in xylene. The surface appeared clean and saturated and the now visible contrast between colored glazes and ground coat heightened the illusion of quarter-sawn oak in the grained surface. The reredos was again appreciated as an appropriate Gothic style backdrop to the pulpit

A small group of volunteers were trained in cleaning method using the emulsion and worked with conservators on the reredos. Volunteers were advised to use respirators and solvent resistant gloves. High sections of the reredos requiring access by the use of staging were cleaned by conservators. Soft nylon scrubbing pads were used to dislodge the grime. The use of volunteers to clean allowed conservators to complete other conservation work on the reredos while maintaining close supervision.

All nails, tape and thumb tacks were removed from the surface. Broken fret work was repaired by using hide glue as an isolating layer followed by adhesive of Aral-dite A V1253. One missing ball was replaced in a cove molding and finished to match. Balls were cleaned and touched up with Maimeri Colours to match previous restoration color. Crosses and IRS within fret work were cleaned, isolated with Soluvar and re-gilded over original bronzing powders by pouncing interference pigment labeled "brilliant gold" over the slightly tacky Soluvar. Sections of the reredos with graining glaze losses apparently due to previous over-zealous cleaning efforts were in-glazed with Maimeri Colours in Soluvar. All touch-up work was done with Maimeri Colours in Soluvar with volunteer help to complete the touch-up. A sounding board which had been incorporated into the reredos in 18482, extended over the pulpit and was constructed in pine finished with a red stain and shellac. Mis-matching the reredos and the interior of the church in color, the building committee requested that conservators alter the color to match.

The reredos was washed with mineral spirits, waxed overall with butchers wax and buffed out by volunteers. Volunteer assistance on this project allowed for its completion and avoided the use of approximately 120 hours of conservator's time. At the end of this project, church member volunteers were unwilling to allow the future use of nails, thumb tacks or tape on the reredos or woodwork in order to hang the annual Christmas decorations.

Conclusion

A collaborative effort, combining various disciplines involved in historic preservation, proved valuable in overcoming the wide range of conservation problems in First Parish Church. This cooperative approach to problem solving produced creative solutions that may not have been realized independently.

Analytical treatments were developed by utilizing laboratories offering microscopy services to private 5 conservators. Conservators and tradesmen shared their trade skills and experience which enabled development of a comprehensive strategy for the building's overall treatment. An active stewardship was established by involving church members intimately in the conservation work of their meeting house. Presumably, trained church volunteers witnessing the results of their own work within a building they share spiritual ownership of, will notice more quickly the building's condition and question more closely the proposed methods of repair and maintenance.

Flexibility on behalf of conservators in private practice has become necessary due to declining public and private financial resources. As preservation-conservation funds have become more limited, conservators may be asked to fulfill expanded roles. By educating and training volunteers who are committed to the preservation of their buildings a vast amount of conservation work can be realized. An additional benefit to the volume of work accomplished is the shared satisfaction that develops between people who work together towards a significant goal. Through the conservator's developed vision, there is ample opportunity for instruction and demonstration of current preservation philosophies which will effect more technically and historically sensitive restorations.

Working with volunteers require conservators to summon patience not usually needed when working solely with other conservators or tradesmen. Conservators have to be willing to share possession of the work with lay people and to make sacrifices in the integrity of a treatment for the sake of the whole.

Protecting the liability of conservators and insuring quality of the workmanship can be accomplished by organized and effective communications, supervised work times and contractual

arrangements. Conservators were fortunate in this project to have worked with building committee members who possessed leadership skills and supported conservation processes.

The cooperative spirit of community members during the initial building of First Parish Church was repeated again in the 1991-92 restoration of the sanctuary. With a large base of diverse and well served parish members, First Parish Church remains very much a meeting house which nurtures community members and displays its taste and liberality to any passing stranger who takes the trouble to visit Brunswick, Maine.

*This paper is dedicated to the memory of
Kathleen Alice Lewis
Decorative Painter and Friend
September 4, 1948 — January 10, 1993*

Full Treatment Report(s) are available from the authors upon request to:

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Bibliography

Ashby, T. E. 1969. *History of the First Parish Church in Brunswick, Maine*. Brunswick, Maine: J.H. French and Son.

Bell, J. W. and Harris, S.B. 1993. *Organizing Volunteers for Preservation Projects*. Windsor, Vermont Preservation Trust of Vermont.

Byrne, L.M. 1853. *The Artist and Tradesman's Companion*. New York: Sterns and Co.

Feilden, B.M. 1982. *Conservation of Historic Buildings*. London: Butterworth and Co. Ltd.

Hasluck, P .N. 1913. *Practical Graining and Marbling*. Philadelphia: David McKay.

Harris, C.M. 1977. *Illustrated Dictionary of Historic Architecture*. New York: Dover Publications.

Hopkins, J.H. 1836. *Essay on Gothic Architecture with Various Plans and Drawings for Church; Designed Chiefly for the use of the Clergy*. Burlington, Vermont: Smith and Harrington.

Howe, K.S. and Warren, D.B. 1976. *The Gothic Revival Style in America, 1830-1870*. Houston: The Museum of Fine Art.

- Parson, F. 1895. *The Art of Graining. A Practical Treatise on Graining and Modern Decorative Imitations*. Chicago: Press of the Western Painter
- Phillips, M. W. 1980. "Adhesives for the Reattachment of Loose Plaster." *Bulletin of the Association for Preservation Technology* 12 (2) 37-63.
- Reed and Barba. 1988. Historic Structures Report and Schematic Designs for The First Parish Church. Unpublished manuscript. Portland, Maine.
- Stanton, P.B. 1968. *The Gothic Revival and American Church Architecture: An Episode in Taste 1840-1856*. Baltimore, Maryland: The Johns Hopkins Press.
- Upjohn, E.M. 1939. *Richard Upjohn: Architect and Churchman*. New York: Columbia University Press.
- Wall, W.E. 1988 (First published in 1905). *Graining, Ancient and Modern*. Dobbs Ferry, New York: Sheridan House Inc.
- Van Der Burg. 1936. *School of Painting for the Imitation of Woods and Marbles*. London: The Technical Press.
- Endnotes**
1. Ashby, p. 207.
 2. *Ibid.*, p. 185.
 3. Gothic Revival picturesque - "The nostalgic yearning for the remote in time or place, envisioned as an epitome of romance, forms one root of this phenomenon; another is the new enthusiasm for nature." Upjohn, p. 9.
 4. *Ibid.*, p. 73.
 5. Professor Smyth acted as site designer and building supervisor. Ashby, pp. 182-207.
 6. The official Congregational periodical of Maine
 7. Ashby, p. 206.
 8. *Ibid.*
 9. *Ibid.*
 10. Wiping out the lights is a phrase used in period decorative finish sources referring to the action of removing a colored glaze from a base coat of paint to create a pattern in graining or marbling
 11. Parsons, p. 112.
 12. *Ibid.*, p.113.
 13. Hasluck, p. 26.
 14. The Society for the Preservation of New England Antiquities, Conservation Laboratory, The Lyman Estate, Waltham, Massachusetts
 15. Phillips, pp. 37-61.
 16. Sissing refers to the bubbling up of a glaze upon a surface
 17. Me-gilping refers to the thickening of a glaze with wax, soap, fullers earth, whiting, etc., so that the glaze will "stand the comb" by forming ridges when combed and will not flow back out
 18. Varnish, pigmented or non-pigmented is applied as a final coat over a decorative finish to create the illusion that all coatings reside within the same plane
 19. Hopkins, (John Henry Hopkins was Bishop of the Protestant Episcopal Church, Diocese of Vermont)
 20. Ashby, p. 215.