Restoration And Maintenance Techniques For The Antique House

The Art Of Graining

By Nat Weinstein

GRAINING is one of the most useful decorating techniques the old-house owner can master. It can hide a multitude of sins—damaged woodwork, staircases in poor surface condition, furniture not worthy of stripping (especially softwood) and it is an authentic, traditional treatment for painted surfaces. Books on this craft are outdated. Formulas often contain materials no longer available and techniques are not described in enough detail for the beginner to understand. This article is an attempt to make this craft more comprehensible.

The author is a professional grainer who has practiced graining and associated crafts for thirty years. The techniques, tools and materials are easily accessible. They are normally employed by the author and have not been simplified at the expense of professional standards.—Ed.

THE TECHNIQUE used in graining is similar to an art form familiar to most of us from kindergarten--finger-painting. A semi-transparent paint is brushed on and then smeared and streaked with fingers, palms or any handy tools like an eraser to create an interesting design. When graining, the glaze is applied and manipulated to give the appearance of natural wood.

Graining Materials

• ENAMEL UNDERCOATER PAINT for base coating. This paint comes in various media -- oil, latex, acrylic and shellac. Oil based undercoat is preferred for our purposes. It ordinarily contains a high proportion of white pigment so that it hides or covers well. It flows on smoothly, dries overnight and sands easily. When a fast drying undercoater is necessary, pigmented shellac will serve nicely. It dries hard enough to glaze over in 10-30 min.

• TINTING COLORS. These also come in various media. Oil colors are the most familiar tinting colors. They are, however, generally limited to tinting oil based paints. Because of their versatility, "universal" or multi-purpose colors are displacing oils and other coloring mediums. These colors can be used to tint oil, latex, acrylic and shellac based paints.

(Continued on page 137)
By Carol U. Sisler
Executive Director, Historic Ithaca

The building was the worst wreck in Ithaca, N.Y. It had been condemned by the building commissioner as unfit for human habitation, but it had never been built for human habitation. It was basically a barn-like workshop for the pottery which had operated on the site from 1841 to 1890. Then it was fitted out for apartment living with rudimentary wiring and plumbing, lath and plaster but no insulation or central heat and fir floors over the wide pine boards.

It did have a good location on a deep lot by itself at the foot of Ithaca Falls within walking distance of Cornell University and downtown. It also had a good pedigree—it was built by Ezra Cornell to be operated by his father, Elijah, as a pottery.

The two-story building was of post and beam construction, the posts located every 12 ft.; the roof rafters were not supported by a ridge beam, which led to eventual sagging. The 25x50 stone foundation was very solid. The clapboards were cracked and weathered but usable.

The owner first offered the property to Historic Ithaca, Inc., of which I serve as executive director. The organization was involved in the renovation of the Clinton House, an immense job, and declined the offer. Despite its dilapidation, I liked the old building and the grounds; the simple basic lines appealed to me, and I could see its eventual use as a four-apartment rental prop-

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To CORRECT the problem of the sagging roof, Rick looped one-half in. aircraft cable around the top plate in three places and connected the cables with turnbuckles as illustrated. (Fig. 2) While the turnbuckles were tightened, the peak of the roof was jacked up four rafters at a time from the cellar. After the roof was straight, collar beams were installed to truss the roof. The collar beams later acted as ceiling joists for a cathedral ceiling in the second floor apartments.

IN ORDER NOT TO STRAIN the already weak structure, the jacking and tightening procedure took place over several days. When extreme resistance was felt, something had to be removed because of the way the roof was coming back together. Also some of the roof sheathing had to be temporarily removed.
THE STRUCTURE MOVED very easily under hand power with the methods described. To be sure, the pottery is not now square to the rule but it is to the eye. The corners and walls are plumb.

CABLES AND JACKS can also be used to brace and straighten masonry walls under repair as well. Rick used these methods for straightening several houses and barns damaged by years and use and the only special tools required were two or three $80 screw jacks and $100 worth of steel cable and turnbuckles. Rick urges that hydraulic jacks not be used. Clean, well-greased screw jacks are infinitely safer.

I GUTTED THE INTERIOR of all lath and plaster, removed all paint from the window sash which were the old 12 over 12s and 6 over 6, reglazed and painted them, burned the paint off the old doors, sanded and repainted them, cleaned up and loaded the dump truck, stained and painted inside and out, planted a vegetable garden and finally seeded the 8 ft. bank which remained after the dirt was dug away from the building. I have learned to do heavy work with my middle-aged medium-sized frame by sliding, dragging or balancing heavy objects. TO BLEND WITH its simple lines, I decided that the building should have a Shaker feel to it, uncluttered and utilitarian. Since the clapboard was almost bare, it was wire-brushed and electrically sprayed in one day with two-coats of full-bodied brown stain which matched the brown storm windows. The doors, trim, and sash were painted white with the 1x4 trim stained the outside color and then given a coat of polyurethane for sheen, urethane for sheen, should not n it should not chip like a painted surface.

ALL THE OLD KNEE (corner) braces were removed after the cable was attached and before any attempt was made to straighten. New corner bracing, in this case one-half in. CDX plywood, was installed at the corners as in platform frame construction before the cable was loosened and removed.

THE SECOND PROBLEM was caused by earth which had pushed up against the east wall of the first floor of the building. The sill and posts had rotted. Support for the top plate and new studding for interior and exterior walling was provided by erecting 16 ft. balloon frame in eight ft. sections which allowed the east side of the building to be lifted and supported by jacks as each frame section was erected.

THIRD, the frame of the building was racked by the pressure of the earth on the east side of the building. As viewed from the gable ends, the top corners of the pottery stuck out 10 in. over the bottom corners. After the earth was dug away and the new east wall frame was in place, this problem was solved by using the cable and turnbuckle again. This time the cable was attached to the top west corner and the bottom east corner. As the cable was tightened, the frame was drawn back to a rectangle. (Fig. 3).

THE STRUCTURAL WORK on the building began in April 1976 and was completed in time for students to move in for the fall term. Rick worked with three carpenters and two helpers. The electrician and plumber were a separate arrangement. The morale level was high for the most part because of beer and paychecks which arrived every Friday. The low point for the crew was the debilitating effect of insults shouted from passing motorists—Tear the junk heap down! All this changed as the building pulled together and by August the skeptics had words of wonder and praise.

WE RECYCLED A LOT of materials, some from the pottery. The window glass was cut from old storm windows, the knotty pine for the custom-built kitchen cupboards came from storage closets removed from the Clinton House, and the 2x12s which were used temporarily to support a masonry wall at the Clinton House were recut to support or replace the rotted joists. All the pottery flooring was reused as sub-flooring or finished flooring.

SINCE THE BUILDING could not be hooked up to natural gas, each apartment is self-sufficient as far as electric heat and hot water are concerned. Tales of wars between landlords and tenants over heat in this college town are rampant. I wanted the tenants to be masters of their own utility bills.

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INTING COLORS and other pigmented paints used to color the glaze contribute somewhat to the megilp effect as does the paint thinner.

PAINT DRIER, the other regular part of the glaze has little effect on the way the glaze handles since it may be safely added only in small quantities. Its main purpose is to aid the oxidizing of the glaze after it has already set. Too much driers may cause wrinkling or checking. Driers are not always essential when enough varnish is used because of the presence of drying agents in the varnish. A few drops of drier may be added as a safeguard against too much oil in the glaze retarding its drying and unduly delaying application of the final protective coat.

WE WILL SEE how a wide variety of effects are made possible by varying the proportions of oil, varnish, thinner and color...and how the control of these effects enable the crafts-person to capture the spirit of any wood.

Imitating Walnut

ONE OF THE EASIEST GRAINS to imitate is walnut. A sample piece of finished walnut should be kept near as a guide. We will proceed step by step in the preparation, undercoating, graining and finally varnishing a small piece of furniture. The principles learned here are applicable to other wood grains.

Sanding

UNFINISHED OR STRIPED FURNITURE usually requires little or no sanding. However, if the piece has several coats of old paint or varnish, coarse sandpaper (120) should be used to cut down lumps. Sanding is also required when the surface is not rough, but on the contrary, too smooth. In this case finer sandpaper (220) should be used to roughen the surface sufficiently to provide a tooth for the base coat. Always sand with the grain of the wood. It is also a good idea when working over old paint or varnish to wipe the surface after sanding with a rag dampened with lacquer thinner or one of the commercially prepared liquids designed to etch the surface and thus increase the adhesion of the paint.

Patching And Filling

A SPACKLING COMPOUND, sold in cans and ready to use is usually adequate for most gouges, dents and cracks. Several applications may be necessary because this material shrinks when it hardens. Plaster of paris or similar commercially prepared patching materials should be used for the deeper gouges and holes. These materials shrink little and harden fast. Sand patches when dry.
**Base Coating**

BASE COATING, groundcoating and undercoating are equivalent terms. Pour enough oil based enamel undercoater to paint your table or other piece of furniture into a clean can. Add colors (either universal or oil colors) to tint the undercoater to match the lightest shade in the walnut sample you have as your guide. Raw Sienna (a golden yellow tinting color) is usually sufficient. A touch of burnt sienna (rust red) or burnt umber (reddish brown) -- or sometimes a touch of raw umber (a neutral or greyish brown)--might also be necessary along with raw sienna to match the given walnut ground being copied. All color names used here are standard names used by housepainters, artists and paint dealers.

DON'T BE AFRAID; a shade darker or lighter than the ideal color is not crucial. If paint is lumpy or gritty, strain it by pouring it through a piece of cheesecloth or an old nylon stocking.

APPLY THE BASE COAT with a good two-inch hog bristle brush, working it evenly and smoothly. Brush the paint out; first against the grain, and then finish it off in line with the grain using the tips of the brush. Allow the paint to dry hard overnight.

AFTER PAINT DRIES sand it again lightly (220 sandpaper), being careful not to cut through paint at corners and other vulnerable points. Here too, sand with the grain.

**Mixing The Graining Glaze**

THE FOLLOWING PROPORTIONS are approximate because the materials and external conditions (heat, humidity) vary, affecting the performance of the glaze. We will discuss adapting the glaze to specific conditions separately.

- Boiled Linseed oil, 1 cup.
- Varnish, 2 cups. (Satin or velvet varnish is preferred. I use Sinclairs, Woodpride 407 velvet varnish.)
- Paint thinner, 3 cups.
- Paint drier, 1/2 teaspoon.
- Color (universal or oil color) 3 tablespoons burnt umber and 2 tablespoons raw umber. These color quantities are only a rough guide. Color quantities will vary depending on the shade of the wood sample. The only way to determine the proper amounts of color is to test by brushing on a little glaze and then dragging a dry brush across the glaze. If this first test proves the glaze to be too light add more of both colors. If too dark, add more oil, varnish and thinner in the same proportions as formula given above. Other colors may be used as required to match the shade of your sample.

WHEN USING universal colors, mix in a little oil or varnish before adding to the glaze.

**Graining Tools**

ALL BRUSHES SHOULD be good quality hog bristle brushes. A minimum range of brushes should include:

- Two 2½ in. brushes; one for putting on the glaze, the other for drybrushing.
- One 3½ in. flat shaped "enamelling" brush for drybrushing.
- A two or three in. "overgrainer" or "top-grainer." A serviceable substitute is any cheaply made 2 or 3 in. short-haired coarse bristle brush.

ONLY THE TOPGRAINER and the 2½ in. applicator brush are ever dipped in the glaze. The other brushes are for drybrushing.

**Experimenting With Dry Brush Technique**

A SERIES OF DRAGGING and stippling brush techniques should be practiced before making your first graining attempt. The table to be grained is a good place to experiment. Practice on the table top. Each experiment can be wiped off with a dry rag and another test immediately made.

BRUSH ON THE GLAZE with one of the 2½ in. brushes reserved for applying. Spread the glaze moderately, neither flooding nor overly extending the glaze.

BRUSH IT OUT with the dry brush. Use the largest brush for speed and efficiency. Use the tips of brush mostly.

DRAGGING THE DRY BRUSH. Use the flat of the brush rather than the tips, drag it, handle first, in even, straight parallel strokes in the same direction that the base coat was applied (in the direction of the grain of the wood).
STIPPLING (FLAT PATTING STIPPLE). With the flat of the dry brush (keeping the brush as parallel with the table top as possible) move the brush, handle first, in short patting strokes. Lift the brush slightly from the surface with each hop of an inch or so. (See illus. #1). Move systematically, following the parallel-lined pattern caused by the dragging of the dry brush previously executed.

YOU WILL OBSERVE a subtle breaking of the continuous lines of the glaze into broken lines. Even now the effect should be quite close to walnut if the color is right and the glaze is working well.

THE SLIDING STIPPLE. If the glaze is still wet enough, drag the dry brush over it again; if not wipe the glaze off and reapply it, dry-brush it and drag it again.

NOW PRACTICE a motion similar to the patting stipple. But instead of lifting the brush completely off the surface, pull the dry brush, in half inch short jerks, as you follow the lines made by the dragging operation. (Illus. #2).

THE SHUFFLE STIPPLE. Wipe off the glaze. Re-apply the glaze, brush it out and drag it as before. Now try another variation of the preceding operations: As the dry brush is slipped along, alternately press and relax pressure interjecting a slight retreating motion at the same time that the pressure is applied. The effect achieved is different; it is caused by the brush tips penetrating the glaze, tip first, in short interruptions of the basic sliding motion. The interruptions are in an opposite direction. (Also illus. #2).

DECIDING WHICH STIPPLING TECHNIQUE to use depends both on the sample being copied and the way the glaze is working. Experience will show that a mixing of the stipple technique may be advisable. Varying the stipple adds interest to the graining.

DRAGGING VARIATIONS. The grain of most wood rarely runs in straight and parallel lines. In trees, the internal and external disturbances divert the grain from the straight and narrow. Variations from straight lines are therefore desirable. However, care should be taken not to get carried away with cute curvy grain patterns if a natural look is the goal.

APPLY THE GLAZE and brush it out as before. Using the \( \frac{3}{4} \) in. dry brush, drag a slightly curved path a little off the center of your table top. Then gently grade from this curved section toward a straight grain on both sides of the first drag pattern. (See illus. #3). An appropriate stipple is immediately executed following the direction and path of the dragging process.
DRAGGING TO SIMULATE PLANKED BOARDS. Another way of treating a surface is based on simulating planked boards—solid planks joined edge to edge in the lumber mill. This is the only way solid lumber wide enough for use in furniture or wall panelling can be produced. This effect is achieved by sharply interrupting the curved pattern with straight dragging operations on either side (rather than gently grading away from a curved to straight pattern described above). (See illus. #4 and #5).

ARE SHOULD BE TAKEN, here too, not to overdo the simulation of planked lumber since the lumber mill worker often carefully selects and matches pieces to minimize the joints.

WORKING IN THE HEARTGRAIN. Wipe off your tabletop and start over again. Coat the surface with the glaze and do the initial smoothing. Using your 3½ in. dry brush, draw in the heartgrain. (See illus. #6 and #7).

COMING NEXT MONTH: How to make other kinds of graining figures.

About the Author

NAT WEINSTEIN is a freelance painter and decorator, specializing in graining and marbleizing. With more than 30 years of professional experience, his most recent major project was the marbleizing of the columns in the restoration of the Security Pacific Bank at Montgomery & California Streets in San Francisco. Nat can be contacted at 489 27th St., San Francisco, CA 94131. Tel. (415) 647-2855.

A GRAINING PROCEDURE using a different glaze was described in the June 1975 issue of The Old-House Journal.
THE RESTORATION of the ornamental plaster brackets in Mechanics Hall in Worcester, Mass., was a spectacular undertaking. But the process, illustrated in these photos, is basically the same as you'd use if you were restoring the ceiling medallion in your front parlor.

MECHANICS HALL, built in the 1850's, has 38 ornate plaster brackets on the ceiling of the main lecture/concert hall. Over the years, the brackets had lost many of their decorative details—and two had been heavily damaged by remodellings. When the decision was made, under the leadership of Julie Chase Fuller, to restore the hall, one of the major challenges was how to repair the brackets.

THE DOVETAIL COMPANY of Sudbury, Mass., was called in to handle the job. Robert Sweeney, president of Dovetail, and Michael Kempster, its restoration consultant, discovered that the brackets consisted of 21 separate pieces of ornamental plaster fastened to a wooden frame. The plaster was secured with small cut nails, inserted through pre-drilled holes. (This is somewhat unusual, because most ornamental plaster is glued in place with wet plaster.)

THE DOVETAIL ARTISANS dismounted six of the brackets: The two that had been damaged by remodelling, plus four others in order to recover enough intact pieces to serve as models for the duplication process. (Three of the dismounted brackets are shown in the photo above.)

FOR MORE DETAILS on the process and techniques of making plaster castings, see The Old-House Journal, March 1974.

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About Dovetail

DOVETAIL is a restoration company that specializes in ornamental plaster, cabinetry and fine furniture, and general interior restoration. They are currently working on plaster restoration at the State Capitol in Hartford, Conn. Robert Sweeney has put together a fascinating slide lecture on the plaster restoration at Mechanics Hall. For more information contact: Dovetail, Box 134, Sudbury, Mass. 01776. Tel. (617) 443-5778.

1. To get original pieces to make molds from, decorative elements are pried from the bracket with a thin spatula. Any breakage is repaired later.

2. Paint remover strips paint from the original elements, followed by rinsing with lacquer thinner so no chemicals are left to react with mold-making rubber.
3. Cleaned master element is placed in box with shims that reproduce the curve of the original bracket. Box will also be used to cast the "mother" for the mold.

4. Modeling clay is used to: Smooth wooden shims so rubber mold will have a continuous plane; repair any cracks in plaster; fill nail holes; seal edges so rubber won't seep under the master.

5. Master is given three coats of shellac to seal in impurities left by paint stripping. Then coat of green soap is applied so rubber mold will release easily.

6. First coat of rubber latex is applied carefully so all crevices are filled and no air bubbles remain. Latex, available in art supply stores, cures in about 6 hours—ready for the next coating.
7. Up to 60 thin coats of latex are applied and allowed to cure between each one. Every 10th coat, a thin layer of shredded cheese cloth is put on—followed by more latex—to strengthen the mold.

8. After mold is completed, hydrostone is poured into the box—covering the mold—to form a "mother" that will support the mold in subsequent casting steps. Only after mother is complete is the rubber mold stripped from the master (above).

9. With mold resting in the mother, casting plaster is poured. Form is shaken during pouring so that any air bubbles rise to top and don't mar surface of casting. Set-up time is about 30 min.

10. To release casting from the mold, edges are first loosened. Next, rubber mold and casting are lifted from the mother. Finally, rubber mold is very gently peeled from the plaster casting.

11. A perfect plaster casting is peeled from the rubber mold. Also showing is the hydrostone mother that supports the rubber mold so that it keeps its shape while the plaster is being poured.

12. The 21 individual castings are fastened to wood frame of the bracket with small nails driven through pre-drilled holes—plus being set in adhesive. New bracket is held in place with big screws.
Products For The Old House

Old-Fashioned Bathroom Fixtures

Structural Fiberglass Columns

Finding fixtures that are appropriate for the old-house bathroom can be a real chore. One of the nicest collections of new "old" fixtures we've seen is put out by Sunrise Specialty.

Their line includes high-tank toilets, a wide range of all-brass lavatory faucets, shower heads, towel bars, toilet paper holders, and glass shelf with brass rail.

The company operates primarily as a retail operation in California. But it can and does ship its products all over the country—with freight or UPS charges collect.

A handsome 4-color catalog can be obtained for $1.00 by writing to: Bob Weinstein, Sunrise Specialty, 2210 San Pablo Ave., Berkeley, CA 94710. Tel. (415) 845-4751.

Orch repair often calls for the replacement of wooden columns. Locating big columns—at an affordable price—can be quite difficult. Several of The Journal's readers have reported good results with a structural fiberglass column manufactured by D.F.G. Tooling Corp. The column is made from ground marble reinforced with fiberglass and polyester resin.

The column comes only in a smooth, unfluted style with Doric capitals. But within this limitation, it comes in a wide range of sizes: From 6 in. dia. to 12 in. dia., and from heights of 8 ft. to 18 ft. The column offers a lot of other practical advantages: It is load-bearing and, depending on the size, can support a design load of up to 18,000 lb. It has a true architectural taper and will take paint easily. And because it doesn't absorb water, there's no problem with rot or peeling paint.

Depending on size, price per column ranges from about $70 to $500. For free brochure and name of dealer nearest you, write: Cal Curtz, D.F.G. Tooling Corp., Box 127, Auburn, WA 98002. Tel. (206) 863-1500.

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