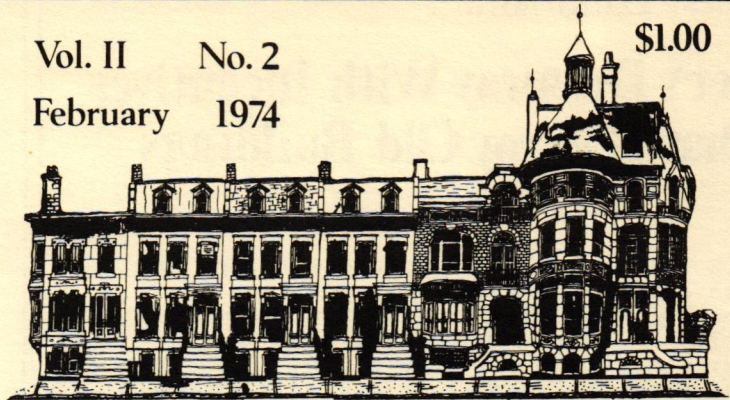


THE OLD-HOUSE JOURNAL

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Renovation And Maintenance Ideas For The Antique House

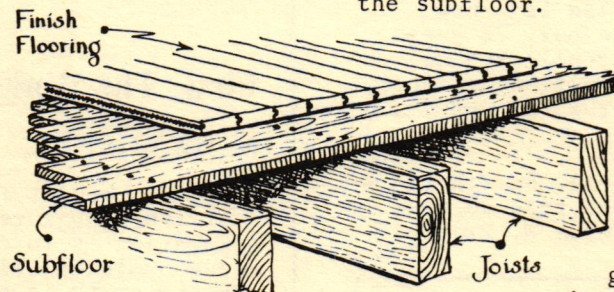
How To Stiffen Sagging Floors

IT'S HARD TO IGNORE a sagging floor. A cracked ceiling can be avoided by never looking up. You can hang pictures over holes in the wall. But a defective floor nags its way into your consciousness continually...the ominous bounce...spongy boards...having to adjust your posture to accommodate the tilt in the floor...these things have an annoying way of calling themselves to your attention.

SO BEFORE YOU START refinishing those lovely old wide plank floors, or restoring that magnificent parquet, make sure that the floor itself is structurally sound. Some of the tilt and wobble may just be part of the house's character; in other cases it may be the signal of real trouble ahead.

IN THIS ARTICLE, we'll review some of the major structural ailments that can afflict old-house floors and what can be done to correct them. In subsequent issues we'll deal with patching and refinishing wooden floors.

THE DIAGNOSTIC TECHNIQUES for identifying floor problems are simple enough; fixing them may be another matter. Rolling a marble or rubber ball across a floor will identify the direction and severity of any



sag. Jumping up and down on a floor will tell you if it is adequately supported (if the floor vibrates and the windows rattle, you've got a problem). Walking around a floor will locate any loose and springy boards.

MOST FLOORS HAVE THREE MAJOR COMPONENTS: Supporting joists; subflooring laid at right angles to the joists; and finish flooring at right angles to the subfloor.

A SAGGING FLOOR is the result of a problem with the supporting joists. Only careful inspection can tell you which problem you have. You're lucky if the sag is on the ground floor because it is easy to inspect the underside of the floor from the cellar or from the crawl space under the house.

THE PROBLEM COULD BE AS SIMPLE as the joists having shrunk or sagged a bit.

(Continued on p. 9)

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Coming Next Month

CASTING PLASTER MOLDINGS

Guest Editorial...

Let's Do Away With Incentives That Destroy Old Buildings

FOR THE LAST SIX MONTHS, our news has been so dominated by the energy crisis that we haven't noticed another crisis creeping up: America is running out of building materials. Right now we are critically short of lumber, glass, copper, aluminum, vinyl and steel. We could well find these items being rationed by 1975.



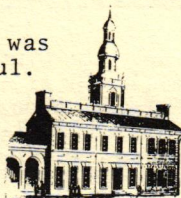
AT THE HEART OF THE PROBLEM are wasteful building practices that have been encouraged by government policies. Businesses continually move to new buildings in new communities lured by the promise of lower real estate

taxes. In addition, depreciation and accounting practices have artificially reduced the cost of these new buildings to the point where it is often profitable to demolish an old but sound building and erect a new one in its place.



IN MOST AREAS OF THE COUNTRY, fully three-fourths of the structures you'll see are less than 30 years old. Many of these stand on the rubble of older buildings that could have been renovated and modernized using only a fraction of the natural resources that went into construction of the new building.

ARTIFICIAL STIMULATION OF BUILDING was acceptable for America the Bountiful. But now we must reduce our usage of natural resources or find ourselves with rationing, recession or worse. Renovation of old buildings not only uses less material, but it creates ample employment opportunities within the building industry.



TAX LAWS GOT US INTO THIS MESS. Revised tax laws can help us get out. Tax laws now allow depreciating buildings in only 20 years. Lengthen this to 50 years and you'll see an immediate shift from new construction to renovation. Simultaneously, double the tax deduction for building repair.

THESE PROPOSALS aren't a cure-all, but they are a practical first step along the road we must travel, like it or not.-- Lawrence W. Prince

LAWRENCE W. PRINCE, Director of New Business Development for a major U.S. corporation, has restored the Victorian brownstone in which he lives with his family. As a businessman and renovator, he has become keenly aware of the economic forces that are destroying old houses.

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Logo art: Stanley Skardinski

Notes From The Readers...

More On Secret Passages

To The Editor:

In your article on secret passages in your January issue, you refer to the space between chimneys and framing as unused space. This space is actually a dead-air space to assure that the hot chimney does not ignite the wood framing members and cause a fire. Even modern building codes generally require a minimum of 2 in. between wood framing members and chimneys. If wiring were run through the space next to a functioning chimney, it could be subjected to rather high temperatures. It would be a good idea to check local building codes before running wire or piping in these spaces.



Jay W. Hedden, Editor
Workbench Magazine

First, The Workshop

To The Editor:

Here's a thought for your readers who are just starting a renovation. Although the temptation is to concentrate on the cosmetic projects, I've found that you should give priority to establishing a workshop. This takes great self-discipline, but the time invested will more than pay for itself in the time you don't have to spend searching all over the house for lost tools.

Roger W. Christian
Katonah, N. Y.

Wallpaper In Old Houses

by Carolyn Flaherty

The old-house owner can do a lot to restore the original look and feel of a house with wallpaper. And there are many ways to approach it.

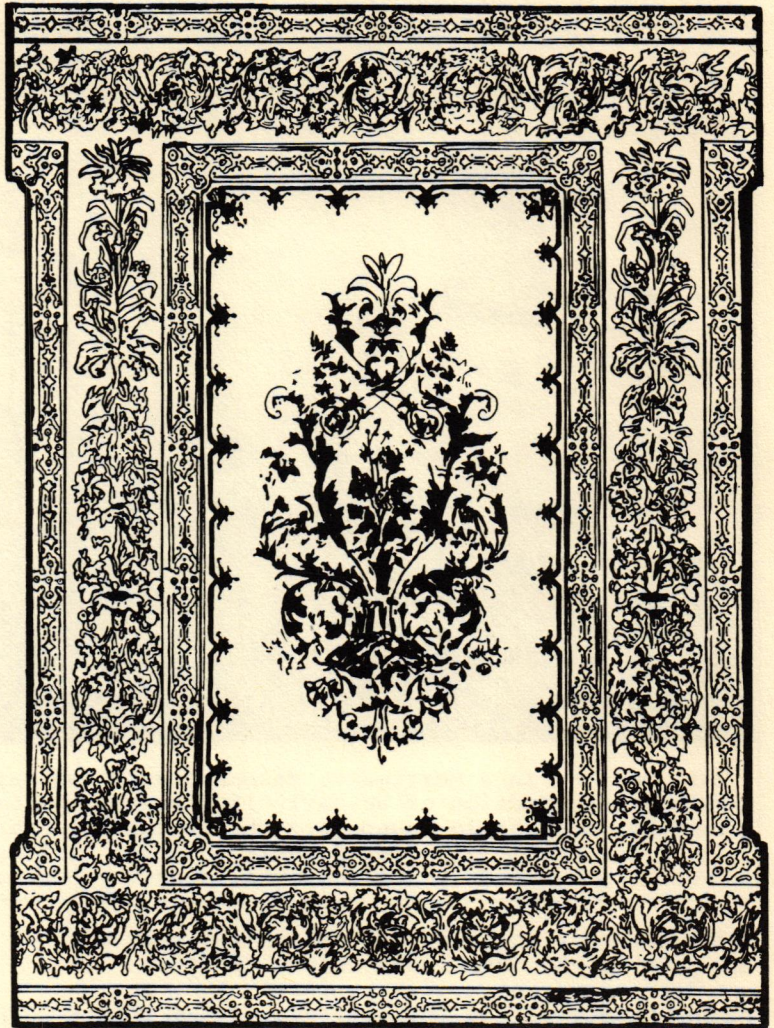
You may be fortunate enough to have an original paper on your walls. If so, experts advise that you do no more to it than dust with a clean paint brush, as chemicals and coatings can ruin an antique paper. Antique papers were often hand painted in tempera or water colors. There are companies that will reproduce an antique design if the piece of original paper is large enough to contain at least one repeat of the pattern.

If you find a piece of an original paper and do not wish to go to the expense of having it reproduced, or if you find only a fragment, there are many historical societies and museums around the country that would appreciate receiving these samples.

There are also firms that carry original antique papers. These designs are often the scenic murals or historical depictions that were so popular in the 19th century, or antique English imported reproductions of Oriental patterns and papers directly from China. Some firms also reproduce antique papers using the old method of hand-blocking, a very time consuming (and expensive) method. Several of these firms are included in the listing on page 5.

More likely, the old-house owner will just want to re-createsome of the original spatial effect and period of the room with a more moderately priced paper, manufactured in the modern way. These wallcoverings, however, because of the attention given to the authenticity of reproduction, will maintain the feeling and period of the house.

The available designs in reproduction papers seem to be preponderantly 18th century. The reasons for this, so far as I can determine, are many. By mid-19th century, when America began mass-producing its own, the enormous

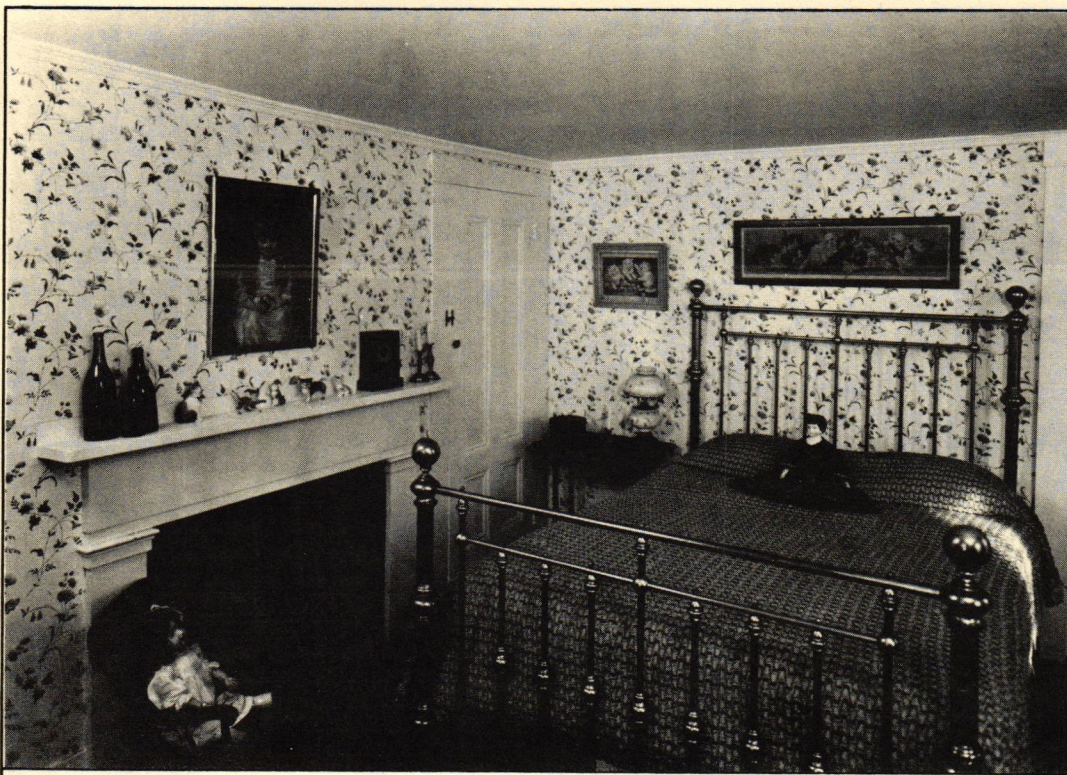


PANEL, PILASTER, AND BORDER
This type of decoration, which divided walls vertically, reached the height of its popularity in the mid-19th century.

popularity of wallpaper led to some rather overdone styles and badly printed paper. As one decorator said, "You really wouldn't want to copy anything done after 1820." This, to me, seems an arbitrary judgement. The wild and wonderful whimsies of the Victorian period express the mood and character of that particular era so forcefully that even its excesses hold a charm and fascination to many of us. Also, it is an attitude that neglects much of the truly fine design done here and abroad in the 19th century.

Another, more practical difficulty with 19th century papers, is that, aside from murals, even the all-over patterns were much larger than the 18th century. Many 19th century houses, particularly the brownstone, had rather grandiose proportions in the formal areas of the house (parlor, dining room) which made these large-scale designs necessary.

And the fashionable mode of dividing walls for decorative effect into horizontal or vertical portions also led to some quite complicated co-



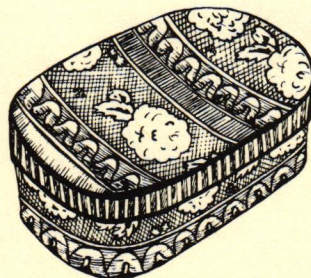
This bedroom in a Merrimack, Massachusetts landmark home is papered with a reproduction of an early 18th century pattern by Thomas Strahan Company, originally found on a chintz fabric. Early American rooms (this one is c. 1757) were usually papered ceiling to baseboard. Photo courtesy of the Wallcovering Industry Bureau.

ordinated designs used in combination with one another in the same room. Paper was often used to represent moldings, panels and even used extensively on the ceilings, often representing ornate medallions.

These intricate styles and the methods of combining them have limited the amount of 19th century paper that today's manufacturers can profitably produce. Few home owners care to use paper for the same purposes or in the same overwhelming quantities as the Victorians often did.

Along with the popular murals and historical depictions, often quite large, with borders and frieze carrying related designs, the Victorians made use of some rather sentimental themes. One, which won a design prize in the 1880's, had a growth of clover and swarms of bees over a band of clover heads in the dado. The fill pattern was a field of clover with bees, while the frieze above carried out the theme in a hexagonal pattern suggesting the honeycomb cells in a beehive.

Wallpaper was so popular in the 19th century that it was used to cover bandboxes, so called because they were originally used to store men's collar bands. They soon became the 19th century answer to overflow

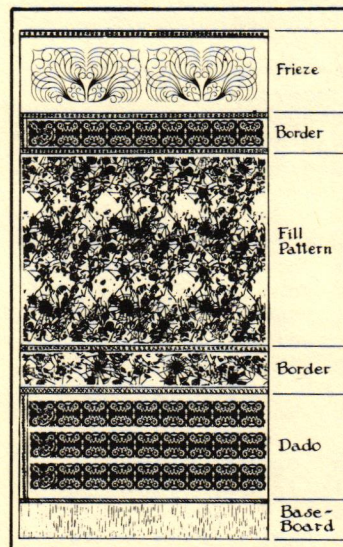


Other reproduction wallpapers reflect many areas of 18th and 19th century decorative art. Design is adapted from old plates, fabrics, tapestries and crewel-work and are often reproduced with a matching fabric.

Katzenbach and Warren's "Waterhouse Wallhangings" contains reproductions collected



A standard commercial pattern, c. 1848, showing a striped design with scrollwork and flowers.



A typical horizontal wall division popular in the 19th century. The frieze was commonly 14" to 16" wide. The dado (also an architectural term) was often papered. Dados in the 18th century were usually wainscoting or panelling. The proportions of division changed from decade to decade in the 19th century with the dado portion rising.

packing problems. The earlier ones were usually covered with common French and English border papers but later in the 19th century, special commemorative and topical scenes were printed especially for large bandboxes.

The 18th century home owner has a wide and excellent selection of reproductions to choose from. Many lines are "documentary" (designation by historical societies or museums of the authenticity and origin of the paper).

Many firms inform the buyer as to the origin and period of their designs. Thomas Strahan Company, for example, prints the history of the paper on the back of the page in their sample book. Collections are often grouped by period or places of origin.

Where To Buy 18th- And 19th-Century Wallpaper

DEALERS IN ANTIQUE WALLPAPERS

Charles R. Gracie and Sons, 979 Third Avenue, New York, N. Y. 10022. Specializing in antique Chinese and 17th, 18th and 19th century papers. They produce a large selection of hand painted Oriental paper, and have 3 studios in the Orient. They do restoring and remounting. Decorators only, but they deal directly with restoration societies.

A. L. Diament and Co., 2415 South Street, Philadelphia, Pa. 19146. New York Showroom: 969 Third Ave. Antique scenic wallhangings and wood-block papers; they recreate papers using the same method and by hand-screening. Decorators only; do restorations.

Nancy McClelland, Inc., 232 East 59th St., New York, N. Y. 10022. Antique scenic wallhangings and reproductions of American and French hand-blocked papers. Open to the public.

SPECIALIZED REPRODUCTIONS

Brunschwig & Fils, Inc., 979 Third Ave., New York, N. Y. 10022. Specialists in documentary fabrics and wallpapers for museums and restorations. Decorators only.

Scalamandre, 977 Third Ave., New York, N. Y. 10022. Reproductions of fabric wallhangings in 18th century and silk-screened 19th century reproductions. Decorators only.

Clarence House, 40 East 57th Street, New York, N. Y. 10022. Very high style French and English reproductions. Decorators only.

Wall Trends International, 979 Third Ave., New York, N. Y. 10022. Their new Documentaire Vol. 6 contains many 19th century viny patterns like the popular "Tree of Life" and crewel-work patterns. Importers of William Morris papers. However, these are special order, requiring a lengthy wait, and are fairly expensive. Their own line is carried around the country and they are open to public.

Jones & Erwin, Inc., 232 East 59th Street New York, N. Y. 10022. Documentary line from 1759 to 1830,

featuring old crewel-work patterns. Showroom open to public; their line is available in wallpaper stores.

18TH AND 19TH CENTURY REPRODUCTION WALLPAPERS

The following is a partial listing of wallpaper firms, having distribution around the country (except where noted) in department stores, wallpaper stores, etc. Their showrooms are open to the public.

Katzenbach and Warren, Inc., 155 East 56th Street, New York, N. Y. 10022. Licensed manufacturers and distributors of the Williamsburg collection of 40 designs and 120 styles reproduced from Historic Williamsburg. Now distributors in the northeast, and shortly around the country, of the Waterhouse Wallhangings.

F. Schumacher and Co., 939 Third Ave., New York, N. Y. 10022. Plymouth, Bi-Centennial and Wedgewood collections featuring documentary French and English patterns. Also Colonial Craftsmen. The Gramercy Park collection features 19th century design.

Richard E. Thibaut, Inc., 180 Varick Street, New York, N. Y. 10014. Featuring American Colonial and Waterford collections.

Old Stone Mill Corporation, Grove Street, Adams, Mass. 01220. Colonial reproductions. Offer free booklet, "Old Sturbridge Village Wallpapers and Fabrics."

Thomas Strahan Company, Chelsea, Mass., 02150. Large selection including Colonial Portfolio VII and Strahan Hand Print Series 200.

Ronkonkoma Wallpaper Co., Easton St., Ronkonkoma, N. Y. 1179. Documentary Heritage Collection Vol. 3 features large 19th century designs, often taken from crewel-work. Petite Provincial features small stencil and European patterns.

Allen-Doane and Co., Inc., 247 Summer Street, Boston, Mass. Regional reproductions available in the Boston area only.

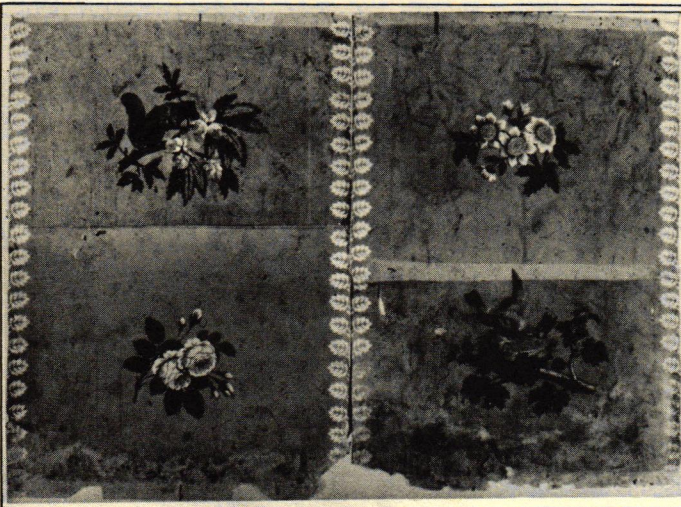
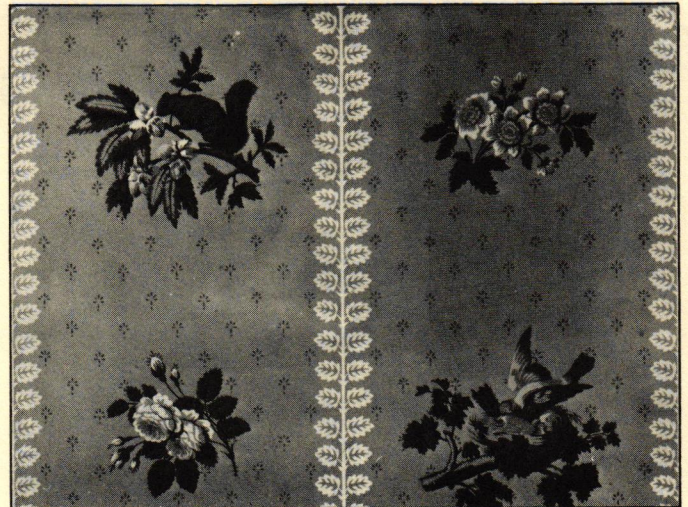


Photo of a "document" (as the original piece of wallpaper is called) of a block printed French wallpaper, c. 1815.



The document as reproduced by Brunswick & Fils, of this striped design with nesting birds, squirrels and flowers.

by Dorothy Waterhouse in New England homes. These wall paintings represent brocades, tapestries and other exotic decorations seen by sea captains in foreign ports.

Many collections, like the Williamsburg, reproduce designs up to 1820. And because the patterns are often French and English in origin (in turn sometimes reproduced from Indian and Chinese design) they blend in well with the eclectic temperament of the 19th century home.

The Cooper-Hewitt Museum of Decorative Arts and Design, which provided helpful background information for this article, maintains one of the most comprehensive collections of 18th and 19th century wallpaper in the country. Mrs. Catherine Lynn Frangiamore, Assistant Curator of Decorative Arts, would appreciate receiving pieces or fragments found during renovation or unused rolls which sometimes turn up in attics, trunks, etc., along with information available about the house, its date and where the samples were found. Samples can be sent to:

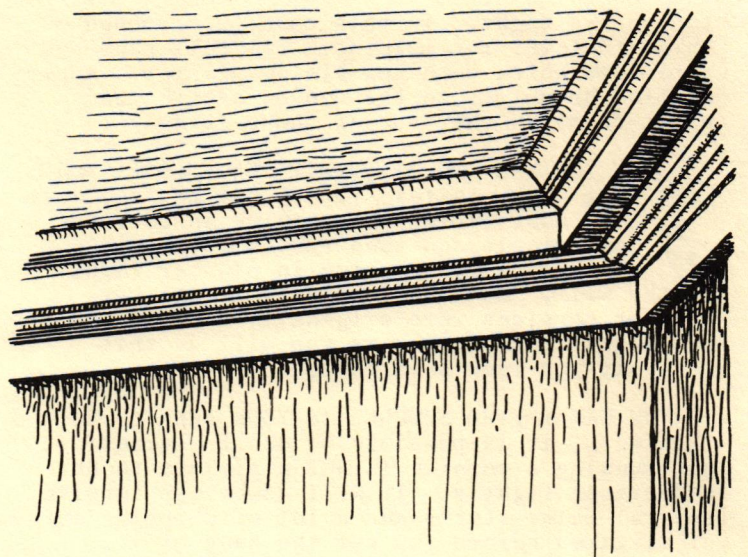
Mrs. Catherine Lynn Frangiamore, Assistant Curator of Decorative Arts, Cooper-Hewitt Museum, 9 East 90th St., New York, New York 10028.

Finding a late 19th century Victorian paper requires a little more hunting. However, most of the wallpaper firms are giving the 19th century more attention these days, perhaps prodded by the increasing numbers of people who are buying, renovating and living in 19th century houses around the country.



The same French Directoire wallpaper now covering the walls of the Cabell Bedroom (named for Henry C. Cabell, Governor of Virginia from 1805 to 1807) in the Wickham-Valentine House at the Valentine Museum in Richmond, Virginia. Photographs courtesy of Brunswick & Fils, Inc., specialists in documentary fabrics and wallpapers for museums and restoration houses.

Duplicating Plaster Cornices



DECORATIVE PLASTERWORK is very beautiful but it is, alas, also very fragile. All too often the old house that is otherwise in good shape will be missing all or some of its original decorative plaster. Decorative cornices contain plasterwork of two types: (1) Running moldings; (2) Cast moldings.

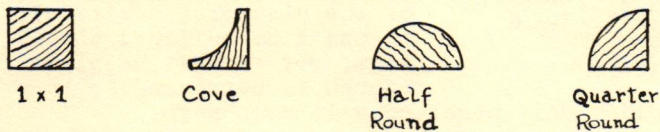
A **RUNNING MOLDING** is characterized by its smooth continuous lines—resulting from its having been "run" in place with a template. Cast moldings (also called enriched or ornamented moldings) usually have indentations that require their being cast in a stationary mold and then affixed to the wall with a "glue" consisting of plaster of paris.

THIS ARTICLE WILL DEAL with duplication of running moldings. Plaster castings will be treated in Part IV.

A MAJOR PROBLEM WITH DECORATIVE PLASTER is the shortage of craftsmen who can (or will) do the work. Most of the plasterwork in 19th century houses was installed by plasterers who had been trained in Europe (especially Italy). Very few workmen today carry on that craft.

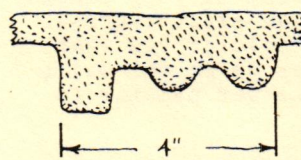
AS A RESULT, one method of duplicating running moldings calls upon the skills of the carpenter rather than the plasterer. Just about any running molding can be closely approximated by building up with standard wood moldings. While not totally satisfying from a purist's standpoint, when carefully done a built-up wooden replica will be indistinguishable from the plaster original.

FOUR BASIC SHAPES can handle many of the duplicating jobs:

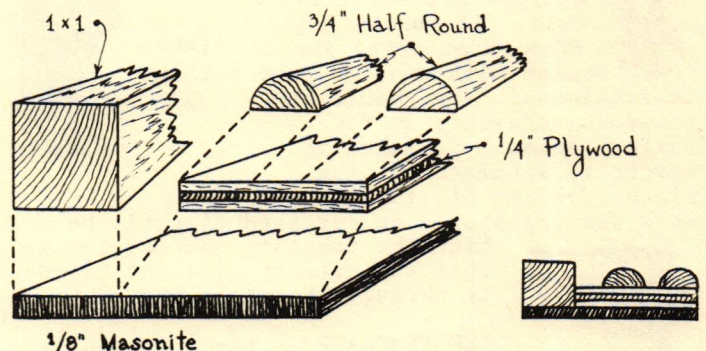


A WIDE RANGE OF OTHER WOODEN MOLDINGS are available to handle more complex replications. If your lumber dealer doesn't have a convenient display that you can examine, you can obtain an excellent booklet on moldings from the Western Wood Products Assn., Dept. 518P, Yeon

Building, Portland, Ore. 97204. Enclose 10¢ and ask for "Moulding." The best way to illustrate fabrication of moldings from wood is with an example:

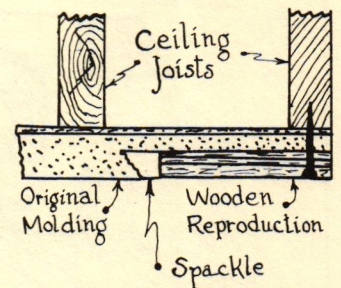


IN THIS CASE, the old house was missing a six-foot section of running molding on the ceiling. Since the missing piece was short, duplicating in wood seemed the simplest solution. A six-foot wooden molding was assembled in the following fashion:



THE MOLDING WAS PUT TOGETHER with brads (with holes countersunk and filled) and glue. The edge of the plywood was filled with wood putty to make a smooth surface and the entire assembly was lightly sanded.

WOODEN MOLDING was secured to the ceiling with wood screws that went into the ceiling joists. (Toggle bolts can be used to hang the assembly from the ceiling if the molding runs parallel to the joists and there's no beam overhead to screw into.)



IT'S POSSIBLE AT THIS POINT you'll find that the ceiling has a bow in it that will impart a noticeable curve to the molding if you drive

the screws tight. In this case, use wooden shims to level the molding. Fill all gaps and screwhead holes with spackle or plaster. Apply shellac or primer to the wooden section and paint to match the rest of the ceiling.

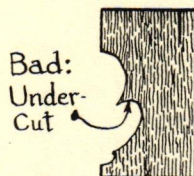
IF YOU WANT TO RE-CREATE THE CORNICE molding with plaster, you've got two choices: (1) Cast or run the cornice in sections on a table and then fasten it in place; (2) Run a new cornice in plaster right on the wall. Running in place was the way plaster cornices were originally applied. You can still find plasterers who will do this work—if you look hard enough.

IF YOU CAN'T FIND SOMEONE IN YOUR AREA to do this work, it is possible to do it yourself. But running a cornice is NOT a project to be undertaken lightly. It will doubtless involve several false starts and a lot of chipping out of mistakes before you get the hang of it. Even under the best of circumstances, it can take a professional over a week to run the cornices for a single room—especially if there are a lot of corners and angles.

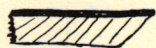
THE THEORY OF RUNNING A MOLDING is very simple: (1) Make a template that is an exact reverse of the cross-section of the molding you want to make; (2) Throw wet plaster up on the wall; (3) Run the template over the wet plaster to shape it.

AS WITH MOST THINGS, the actual practice is a lot more complex than the theory.

MAKING THE TEMPLATE OR MOLD is not too difficult. It can be cut from sheet metal and backed with wood to give it stiffness. You should try to avoid undercuts in the pattern because it makes it harder to separate the template from the plaster. The

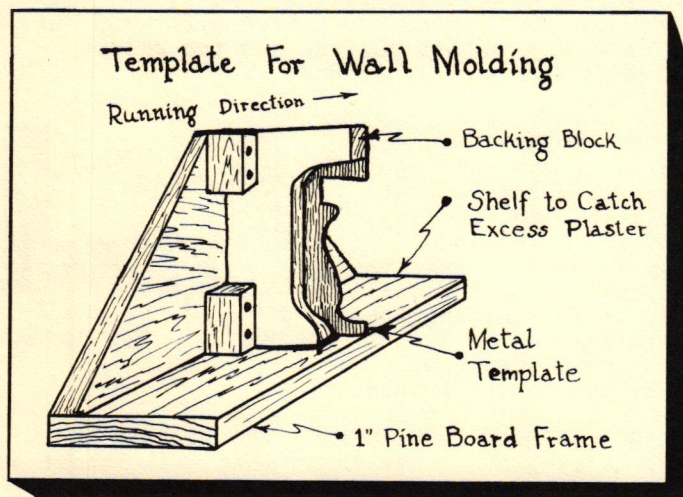


wood backing should be recessed slightly behind the template and beveled so that the pattern will cut cleanly through the wet plaster.

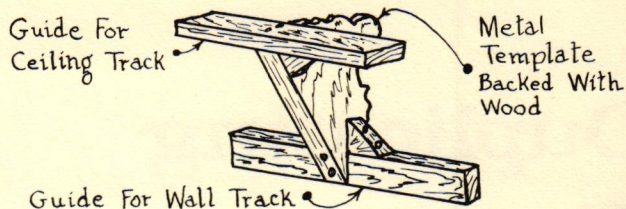


Backing Block Beveled Behind Template

THE TEMPLATE is then mounted in a wooden frame so that it can be held at a right angle to the wall and guided along the temporary



Template For Wall/Ceiling Cornice

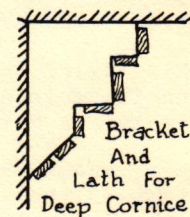


wooden track (or "screed") that is tacked in place on the wall to ensure the straightness of the molding.

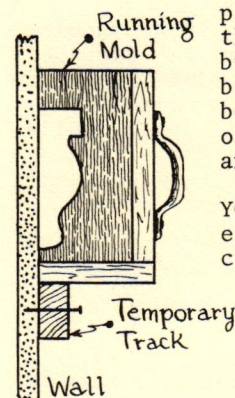
MOLDINGS ARE NORMALLY RUN over the brown coat. However, one could be run over a finish coat if it's not too heavy. A bonding agent could be applied to the finish plaster to assure good adhesion.

AS FOR THE PLASTER MIXTURE to be used, each professional seems to have his own secret formula. A consensus mixture would seem to be two parts of finishing lime to one part of plaster of paris.

IF THE MOLDING IS NOT TOO THICK (not much more than 1 in.) it can be made of solid plaster. Plaster shrinks on drying and if laid too thickly, the cornice will crack. A thick ornate cornice would be made by attaching wooden brackets to the wall in the approximate form of the cornice and about three-quarters of an inch below the level of the finished cornice. Brackets are attached every 12 inches and then lathing is nailed to the brackets.



TO FORM THE CORNICE, the template is run continuously across the surface of the plaster—always in the same direction. Excess plaster is pushed off the face of the mold, and can fall either onto a hawk you hold in your hand or onto a shelf built into the mold. Additional plaster is thrown back into those voids that still need building up and the mold is run back over it. A water brush can be used to keep the surface of the plaster from drying out and setting too rapidly.



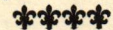
YOU CAN SEE THAT SPEED is of the essence. You've got to get the cornice perfectly formed before the plaster takes its final set. Also, the consistency of the plaster is critical; it can't be so fluid that it sags, yet it must be plastic enough to be shaped by the mold. Only practice will help here.

THE CORNICE MOLD works tolerably well on straight runs, but it doesn't do you any good at all at the corners. Because of its guides, the running mold has to be stopped about 6 in. short of every corner. Then you've got two choices. You can run sections of molding flat

on a table and make mitered corners while the plaster is still plastic. When dry, these cast sections can be fitted to the run molding and then glued to the wall or ceiling with plaster of paris. Seams between pieces can be filled with plaster. Or, if you have artistic hands, you can shape the corners by hand with a trowel, putty knife or any other implement that gives the desired result. It's

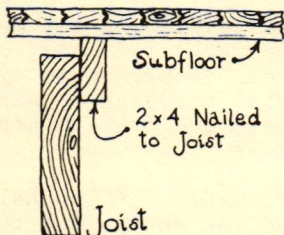
the finishing of the corners that can be the really time-consuming part of cornice installation.

BECAUSE OF THE COMPLEXITIES of running cornices in place, often restorers will run them in sections on a table. When dry, the sections are affixed to wall or ceiling and the joints filled with plaster.

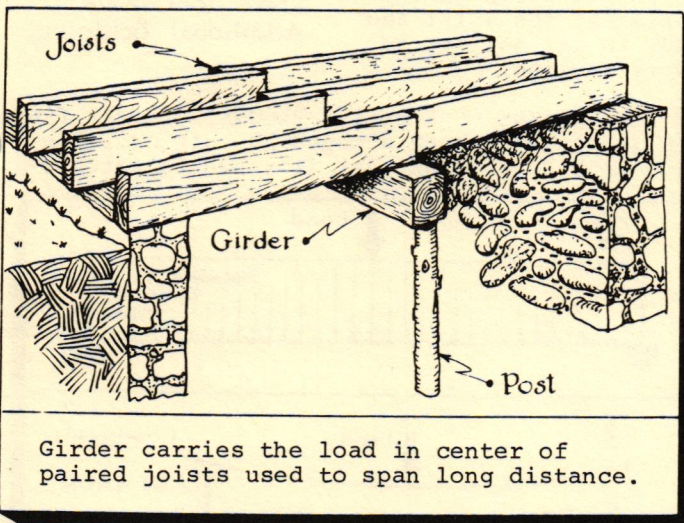


(Sagging Floors—Continued from p. 1)

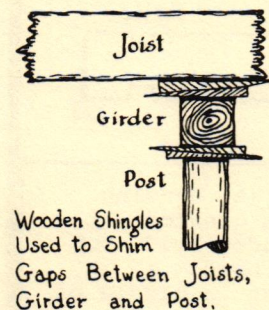
This commonly results in a gap between the top of the joists and the sub-floor. If the gap is small, thin wooden shims can be inserted between joist and sub-floor. This will also eliminate any springiness in the floor above. If the gap is large and the joist is otherwise sound, a 2 x 4 can be nailed to the joist, snug up against the floor boards. So doing should also help silence squeaks.



MORE SERIOUS is the case where the joists themselves are not adequately supported. Where the joists span 15-20 ft. or more, there's likely to be (or should be) a girder supporting the joists near



the center of the house. If it's merely a problem of girder shrinkage, solution could be as simple as driving wooden shims in gaps between girder and joists and/or between girder and post.

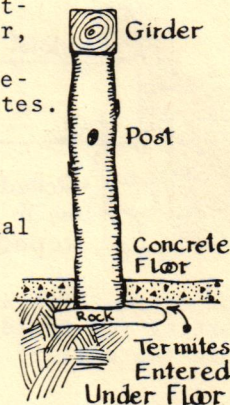


IF THE GIRDER HAS SAGGED because of inadequate support, the remedy will be more of a project. The problem may simply be an insufficient number of supporting columns. Or it can be a more insidious problem like the one illustrated

at the top of the next column. Upon superficial examination, it seemed that the girder was firmly supported by a stout 10-in. tree

trunk resting on a concrete footing. Closer inspection, however, revealed that the post had lost much of its carrying capacity because it was riddled with termites.

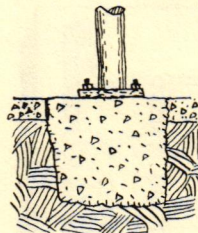
AFTER A TEMPORARY JACKING POST had been installed and the old post removed, the cause of the trouble was located: The original post had been set on a large flat rock for a footing when the house was built in 1825. The rock was just resting on dirt. When a later owner decided he wanted a concrete floor in the cellar, he had just poured concrete around the post. The termites, ranging far afield in search of food, had managed to burrow under the foundation and find their way into the bottom of the post that was protruding below the concrete.



REPLACING THE WOODEN POST with a steel column made the chewing a little tougher for the termites.

SUPPORT FOR A GIRDER can be added fairly simply by using metal jacking posts. If you have a thick cellar floor (4 in. or more) you may be able to get by with setting the posts directly on the floor. Base plate of the post should be secured to the floor by drilling 1-in. deep holes in the concrete and fastening the plate down with bolts and lead expansion anchors set in the drilled holes. Top plate should be fastened to the girder with lag bolts.

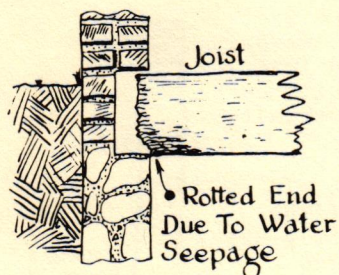
IF THE CELLAR FLOOR is dirt, or the concrete isn't thick enough, new footings will have to be poured for the jacking posts. This could be a 24" x 24" concrete pad 6-in thick poured on top of an existing concrete floor. Better still, break through the old floor and dig a hole 18 in. square and 18 in. deep. Anchoring bolts can be set in the concrete while it is still wet.



AFTER SECURING BASE PLATE to the footing, movable top of the jacking post can be raised to the girder. If the girder has to be raised more than a small fraction of an inch, adjustment should be made slowly over several weeks' time. The jacking post should be raised only a quarter turn at each adjustment. This will allow the new stresses to be equalized throughout the frame of the house and will prevent cracks in the plaster.

IT'S ALSO POSSIBLE THAT THE FLOOR IS SAGGING because the foundation has crumbled where ends

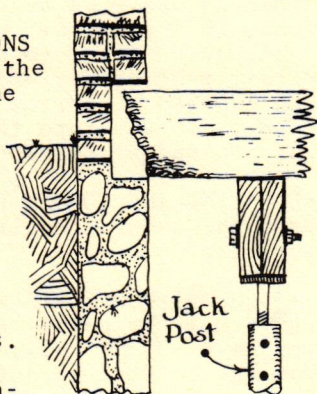
of joists or girders rest. In this case, beams can be propped up temporarily with timbers or metal jacking posts while the damaged foundation is repaired. All loose masonry is removed with hammer and cold chisel. Wall is then rebuilt with fresh mortar. Bricks are probably the best material to use for patches because they are easy to cut to odd shapes. After mortar has cured (wait at least a week) temporary posts can be removed and beams set down gently on the new masonry.



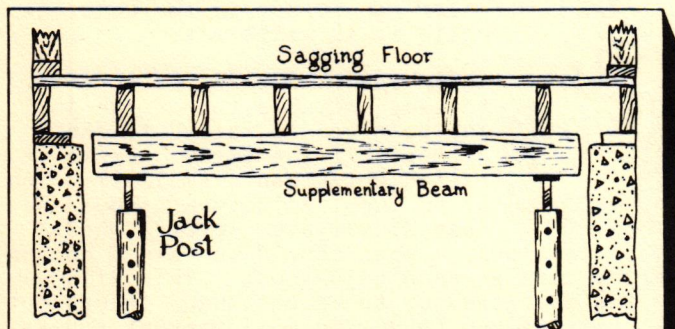
ANOTHER VERSION of this problem has been found in some old houses where joists were set in foundation masonry below grade level. Not surprisingly, water seeps into the foundation and after the passage of the years the ends of the joists completely

rot away. With a condition like this, one morning you could find the floor had dropped into the cellar!

THERE ARE TWO REPAIR OPTIONS in this case: (1) Rebuild the entire floor, replacing the rotted joists with new timbers heavily treated with preservatives. Wall should also be treated to minimize water penetration. (2) Arrange a new supporting system by adding girders made from 2 x 10's bolted together and supported by jacking posts. In this case, the joists no longer rest on the foundation at all. This system, while simpler than rebuilding the floor, does subtract room from your cellar because of the space taken up by the girders and posts.



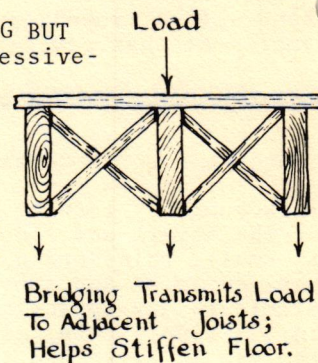
IN SOME OLD HOUSES, a sagging floor may be caused by lack of a girder altogether. Although addition of a girder is a fairly major undertaking and usually requires a contractor, it is possible for the competent do-it-yourselfer to handle some jobs. You can make a girder by bolting two or three 2 x 10's together. Girder is temporarily held in place with



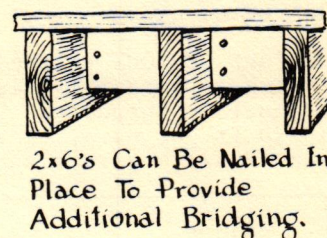
Girder and jacking posts can be installed to push up inadequately supported joists.

propping timbers, then metal jacking posts are installed every 8 ft. Be sure footings for posts are adequate as discussed above. Use jacking posts to raise the sagging joists slowly—a quarter turn at a time—spread out over a period of several weeks.

IF THE FLOOR ISN'T SAGGING BUT bounces and vibrates excessively, the joists may be undersized or inadequately bridged. Bridging stiffens a floor by transmitting loads to adjacent joists. It's very tricky to install crossed X wooden bridging once the floor is on, but you can toe-nail 2 x 6's between the joists and get much the same stiffening effect. Compression type metal bridging is also available that can be installed from underneath with a few hammer blows.

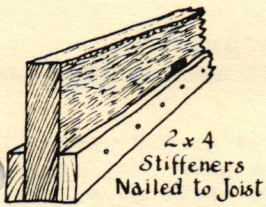


IF JOISTS ARE UNDERSIZED and you don't want to install a girder because it will subtract headroom, you can nail a 2 x 4 to each side of the joist. Doing this increases the effective width of the bottom of the joist and adds to its ability to carry tension.



IN OTHER CASES OF BOUNCING FLOORS, you may find the joists have been damaged by cutting. The diagram below shows that it's bad to notch a

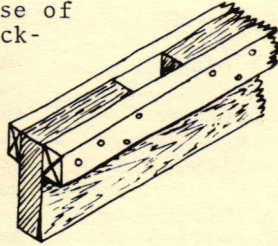
CHARACTERISTICS OF A BEAM: (A) Bending stress from a point load is greatest at center of the beam. (B) Under load, top of beam is in compression, bottom is in tension. There is no stress in middle of beam. (C) Because of the above, worst possible place to notch a beam is in the middle. Best way to pierce a beam is to make hole in center where stress is zero.



beam on the edge—and especially bad to notch a beam in the middle where the compression and tensile stresses are greatest. Some plumbers seem to regard joists merely as obstacles to be cut through so they can run their pipes. But

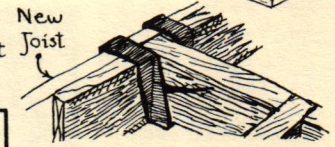
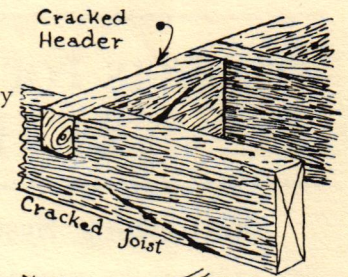
if a 3-in. deep notch has been cut in a 2 x 4, its effective carrying capacity has been reduced to that of a 2 x 5.

IF A JOIST IS SAGGING because of such notching, it can be jacked into place and the notch bridged over with 2 x 4's. Or it can be supported with permanent posts.



AN ESPECIALLY VULNERABLE point is at the joists on either side of a fireplace. These joists have to be

notched to let in the header beam—and they have to carry extra weight. If not properly sized by the builder, these joists can sag and crack. Repair of such a condition can get pretty complicated. A new joist might have to be added and tied in with the header using an iron stirrup or joist hanger.



Iron Stirrup Used To Tie Cracked Header To New Joist.

Future articles will deal with sagging floors on upper stories; how to patch finish flooring; and how to sand and refinish parquet, hardwood and softwood floors.



Helpful Publications You Can Send For



Plumbing For The Bathroom

This handy 162-page volume entitled "How To Add An Extra Bathroom" is an excellent treatise on household plumbing with an added special focus. The book works from the assumption that you are installing a bathroom and shows you every step that's involved, from the rough carpentry through all of the plumbing required, down to the pouring of hot lead for the cast iron waste pipes. The instructions include everything necessary for plumbing and installing all bathroom fixtures. This paperback book is a great bargain for anyone installing a bathroom, whether you are doing the work yourself or have to supervise a contractor. \$2.50 from Directions Simplified, P. O. Box 215, Briarcliff Manor, N. Y. 10510.

Surface Preparation

Although featuring only one manufacturer's products, this 32-page booklet is more helpful than most. It shows 4 different types of paint removers and advantages and limitations of each—along with specific hints for professional results. Also tells about wood putty, brush cleaner, wallpaper remover, and special cleaning compounds. Price: 25¢. "Surface Preparation" from Savogran Co., P. O. Box 130, Norwood, Mass. 02062.

Lath And Plaster Handbook

Designed for the professional builder, this handbook nonetheless contains a wealth of useful information for the homeowner who wants to do some of his own plastering. Book details the types of metal and gypsum lath now available for installation of new walls. Of special interest to the do-it-yourselfer is the

listing of all of the various types of plasters available and application data for each. Covered are: basecoat plasters; finish plasters; gauging plasters; finish limes; special plasters and coatings. Also valuable is the checklist of problems and remedies for plastering jobs. Price: \$1.50. "Lathing and Plastering Handbook" from U. S. Gypsum, Dept. 160, U. S. Gypsum Co., 101 S. Wacker Drive, Chicago, Ill. 60606.

How To Hang Wallpaper

A handy booklet that uses step-by-step photographs to illustrate the way to hang wallpaper. Contains room estimating chart for buying single and double rolls of paper for walls and ceilings. Shows how to measure, prepare surfaces, pasting, cutting, matching and folding, and tips on corners and seam rolling. "How-To-Hang Wallcovering," 25¢ from the Wallcovering Industry Bureau, 969 Third Avenue, New York, N. Y. 10022.

Maine Antique Digest

Despite the title, this new monthly newspaper will interest people outside of Maine. Primary editorial coverage is given to the antique shops and sales in New England. But there are also useful articles on identification and restoration of antiques, as well as monthly column "Antique House Fourm" that has worthwhile information on old New England houses. Subscriptions are \$5.00 per year, but Editor Samuel Pennington says he'll send a free sample copy to anyone who writes him at Maine Antique Digest, Box 76A, Waldoboro, Me. 04572.

Products For The Old House

Refinishing System

New refinishing system combines a solvent-based finish remover with a tung oil final finish.



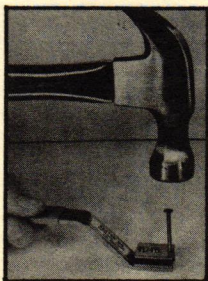
The remover contains alcohols that makes it especially effective in removing shellac. Remover isn't useful for heavily painted surfaces, however. Most interesting is the 100% tung oil finish. Unlike linseed oil, tung is a drying oil. It rubs on easily and dries to a hard, usable finish within 15 min. Finish is clear and brings out richness of the grain. One coat renders a piece alcohol- and waterproof. Because it dries hard, there's no oily residue (like linseed oil) to attract dust. Available at paint stores or order direct. \$4.00 per pint of remover; \$4.00 for pint of tung oil. Postpaid. From The Hope Co., P.O. Box 25-A, Chesterfield, Missouri 63017.

Foil-Backed Sheetrock

Foil-backed Sheetrock panels can help lower a home's summer temperature by reflecting radiant heat. When installed facing an air space in walls, it provides insulating efficiency equal to 1 in. mineral wool. Also acts as vapor barrier. Details in Bull. WB-1405 from U.S. Gypsum, Dept. 160, 101 S. Wacker, Chicago, Ill.

Nail Holder

Magnetic tool positions nails and prevents bashed fingers. Ideal for driving brads and short nails. Lifetime guarantee of replacement if any part found defective. Price



is \$1.95 plus 45¢ for shipping and handling from Seatex Co., 6 Neil Lane, Riverside, Conn. 06878.

Masons And Builders Library

WE'VE BEEN ON THE LOOKOUT lately for books with do-it-yourself plastering information that we could recommend to supplement the series that The Journal has been running on restoration of old plaster.

Audel's "Masons And Builders Library" is NOT the source to consult about wet plastering techniques. (In fact, we have yet to find a book on plastering that we can recommend without reservation.)

However, there is a lot of other practical information in this two-volume set to commend it to the old-house owner.

Vol. I covers concrete, block, tile and terrazzo. Vol. II covers bricklaying, plastering, rock masonry and tile.

In Vol. I there is a detailed treatise on the mixing and handling of concrete--both for major pouring jobs and for patches. The section on tiling is especially good for its treatment of how to set tile in mortar (the classic "mud job"). Relatively less space is devoted to setting tiles in adhesive, but that has been covered extensively elsewhere.

In Vol. II, the section on applying wet plaster is treated very briefly—mainly to show

how tricky it is and why most builders are using dry-wall construction these days. However, the follow-up section on using gypsum panels in dry-wall construction is the most helpful and detailed of any we've seen in the handyman books.

The section on bricklaying, too, is especially detailed and well-illustrated. There's a wealth of information on tools, techniques and types of mortar bonds.

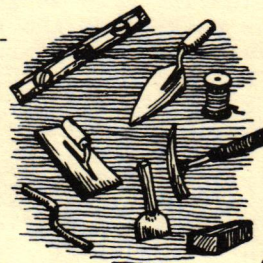
Both volumes contain numerous photos, diagrams and tables that make it easy to absorb the information—even for the novice.

These two volumes are a must for anyone who is seriously interested in upgrading his or her masonry and construction skills.

Each volume is \$5.95 postpaid; \$11.25 for the set (with money-back guarantee within 10 days). Order from Audel

& Co., 4300 West 62nd St., P. O. Box 558, Indianapolis, Ind., 46206. Also ask for the Audel catalog.

It's free and lists dozens of other informative do-it-yourself books that comprise the extensive Audel collection.—RAL



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