NE THING old houses all seem to have in common is cracks. Sometimes they are just part of the charm of an old house, and sometimes they mean your back wall is about to collapse. By playing Sherlock Holmes, you can decide which cracks are important, what is causing them, and what to do about them. All cracks are caused by movement of the parts of a house. A crack detective uses the cracks as clues to find the cause of the movement. Then a judgement can be made as to whether or not it is necessary to try to stop the movement.

TWO THINGS a crack detective doesn’t need are a gun and a magnifying glass. Shooting a dangerous house won’t kill the cracks and cracks too small to see without a magnifying glass aren’t a problem. However, there are several simple tools that are useful.

EYES ARE the most important tool for this part of the investigation. Careful observation uncovers the cracks, and tells you what direction they are going and where they are widest. Look too at the overall pattern of cracks in the room and throughout the house. When searching for suspects, other circumstances become significant as well. Note sloped floors, bulging walls, doors that don’t fit, and related evidence that shows the house has moved over time.

GLASS AND PLASTER telltales will more immediately reveal continuing movement. Neither glass nor plaster can take much tension before breaking, so you’ll soon know that a crack is widening if a glass telltale breaks or if a new crack appears in a plaster one.

THE PLASTER TELLTALE--which can only be used indoors--is made by filling a portion (cont’d on p.114)
BECAUSE Shaw-style Queen Anne is rare in this country, the house is architecturally significant... and worthy of preservation on that basis alone.

BUT THIS RAISES the larger question of what makes an old house "significant". What of the thousands of vernacular houses (like mine) that aren't architecturally significant? What determines whether such a structure is "worthy" of preservation?

I SUBMIT there are three other yardsticks to apply to vernacular structures:

- Is it in sound physical shape? In an era of limited resources, we can ill afford to waste sound buildings.

- Is it connected in people's minds with a landscape, streetscape or neighborhood? Would people miss it if it disappeared? That a building is architecturally significant is a point that can be understood by a handful of architectural historians. But the people who live near or pass by a building can tell you if they like it. Isn't that enough? These vernacular landmarks give stability and a framework to our daily routine.

- Is it beautiful or visually entertaining? Given the sterility of so much of modern construction, we should cherish beautiful old buildings that bring joy to our lives.

A HOUSE OR BUILDING that fulfills even ONE of these criteria is a structure that should be taken seriously... and is worthy of attention from everyone who cares about what kind of world we live in. —Clem Labine
Old-House Living...

Reviving a Greek Revival

By Barbara Schiller

The house at 5 Crown Street is a classic example of a Greek Revival home. It is also a classic example of how a dilapidated house can be successfully restored. This beautiful restoration is the result of the concerted efforts of the Worcester Heritage Preservation Society, public and private agencies, and homeowners Val and Rory O'Connor.

The initial work was performed by the WHPS, an independent, non-profit corporation formed in 1969 "to preserve sites, structures, and artifacts significant to the culture, history, and architecture of Worcester." Working with city agencies, neighborhood groups, and private citizens, the WHPS has restored houses in Worcester's rough inner-city neighborhood of Oxford-Crown. Through various fund-raising events, the WHPS purchased and restored its first house. This house was sold at a profit, the funds were invested in restoring a second house, and the procedure was repeated.

This is how the house at 5 Crown Street looked before the Worcester Heritage Preservation Society began exterior restoration.

This is the house after exterior restoration. Note the removal of the second-floor bathroom window. (Photograph by Tony Schneider.)
Restoring Number 5

The restoration of this house began in 1974. Originally built in 1848, the house had fallen upon bad times in the last few decades and required extensive work. Over the years, it had been seriously “remuddled,” and these offensive graftings, such as a cellar addition and the second-floor bathroom window, were among the first things to go. The kitchen addition was also amputated, as were the dormer and a bathroom. Removing this bathroom revealed the old granite stairs that led to the cellar, and so a bulkhead was added to the house.

Other work performed by the WHPS included shingling the roof, adding a porch deck, refurbishing the columns that grace the front of the house, replacing clapboards, installing support columns, painting the exterior, and landscaping. By 1975, 5 Crown Street was being offered for sale. The WHPS created and rented out a studio apartment in the rear ell of the house. Besides providing security for the unrented house, this rental offered a financial incentive for prospective buyers.

The O’Connors purchased the house in 1976 and used the rent from the ell to help finance the interior renovation that the house still required. A good deal of work was needed even before they could obtain a mortgage. The main structure had been formerly occupied as two apartments, and was now badly in need of cleaning. The O’Connors removed the rotted carpeting and scrubbed down the grimy woodwork and the filthy bathrooms and kitchens. The house was eventually made presentable for the bank, but a new problem arose: State law demanded that the house be free of lead paint. The usual solution to this problem is to cover the offending surfaces with plastic imitation-wood paneling. The O’Connors, refusing to ruin the interior of their home, decided to strip the lead-based paint themselves. This procedure always involves a health hazard, and this case was no exception: Even though the O’Connors followed official instructions for deleading the house, their six-month-old son required medical attention for lead poisoning.

Once they settled matters with the bank, the O’Connors resumed their renovation—a project that was to occupy them for five years. The main rooms of the house were covered with anywhere from six to ten layers of wallpaper which proved totally resistant to the rented steamer, and so Rory O’Connor had to come up
with his own method of removing them. He carefully covered the floors with plastic sheeting and then dipped a paint roller in boiling water and rolled it over the papered surfaces. Three passes were required to thoroughly saturate all the layers, but then a putty knife was all that was needed to remove the many generations of wallpaper.

The kitchen addition, pictured left, was not part of the original house. It would have been kept, but its poor construction and maintenance rendered it unsalvageable.

THE REST OF THAT FIRST YEAR was devoted to insulating the house. Custom storm windows were required for the oversize first-floor front windows, but second-hand aluminum storm windows were sufficient for the rest of the house. While putting in the attic insulation, the O'Connors discovered a serious case of rot, due, they surmised, to a lack of ventilation in the attic. Cross ventilation was installed to arrest the problem.

IN THE THIRD YEAR, they were able to hire professionals to wallpaper the house and repair the damage that carpenter ants had done to the porch. The following year, they restored the mouldings in the living room and dining room—which were in four different styles and at varying heights—to one authentic style and height. In their fifth year, the O'Connors restored to working order the sliding doors between the living room and dining room, and installed a fireplace.

Four More Years

GOOD PART OF THE SECOND YEAR was spent stripping woodwork. This tedious task happily revealed that the brown-painted handrails and pink-painted balusters were actually made of fine mahogany. Along with rescuing the staircase, Rory also improved upon the house’s heating system. A large wood/coal stove had been professionally installed in the basement, but the vents in the upstairs rooms had been added with less expertise. Rory put in ducts and then installed squirrel-cage vents to direct the hot air into and up the ducts. In the winter of 1980-81, with record-breaking cold weather, the O'Connors had to use their back-up oil furnace on only four days in order to maintain the sixty-degree temperature that they find adequate for comfort.

IN THE THIRD YEAR, they were able to hire professionals to wallpaper the house and repair the damage that carpenter ants had done to the porch. The following year, they restored the mouldings in the living room and dining room—which were in four different styles and at varying heights—to one authentic style and height. In their fifth year, the O'Connors restored to working order the sliding doors between the living room and dining room, and installed a fireplace.

Today, 5 Crown Street is in the National Register of Historic Places. For Val and Rory O'Connor, this successful restoration "is not an individual issue, but rather a joint effort which profits from neighborhood cooperation with public and private agencies." Practicing what they believe, the O'Connors are officers of the Crown Hill Development Committee, a group that works with the city planning board and is eligible for federal, state, and municipal grants.
SHOULD WE DECIDE to move after completing the project, I would leave this documentary notebook for the next owners, who I'm sure would be old-house people and would appreciate the record.

Joyce Delke
Hampshire, Ill.

**Repairing Cracked Wood**

We found what we think is a good way to repair cracks in wood: Use two-part auto body filler. This substance is easier to work with than "plastic wood," it cures fast, and it blends smoothly with the surrounding wood. We've used it in restoring woodwork in our old house and on both interior and exterior doors. It can be grained to match the wood, and it takes paint beautifully. Auto body filler is sold as a kit—a can of plastic cream and a tube of hardener—and it's quite economical. You mix up only the amount you'll need so there's no waste. It's sold at department stores in the auto supplies section.

Emma Geneja
Fraser, Mich.

**New Storm Windows**

After my family and I moved into our 1913 house, the first problem we tackled was to provide our home with a good storm window system. Almost half of our windows are casement windows that open out. We made sure that these windows closed well and were weatherstripped, and then salvaged all of the inside screens that went with them, replacing those that were missing.

I ordered aluminum-framed window inserts that were the same size as the screens and clipped them to the back of each screen. In the fall, they act as storm windows. In the spring, I simply remove them and presto! summer screens! The clips are permanently screwed into the back of the frame of the screen and are not visible from the outside. (The screens may require more weatherstripping, depending on their fit.)

Judith Terrizzi
Evanston, Ill.

**Preventing Exterior Mildew**

Recently, I came across an interesting method for preventing paint from mildewing. Mr. Carleton White of Millen, Georgia, had to repaint his wooden church. It is surrounded by live oak trees and so has always had a severe mildew problem. He used oil-base white paint and added three ounces of Bravo 500, a common agricultural fungicide, to each gallon. (Homeowners might be more familiar with a turf fungicide called Daconil, which also comes as a liquid in gallon containers. Fertilome Broad Spectrum Fungicide is at half-strength, so one would have to use six ounces per gallon.)

He showed me the little church, and it looked freshly painted. I was startled to learn that I was looking at a three-year-old paint job! There was not a speck of mildew anywhere.

George Stritikus
Montgomery, Ala.

**Document Your Home**

Let me first say that the OLD-HOUSE JOURNAL has proved very helpful in the restoration of our late 1800's farmhouse. Perhaps other readers would be interested in a habit I've acquired; it takes only minutes and I think it's so worth the time:

Since it's interesting to discover the history of each room in our house during the restoration, I keep a notebook in which I record any changes we come across, as well as any changes we are making. I keep a small swatch of each layer of wallpaper we uncover, too (up to seven layers in some rooms). It's a good place to keep "before" and "during" photos too.

Got Any Tips?

Do you have any hints or short cuts that might help other old-house owners? We'll pay $15 for any short how-to items that are used in this "Restorer's Notebook" column. Send your hints to: Notebook Editor, The Old-House Journal, 69A Seventh Avenue, Brooklyn, N.Y. 11217.

May 1981
YOUR HOUSE can be kept free from decay providing three requirements are met: (1) The house is properly designed; (2) The correct construction materials have been used; (3) A consistent maintenance program is followed. You as an old-house owner, however, face a special dilemma. Even if you are zealous about maintenance (and few of us are), items (1) and (2) were determined years ago by the original designer and builder. If any errors were made back then, you're stuck with a maintenance headache. If the mistakes were minor, all it may mean is that you have to make repairs a little more frequently. If the original errors were major, however, you may actually have to make some design changes on the house.

THE SECRET to preventing decay in architectural woodwork can be summed up in three words: KEEP IT DRY! Obviously, there are many subtleties that underlie this general rule. Before getting into the elements of design that help keep wood dry, let's look at the enemy itself: Rot fungi.

The Rudiments Of Rot

HERE ARE THREE types of fungi that will feed on wooden houses: (1) Mold fungi; (2) Stain fungi; (3) Decay fungi. Mold and stain fungi, while unsightly, generally don’t cause severe structural damage. And the measures that control decay fungi usually control molds and stains also. So this article will concentrate on the most destructive of the three—decay fungi.

DECAY FUNGI are commonly divided into two groups based on the type of decay they cause: Brown rot and white rot.

BROWN ROT FUNGI feed upon the cellulose of the wood cell walls. Since cellulose is the main component that gives strength to wood, brown-rotted wood undergoes a rapid loss of strength. The decayed wood is brown and, upon drying, tends to crack across the grain, shrink and collapse (see photo). In the final stages of decay, dried brown-rotted wood can be easily crumbled into a fine powder.

WHITE ROT FUNGI, on the other hand, consume both the cellulose and lignin of wood cell walls. This results in a gradual—but steady—loss of strength. Wood decayed by these fungi usually appears to be bleached and, in the final stages, feels spongy. Frequently the bleached and non-bleached areas are separated by black lines. Unlike wood decayed by brown rot, wood attacked by white rot doesn't develop checks across the grain.

BROWN ROT FLOURISHES primarily in softwoods, whereas white rots are most common on hardwoods. Since most exterior building components are softwood, it is brown rot that causes most of the structural damage to old houses.

To Make A Fungus Happy

DECAY-CAUSING FUNGI are propagated from microscopic spores in the air around us...everywhere...all the time. All they require to take root and start growing is three basic elements: (1) Food; (2) Oxygen; (3) Moisture. Remove any one of these elements and the fungus will not grow.

YOU CAN'T REMOVE the food supply—that's your house. And normally it's impossible to do anything about the oxygen supply, since your house is surrounded with air. However, in special situations restriction of oxygen can be used to preserve wood. For example, you can retard or prevent decay in green logs by storing them
THE SECRET: THIRSTY FUNGI

The most effective way to eliminate rot fungi is to eliminate the source of water that allows them to grow. When wood dries, the fungi die or become dormant. Spraying wood with chemicals is not an effective way to control decay. Keeping wood DRY is.

TID,mid
in ponds or under water sprays. And untreated pilings driven completely below the water table give centuries of service (as in Venice). But if the water table falls, any part of the piling no longer saturated with water will decay.

THAT LEAVES MOISTURE as the one vital ingredient that you CAN control. Decay fungi cannot colonize wood with a moisture content below the fiber saturation point (28 to 33%). That means that decay will not develop in wood moistened solely by water vapor from a saturated atmosphere. Rather, the wood has to be wetted (but not saturated) by liquid water.

PUT ANOTHER WAY, the way to control rot in buildings is to keep wood dry. As a rule of thumb, it is recommended that the moisture content of construction wood should be below 20%.

Ways That Wood Gets Wet

WATER THAT IS NEEDED to start the decay process in buildings can come from several sources: (1) The original water in green wood; (2) Rainwater; (3) Condensation; (4) Ground water; (5) Piped water; (6) Water released by the decay process itself (water-conducting fungus). Since this discussion is confined to old buildings, the role of green lumber is not a major factor. But any or all of the five remaining water sources could be contributing to decay in your house.

WOOD EXPOSED on a building's exterior can be wet by (1) Rainwater being driven directly against it; (2) Roof runoff; (3) Splashing from the ground or any protrusion below the eave. Wind is a major culprit; velocities in excess of 40 m.p.h. can drive rainwater through joints, particularly lap joints in siding. It also reduces the effectiveness of the roof overhang and gutters by driving rain directly against building walls.

PAINT CAN REDUCE rainwater wetting, but seldom offers total protection. Fine checks develop in finishes at joints--particularly butt joints where end grain meets a lateral surface, such as siding to trim or window trim to sill. These checks provide points where water can enter the end grain through capillary action.

GREATEST DANGER of decay is at such points as: Roof edges, porches and exterior stairs, and exposed structural members where the end grain is vulnerable to water penetration. Other elements that have a lot of butt joints--such as sash, trim, shutters and balustrades--are also decay-prone.

DECAY OF SIDING and sill plates can also be caused by roof runoff splashing off the ground, a lower roof, or sidewalk. Gutters can be helpful here, by diverting water to less harmful locales.

Learn To Read Your Building

A HOUSE THAT is experiencing excessive wetting will show tell-tale signs--such as staining and peeling paint--before any extensive decay sets in. Your task is to learn how to read the signs on your house so that you can catch small problems before they develop into major ones.
SHORT OF MAJOR DESIGN changes, you have relatively few options open to you to cut down on wetting of exterior wood. As mentioned, gutters can reduce splashing. But they have to be kept free of clogging debris. Otherwise, they can overflow and cause problems more serious than if you had no gutters at all.

Preservatives & Sealants

CHEMICAL WOOD PRESERVATIVES can be of limited value in combating rot. Most commercial brands contain two major components: (1) A water repellent (a waxy material) and (2) A fungicide. The most common fungicide is pentachloro phenol ("penta"). Penta is a toxic material and should be used with great caution--following all label directions. Better yet, use a preservative that doesn't contain penta.

MAXIMUM DECAY RESISTANCE is imparted if construction lumber is pressure-treated with preservative before installation. But what do you do when confronted with an existing structure built of untreated timber? Vulnerable points, such as butt joints, can be flooded with preservative by brush application or spraying. This allows preservative to be absorbed into decay-prone end grain. (Be sure wood is totally dry before starting treatment.) Surface application is nowhere near as effective as pressure-treating--but it's better than nothing.

CAULKS can also be used to keep water out of end-grain areas to a certain extent. (See "Talk About Caulk," OHJ Sept. 1980, pg. 113). For maximum sealing effectiveness, a joint

THE MYTH OF "DRY ROT"

All rot-causing fungi require water for growth. Thus the term "dry rot" is quite misleading. It is usually applied to brown rot in a board that has subsequently dried out--and thus appears dry. But if the board is rotted, it means that it was wet at some time in the past--which allowed the brown rot to grow. All rot is really a form of "wet rot." If the wood is now dry, it will not support any further growth of rot fungi.
Wooden Columns

WOODEN COLUMNS and pedestals have a lot of vulnerable end grain—and thus are likely to absorb water and rot out (see right). One solution is ventilated metal bases (above). Another step to inhibit further decay is to flood the column base with a water repellent/preservation solution applied with a brush or spray. A more effective (but longer) method is the wicking process. An absorbent cotton string is tied around the column base, and the other end is placed in a container of preservative. The solution—over a period of several days—moves along the string and into the column base by capillarity.

The Creeping Menace

THE FURRY-LOOKING light-colored growth creeping up the wall in the left side of the photo is a water-conducting fungus—the most insidious of all decay-causing fungi. Starting in a damp basement or crawl space, the fungus will spread across dry wood, bringing the water it needs for its metabolic processes. Water is conducted through tube-like structures called rhizomorphs (shown in photo). The fungus will creep through hollow wall partitions and under floors—often going unnoticed until the attack is quite advanced. Thus a house that is otherwise totally dry can become completely infected with rot. Fortunately, this type of fungus is rare in the U.S. Control involves scraping all the rhizomorphs off walls and other surfaces, then painting with a fungicide such as pentachlorophenol. In addition, steps should be taken to dry out the place where fungus originated. Replace any decayed wood with pressure-treated lumber. Allow all infected areas—such as interiors of wall partitions—to air-dry thoroughly.
Picking A Floor Finish

By Patricia Poore

Modern floor finishes, so consistently sold today, are usually recommended with all good intentions. But old floors—mellowed, patinaed, and previously refinished—demand special consideration, as much for practical as for aesthetic reasons.

We'll assume in this article that stripping and refinishing is the right decision. Sometimes, an old finish can be renewed with turpentine, steel wool, paper towels, and elbow grease. If you haven't made that decision yet, see "Refinishing Floors" in the Feb.'81 O.H.J. There is no "best" finish for an old floor, but your options are fairly clear. We'll attempt to sort them out. Two facts, anyway, emerged while we researched this article: (1) Polyurethane, while it has a place and can be a useful, practical material, is most definitely not the long-awaited maintenance-free finish. (2) Some of the "old-fashioned" finishes are remarkably versatile.

Prologue

Chances for success using any finish are improved by applying it to a squeaky-clean surface according to the manufacturer's explicit instructions in a dust-free environment as possible. Since the room should be both ventilated and warm, best not to finish floors during cold weather. Don't refinish on a particularly humid day. (If you live in a humid locale, use a dehumidifier or at least a fan). Do not walk on a naked surface; pad around in stocking feet as you finish sanding (or put socks over your shoes) and, if time passes between sanding and finishing, close off the room or lay building paper on the floor for protection. The floor should be the last project in the room—after plastering, after finishing painting, after wallpapering.

Here are the steps to follow: (1) Vacuum every inch of the room. Go over the floor with a tack rag immediately prior to each step. (2) Stain if desired. (3) Put on sealer (if applicable) or first coat of finish. Varnishes can be thinned in the first coat per label directions. (4) Fill with paste wood filler if you feel it necessary on open-pored wood like oak. (It usually isn't necessary on an old floor, and filler cannot be used under polyurethane or the Swedish systems.) Also, now's the time to fill nail holes etc.—with one coat of finish already down, any excess will wipe off. (5) Apply second coat of finish (or first coat of urethane that's used without a sealer). (6) Apply additional finish coats according to label recommendations and your preference. (7) Apply a paste wax if desired.

Stain is probably applied more often than it needs to be. The finish will darken your floor to an extent (a greater extent with penetrating finishes, a lesser extent with urethane), and the years will darken it even more. If you want to change the color for decorating reasons or to match other floors or woodwork, experiment with the color on a scrap. Most commercial stains are too colorful, but you can start with one of these and bring it down by adding burnt umber or black universal tints or artists' colors-in-oil. (A little at a time.) Or start with a neutral ("natural") stain and bring up the color with reds, oranges, or raw umber.

Once the color is right, play with the tone by thinning the mixture with mineral spirits or turpentine. On the test scrap, apply it in various thinned-down versions, and experiment with the amount of time it's left to soak in before wiping. Keep a record of what you made for future reference.

The solvent in the stain must be the same as the solvent in the final finish— or you can have a mess on your hands. It's always best to use a "system" of products, all by the same manufacturer.

The Big Choice

The one big decision you have to make is whether you want a surface finish—shellac, oil varnish, synthetic-resin varnish, polyurethane, "gym" finish, Swedish treatment—or a penetrating finish—linseed oil, tung oil, or proprietary penetrating-resin finish. Basically, it's an aesthetic choice, because neither is really more "resistant": The surface finishes will protect by taking scratches and stains, but then will look the worse for it. As a general principle, penetrating finishes are the more renewable and fixable; surface coatings are more reversible (albeit by stripping, which ranges from easy for shellac to much more difficult for the modern types).

Let's start with penetrating oils and resins as a group. A drying oil is the operative ingredient in all of these recipes and products—usually linseed or tung oil. Old recipes were usually based on one of these oils, with added solvents and sometimes wax. I see no reason today to use the oil itself, unless you enjoy mixing up old recipes (nothing wrong with having fun) or you're following an historical imperative. The commercial "penetrating resins" or "penetrating oil finishes" are an improvement, in that the oil has been chemically changed into a resin, improving its "drying" qualities and predictability.
OLD-FASHIONED OIL-BASED "soft" long-drying varnishes, including spar varnish, have all but been replaced by polyurethane varnish. Application is a bit more fussy, since old-fashioned varnishes aren't self-leveling like urethane, and it takes patience to put up with the long drying time. The biggest complaint seems to be that the "softness" of varnish causes it to become embedded with dirt. At the risk of sounding insolent, I suspect this may result from a lack of attention to preventive maintenance (i.e., sweeping).

MY ONLY EXPERIENCE with varnish was with the spar varnish we fastidiously applied to my parents' strip-oak floors. It is maintained by daily sweeping or vacuuming and a very light waxing about every nine months. Two cats and an occasional dog skittering over the floor have not marred it in three years, it looks absolutely beautiful.

SPIRIT VARNISHES are a different class, comprising shellac and the quick-dry varnishes. Instead of polymerizing, the finish dries, THE BIGGEST, clearest advantage of penetrating finishes is that they are renewable. Simply clean off wax and dirt, and reapply. Some penetrating resins can be built up by multi-coat application (buffing in between) to come close to the surface resistance of an on-top-of-the-floor finish. This is usually true of the finishes that contain a high proportion of tung oil. Penetrating oils may give very blond woods a greyish cast that some people would prefer to avoid. (This is more true for new light wood.) Varnishes will do less to change the color of wood. Watco, Daly's, Minwax, and others make fine penetrating-resin finishes.

Surface Finishes

VARNISH CHEMISTRY is very complicated, mostly because of the variety of resins (oil, alkyd, phenolic, plastic...) used in different formulations. It's more important that you use a varnish specifically formulated for floors, than that you know what resin it contains.

THE SUBSCRIBER NETWORK SPEAKS

GO TO just about any hardware store and ask what you should put on your sanded floor -- they'll recommend polyurethane varnish. The whole country stoutly believes in new-improved, "no-maintenance" products. And not many people use wax, or follow any other maintenance regimen, these days.

SO WE WERE SURPRISED at the response from subscribers. (I had asked for personal experiences with floor finishes back in the Nov.'80 issue.) The chart below is a summary of what OHJ subscribers have to say about the subject. The survey was not particularly scientific, and some interpretation is necessary. For instance, I suspect the lack of anti-varnish sentiment was a reflection of the fact that few people had used it at all. But I still believe that actual experience in a real old house is more telling than recommendations from laboratories that test the products on new wood, under controlled conditions.

<table>
<thead>
<tr>
<th>PRODUCT OR SYSTEM</th>
<th>% OF THOSE WHO MENTIONED IT</th>
<th>% OF ALL RESPONDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro-Wax</td>
<td>67%</td>
<td>31%</td>
</tr>
<tr>
<td>No Wax</td>
<td>33%</td>
<td>15%</td>
</tr>
<tr>
<td>Pro-Urethane</td>
<td>20%</td>
<td>12%</td>
</tr>
<tr>
<td>Anti-Urethane</td>
<td>47%</td>
<td>20%</td>
</tr>
<tr>
<td>OK with reservations*</td>
<td>33%</td>
<td>19%</td>
</tr>
<tr>
<td>Pro-Varnish†</td>
<td>80%</td>
<td>15%</td>
</tr>
<tr>
<td>Anti-Varnish</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OK with reservations</td>
<td>20%</td>
<td>4%</td>
</tr>
<tr>
<td>Pro-Penetrating Oil</td>
<td>100%</td>
<td>42%</td>
</tr>
<tr>
<td>Anti-Penetrating Oil</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Reasons cited:
(1) Only good when kept waxed.
(2) Only with a penetrating oil underneath.
(3) Only in low-traffic areas (because it scratches too easily).
(4) Only on hardwoods (because it's too inflexible for softwood).

† Old-fashioned OR quick-dry: All types.

MOST UNUSUAL METHOD

Mrs. Walker Reaher wrote: "On a recent trip to Manila I saw beautiful clean shiny bare floors. The maid used coconut shells split in half. She placed her toe on top of the inverted shell, and in sweeping arcs, pushed the shell across the floor...she lightly swept the floor with a grass broom. I learned to balance and rhythmically "wax" the floor too. It lightly adds coconut oil...."

WE DON'T have room to list all the people who wrote--but Thank You! from the editions and the novice floor-restorers who will benefit from your experience.

Patricia Poore
boards, causing discoloration.

A vor of wax. But regardless of
whether you wax or not—and
whether you've used oil or var-
nish—the single most important
maintenance task is keeping the
floors grit-free.

DUST AND DIRT AND SAND are
tracked in on shoes, and get
ground in when we walk around.
The finish is literally abraded
away. There are two obvious
ways to minimize the damage:
(1) Track in less dirt; (2) Clean
the floors daily or weekly
to remove the abrasive grit.

THE BEST ANSWER is to ask fami-
ly and visitors to remove their
shoes upon entering the house.
This may be seen by some of
your friends as a compulsive
quirk, however. A plastic mat
outside the door and a straw or
carpet mat inside will pick up
a lot of grit. Beyond that, a
regular sweeping or vacuuming
regimen is a must. Wood floors
should really be vacuumed with
the brush attachment on the
vacuum cleaner wand.

YOU SHOULDN'T USE water or a
water-based cleaner on wood
floors. Dampness may get under
the finish and seep between
boards, causing discoloration

or even warping. A dust mop
treated with a little oil fin-
ish or a spritz of Endust works
fine. Scruffs and many light
stains will come out if you rub
a bit with 00 steel wool—es-
specially if there's wax on the
floor.

Ahh...Wax

GOOD WAX can be used on bare
wood, as well as on any finish.
Wax should just fill in the minute roughness of the
surface—not sit as a layer on
top of the floor. The wax will
neither make the floor appre-
ciably more slippery, nor will
it build up, if you:

- Use a relatively hard paste
wax, like Trewax;
- Apply it sparingly and usually
no more than twice a year;
- Buff it well after applying;
- Remove scuff marks and stains
with steel wool or a liquid
cleaning-wax before re-waxing.

OF COURSE WAX may get scuffed.
But the whole idea is that the
scuff will come off just by
buffing the wax—it's not in the
floor. Wax also adds a lustre and a delightful smell.

PASTE WAX is recommended be-
cause it's tough, long-wearing,
and lustrous. Although you
have to apply it by hand, it
can be renewed without adding
more: Just buff it again, even
months later.

THE SWEDISH FINISHES are the most difficult to
apply, but may be the most resistant and mainte-
nance-free yet. Because of the conditions
in application, and because they are
urea-formaldehyde based, professional appli-
cation is recommended. The best-known such
product in this country is "Glitsa." (For more
information, write Glitsa, 1921 First Ave. So.,
Seattle, WA 98134.)

IT'S A TWO-PART SYSTEM: First, a layer is ap-
plicated that impregnates the wood. Then the
second coat provides a long-wearing and extra-
ordinarily resistant surface. I won't say
I'm unconvinced about its breakthrough dura-
bility on new floors—but I wouldn't fool with
it on an old floor. Even the manufacturer's
literature says that for old floors, wood must
be removed down to below previous wax, dirt
penetration, filled, then finished with bonding and proper curing. And since it's


Maintaining Your Floor

Y ES, THE OLD-HOUSE JOURNAL
is going to come out in fa-
vor of wax. But regardless of
whether you wax or not—or
whether you've used oil or var-
nish—the single most important
maintenance task is keeping the
floors grit-free.

DUST AND DIRT AND SAND are
tracked in on shoes, and get
ground in when we walk around.
The finish is literally abraded
away. There are two obvious
ways to minimize the damage:
(1) Track in less dirt; (2) Clean
the floors daily or week-
ly to remove the abrasive grit.

THE BEST ANSWER is to ask fami-
ly and visitors to remove their
shoes upon entering the house.
This may be seen by some of
your friends as a compulsive
quirk, however. A plastic mat
outside the door and a straw or
carpet mat inside will pick up
a lot of grit. Beyond that, a
regular sweeping or vacuuming
regimen is a must. Wood floors
should really be vacuumed with
the brush attachment on the
vacuum cleaner wand.

YOU SHOULDN'T USE water or a
water-based cleaner on wood
floors. Dampness may get under
the finish and seep between
boards, causing discoloration

or even warping. A dust mop
untreated with a little oil fin-
ish or a spritz of Endust works
fine. Scruffs and many light
stains will come out if you rub
a bit with 00 steel wool—es-
specially if there's wax on the
floor.

Ahh...Wax

GOOD WAX can be used on bare
wood, as well as over any
finish. Wax should just fill in the minute roughness of the
surface—not sit as a layer on
top of the floor. The wax will
neither make the floor appre-
ciably more slippery, nor will
it build up, if you:

- Use a relatively hard paste
wax, like Trewax;
- Apply it sparingly and usually
no more than twice a year;
- Buff it well after applying;
- Remove scuff marks and stains
with steel wool or a liquid
cleaning-wax before re-waxing.

OF COURSE WAX may get scuffed.
But the whole idea is that the
scuff will come off just by
buffing the wax—it's not in the
floor. Wax also adds a lustre and a delightful smell.

PASTE WAX is recommended be-
cause it's tough, long-wearing,
and lustrous. Although you
have to apply it by hand, it
can be renewed without adding
more: Just buff it again, even
months later.

BESIDES PASTE WAX, there are
liquid buffable waxes and liquid "self-polishing" waxes
on the market. Some people
prefer the liquid to paste be-
cause of ease of application.
But it's not as durable as
paste and it's easier to over-
do the amount you use. "Self-
polishing" waxes are no good
for wood floors. They lack
durability, and their lustre
can only be renewed by reappli-
cation. This is what causes
waxy buildup. Also, most are
water-based and therefore not
the best for wood, despite
what the labels say.

Applying It

THE FLOOR to be waxed must be
clean. Go over it with a
tack rag. The common mistake
is to apply wax over a "dingy"
surface—this will just embed
the dirt or scuff marks in the
wax. Instead, buff the floor
before re-waxing, and rub out
scuffs with steel wool dipped
in mineral spirits or wax re-
moval.

PUT A FEW tablespoonfuls of
wax in a cloth towel, fold the
towel over it, then rub the
floor until wax comes through.
Go over the whole floor (or a
section if the room is large).
Let the wax dry for five min-

May 1981 109 The Old-House Journal
chemically bonded inside the wood, you can't change your mind. Don't confuse Swedish treatment with Danish oil, which is a penetrating finish and therefore very different indeed.

What About Polyurethane?

POLYURETHANE FLOOR FINISH is essentially a varnish with a plastic resin. I have no doubts regarding its advantages on new wood for those who want a low or high gloss surface finish. It's probably the most stain-resistant finish, it is hard and smooth enough (in the best of applications) to not require waxing, and it's easy to put down. But when it comes to refinished floors, I worry about its unpredictable bonding characteristics.

PLEASE NOTE that polyurethane cannot be applied over shellac, most previous surface finishes, or a paste wood filler (often used in the past on oak floors). So it's pretty much out of the question unless the floor has been thoroughly sanded. Even then, results can't be guaranteed.

THE BEST RESULTS with urethane seem to be obtained by using a recommended and compatible sanding-sealer first. (See label directions.) Also, urethane must be applied in thin coats; a thick coat is almost sure to peel. The amount of time between coats is crucial: Too little and the finish may be cloudy, too much time and you have to sand between coats, then pray it'll bond. Follow the manufacturer's guidelines for timing, but remember too that humidity and temperature affect the set up.

WHILE POLYURETHANE isn't generally recommended for softwood floors because of its hardness and relative inflexibility, some subscribers reported using it successfully on oak floors. Since it is a surface finish that can be built up in layers, it will of course smooth out a rough floor by covering it. Perhaps this is a good use for it if one is set on keeping and exposing a softwood floor.

About Stains

STAINS WILL OCCUR very rarely if you maintain the finish on your floor. On shellacked floors, just rub out the stain with steel wool, dipping it in denatured alcohol (shellac solvent) if necessary. Then brush new shellac mixed 1:1 with solvent onto the spot, feathering the edges into the existing shellac. Rub it down, then reapply straight shellac; rub again.

STAINS IN soft varnishes, wax, and oil-finished floors can often be removed by rubbing with a mixture of rottenstone and vegetable oil. Rottenstone, available at the hardware store, is a super-fine abrasive.

FOllOWING are some specific procedures for removing certain stains and spills:

SCUFF MARKS As mentioned, scuff marks in wax will usually come out if you rub them with 00 steel wool. If that doesn't work, or it's an unwaxed floor, you may have to use fine sandpaper, then reapply oil or wax.

CIGARETTE BURNS Rub fine steel wool in a wet bar of soap, then rub the burn mark with the steel wool. Deep burns, of course, will have to be sanded.

WAXY OR GOOey SUBSTANCES Cleaning gum, crayons, and candle drips should be made brittle with ice, then crumbled off the surface. Any remaining deposit will come off if you allow a liquid floor cleaner to seep under the edges of the spot. Use a plastic spatula to lift it.

OILY OR GREASY STAINS Use brown kitchen soap (lye soap).

If the stain is stubborn, saturate drugstore cotton with hydrogen peroxide and lay it on the stain; then put ammonia-soaked cotton over that. This will draw the stain out of the finish.

ALCOHOLIC BEVERAGES Rub with paste wax and steel wool, or try silver polish, boiled linseed oil, or a rag with a bit of ammonia in it. You'll have to rewax after this.

ANIMAL MESSRS New stains may come out with a floor cleaner or mineral spirits, or may be rubbed with steel wool or sand-ed. A whole article about removing cat odors and stains appeared in the March 1980 issue of OHJ.

STANDING WATER The worst stains will be from standing water. (House plants are a real hazard to a wood floor.) If the wax has turned white, remove it from the affected area and rub with steel wool, then re wax. Try lightly sanding other finishes. If these methods don't work, you may have to bleach the floor; the finish in the area will have to be completely removed. Apply household bleach or oxalic acid, let it stand an hour, rinse, and sand. Sometimes nothing will remove a water stain. After bleaching, the finish has to be patched in (including stain, if any).

Too bad if it's urethane, which won't bond to itself.
But keep in mind that some softwood floors—particularly fir in secondary rooms—were not meant to show. A hardwood overlayment, linoleum, or wall-to-wall carpeting (which was used in the 19th century) may have once been the finish floor. If you have to encapsulate a splintered softwood floor in a modern plastic finish to make it usable, maybe the floor was not originally meant to show. On the other hand, it's up to you whether you want to expose it now; sometimes that's the least expensive and lowest-maintenance alternative.

In Summary...

All of these options may be more immobilizing than helpful. The comments from our "panel of experts" on the following pages should help because they're about real-life applications.

Surrounded by technical literature, replies from subscribers, and the case histories of lots of floors, and having re-examined my own experiences, I'm feeling bold enough to outline what I would use on a floor. Here goes:

- On an Old but well-maintained hardwood floor in a low-traffic (no pets!) room, I'd be tempted to try shellac and wax. Looks good, and it can be fixed or removed with no damage to the floor.
- On Light Oak strip flooring, I'd use a semigloss or gloss oil-based varnish, also with a light waxing occasionally. I personally feel that the "modern" narrow-width oak flooring is too bland to benefit from the subtle sheen of a penetrating oil. A gloss on such a floor gives it clarity; for softness I'd use area rugs on top. (Rubberized mats sold by carpeting stores save the finish underneath the rug, and keep the rug from travelling.)
- On Any Really old floor (worn and patinaed), and on pine floor, a penetrating oil would be my only choice. I'd cover or replace a floor that give me splinters.
- On Parquet Flooring, I'd go with a penetrating oil finish in most rooms. In a turn-of-the-century parlor or other formal public room, varnish would be more appropriate. If the floor was tight and in good shape, gloss or semigloss varnish would look terrific. But a worn or uneven floor looks worse with a glossy surface, so I'd be back to oil, or perhaps matte varnish.
- Would I Ever Use a Quick-dry Varnish? Probably not. If I was willing to put up with low wear-resistance and brittleness to get a shine and renewability, I'd go with shellac. And although it's tempting to use a faster drying varnish, the greater life you get from old-fashioned polymerizing varnish is worth the time and trouble it takes to put it down.
- Would I Ever Use Polyurethane? Probably, if I wanted good resistance to wear and knew it was in a place that wouldn't get proper maintenance (summer house, children's room). I'd buy the most expensive urethane (there is a difference between $10/gal and $25/gal urethane) and follow the label religiously. Since it can't be touched up, I'd take the trouble to apply four thin coats at the outset.

In Summary...

All of these options may be more immobilizing than helpful. The comments from our "panel of experts" on the following pages should help because they're about real-life applications.

Surrounded by technical literature, replies from subscribers, and the case histories of lots of floors, and having re-examined my own experiences, I'm feeling bold enough to outline what I would use on a floor. Here goes:

- On an Old but well-maintained hardwood floor in a low-traffic (no pets!) room, I'd be tempted to try shellac and wax. Looks good, and it can be fixed or removed with no damage to the floor.
- On Light Oak strip flooring, I'd use a semigloss or gloss oil-based varnish, also with a light waxing occasionally. I personally feel that the "modern" narrow-width oak flooring is too bland to benefit from the subtle sheen of a penetrating oil. A gloss on such a floor gives it clarity; for softness I'd use area rugs on top. (Rubberized mats sold by carpeting stores save the finish underneath the rug, and keep the rug from travelling.)
- On Any Really old floor (worn and patinaed), and on pine floor, a penetrating oil would be my only choice. I'd cover or replace a floor that give me splinters.
- On Parquet Flooring, I'd go with a penetrating oil finish in most rooms. In a turn-of-the-century parlor or other formal public room, varnish would be more appropriate. If the floor was tight and in good shape, gloss or semigloss varnish would look terrific. But a worn or uneven floor looks worse with a glossy surface, so I'd be back to oil, or perhaps matte varnish.
- Would I Ever Use a Quick-dry Varnish? Probably not. If I was willing to put up with low wear-resistance and brittleness to get a shine and renewability, I'd go with shellac. And although it's tempting to use a faster drying varnish, the greater life you get from old-fashioned polymerizing varnish is worth the time and trouble it takes to put it down.
- Would I Ever Use Polyurethane? Probably, if I wanted good resistance to wear and knew it was in a place that wouldn't get proper maintenance (summer house, children's room). I'd buy the most expensive urethane (there is a difference between $10/gal and $25/gal urethane) and follow the label religiously. Since it can't be touched up, I'd take the trouble to apply four thin coats at the outset.

A Symposium In Print

The following people were invited to give us their "very personal preferences and prejudices" regarding floor finishing practices. We present this as a symposium of their current views only. Refinishing an old floor that's been through who-knows-what is tricky.

Dr. Frederick Herman is a restoration architect and former Chairman of the Virginia Historic Landmarks Commission. His thoughtful pre-amble to this article ("Refinishing Floors: Think Twice Before Sanding", Feb. '81) was well-received by readers.

"On a Very Personal Basis, my favorite floor finish is an oil and wax finish. I feel about this the same way I do about candles. Beeswax candles have a mellow light and odor which other types just do not duplicate. In the same way, an oil and wax finish gives wood an appearance that nothing else will match. It penetrates into the wood and adds to the patina. Shellacs, polyurethanes, and varnishes are all surface films which give a finish with a high degree of gloss. They tend to reflect light so, in extreme cases, they act like a mirror and do not allow you to see the character of the wood.

"Oil and Wax Finishes take more work, unfortunately, even though they are easy to touch up, so one has to compromise. If you want ease of maintenance, a polyurethane finish, if properly applied (and if it isn't, it will separate from the wood), by professionals, is the best bet. Beyond that, everyone has his own favorite recipe for a floor finish, and his own story of some disaster using some product or method."

Jim Daly, a longtime friend of OHJ, is the President of Daly's Wood Finishing Products, 1121 N. 36th St., Seattle, WA 98103.

"While there is no clear answer, we firmly believe that the penetrating oil treatments are better suited for what most restorers would be needing. There are many brands. The drying oils are, without a doubt, the best.

"It may be noted that we have a subjective view, since we also market every other conceivable product for floors including: Shellac, waxes, standard oil varnishes, polyurethane, complex 2-part Swedish finishes..."

"As we see things, the problem with polyurethane is that it is crusty (brittle) and might not bond to an older floor. Because it is brittle, it is
not suited for pine and other softwood floors
('might not bond' should read 'probably will not.')
This is fairly scuff resistant. The same can be said for the Swedish finishes. Swedish finish is
best suited for relatively new surfaces--too many conditions to meet to assure a problem-free finish
on an older floor. However, this product is very
scuff resistant, which is its long suit.

'THE STANDARD oil varnishes, such as McCloskey's
'Gym-Seal,' bond well to shellacked surfaces, some­thing polyurethane will not do (neither will Swed­ish treatment). Shellac plus wax is traditional,
mostly because it was the only thing available.
A person will certainly find it an easy system to
put down. The 'look' is hard to duplicate with
other treatments BUT moisture will spot it badly
and it has poor scuff resistance....

'THE REASON we have promoted penetrating finishes
is that they compromise all of the above. The features:
• Easy to apply--no special tools.
• Relatively low odor and little problem with dust.
• Easy to repair--probably the biggest point we
made about this system. Since no product will
outlast the house, an eye toward maintenance must
be considered. Polyurethane will not stick to it­
self, thus a repair coat may peel. Couple this
problem with the situation that the urethane might
not bond in places: You can have a real disaster
on your hands.
• Looks good! Not too glossy (unless you want it
that way) and not too dull either. Can be used
anywhere--kitchens included.

"SO...All old floors should be oiled."

RON PILLING is a Baltimore homeowner and long-time sub­sciber whose careful restoration projects have been featured in several past Journal articles.

"LET ME TELL YOU right off that I am a big fan of
polyurethane. For our old pine floors urethane has
simply worked the best. Once struck by great guilt
about using plastic substances, my wife and I de­
cided to finish one room in oil and Butcher's Wax. We sanded away twelve layers of paint, mixed turp­entine and linseed oil, and rubbed the stuff in.
It dried nicely in a day or two, and we waxed.
Here was our problem: The grain on many of the
floorboards is wide open and full of knots.

"THE POLYURETHANE (especially after four or five coats) sort of glues all the split, loose, and
cracked grain together. I've found that the satin
urethane doesn't look offensive. We have used two
brands and liked both. The first was 'Dura-Seal'
and 'Dura-Gym.' We've also used one made by Lem­nar Lacquers (2411 West Fayette St., Baltimore 21223).

"ANOTHER BENEFIT is the ease of maintenance. We
have 4000 sq.ft. of wood floors, all the typical
dark, 'pumpkin'-painted pine. Dust shows up on
them, and with the urethane finish we can run our
3-ft. wide industrial dust mop over the floors....
Anyway, it wasn't long before we removed our But­cher's Wax and put several coats of urethane on
the bedroom floor. It may not be too historically accurate, but it's better than some things and
we can live with it."
DAVIN MEHIN is a civil engineer who has participated in the restoration of three old houses. Formerly with IBM, he's now President of Wizard Ventures, a New Orleans design, consulting, and production firm.

'WITH ADDED TIME and experience, my thoughts are reaffirmed—for my kinda living and my outlook on materials and approaches:

1. Shiny floor surfaces ('You can see your face in it') are not desirable—they show every scratch...are usually too slick, and demand waxing for maintenance of their appearance. I don't like any demands—most especially by inanimate objects.

2. Waxing is to be avoided, if at all practicable—
   - It oughta be easy to care for;
   - It oughta look good to those who live there, and to those who 'visit';
   - Unless the edifice is of major historic or other significance, the purest of 'authenticity' (whatever that is) should be of only partial consideration to what is workable in the times and styles and approaches of today...this is not 1881 or 1781 (thanks be...).

3. Floors with a sheen ('well-loved, well-cared-for, well-worn') are desirable. Dull and dingy is bad, but a sheen (some call it satin) is good...

4. The natural wood color is most effective—
   - As the surface wears (which it will) there is no problem of matching the stain in the future;
   - The natural wood darkening (what some people call a 'patina'—basically from the ultra-violet of sunlight) makes things more mellow, anyway;
   - I don't believe one wood should masquerade as another, and I don't really believe that it can (where it is subject to traffic).

5. Polyurethane varnishes, while perhaps 'hard enough to skate on' are, in my opinion, NG (no good):
   - They yellow rather rapidly under direct sun...the yellowing is obvious—and not mellow;
   - They show every bump and scrape in a magnified sense. As this is, essentially, a liquid plastic, I can understand that: Like acrylic furniture and items, 'til scratched, they're beautiful. Like acrylic, the scratch is deep, so it refracts light. The appearance is like that of a plastic coating on a surface, which indeed, it is...don't like it.

6. A penetrating resin (or 'oil finish') for my money and lifestyle, is ideal: Low maintenance, low sheen, easy refurbishing, and spot touch-up....

The finish is in the wood, not on the wood. It waxes (if you really have that much spare time that you don't mind waxing). Other finishes can be applied over it (for Someone in the Future Who Wants Something Different).

'AS TO specific materials: Watco, distributed by the Watco-Dennis Corp. One might think bad things about the Watco regarding spills, since it is an 'in the wood' rather than an 'on the wood' finish. Sorry, I still say good things. Spills, including red wine, have cleaned right up. No stain. I should note, however, that I apply the stuff rigorously, ensuring that more is applied on successive days, until not any more soaks in.

'OHER PENETRATING FINISHES: I have tried Flecto penetrating resin, which, on close reading of the label, they tout as 'penetrating' the wood and hardening into a plastic in the wood. I have not used it on floors. But on the door, and it discolored and peeled. Finish appearance is not equal to the Watco....''

DAVIN HARDINGHAM is an engineer-turned-craftsman who insists he has "a deeply ingrained suspicion of any expert" and therefore claims not to be one, although his experience in restoration is diverse and considerable. He lives in Reidsville, NC, and this photo was taken during World War II.

'OVER A PERIOD of many years I have redone floors in about seven houses, hardly enough to become expert, or even competent. Five of the above were hardwood throughout, two were old pine of random width and uncertain pedigree, i.e, here and there would be a piece of poplar or gum, hickory or whatever else happened to be handy when they were cutting trees.

'I USED VARNISH on the pine, polyurethane on the hardwood. The pine, which was 200+ years in place, was left in its natural color but sealed first with thin lacquer. If this isn't done, the old stuff will turn red on you when varnished. I don't think Uthane would have this effect, but I'm guessing. But I think U is too hard for pine anyway. On oak, ash, teak, and other hardwoods found in parquet floors, U has worked out very well for us. I used it atop oil stains (which had several days drying time) and it penetrated and held up beautifully. But these all were designed to be satin finishes. We don't like gloss and we don't fool with it.

'THE VARNISH on pine was done because the wood is soft and varnish is reasonably flexible. And shellac, which was used a lot when I was a kid, is definitely too hard for pine. Every time furniture was moved across it, a white line appeared where it cracked. The only redeeming feature was that a bit of wood alcohol rubbed over the spot would get rid of the whiteness...."
of the crack with plaster or spackling compound. Write the date on the dried plaster as a reminder of when the telltale was applied.

OUTDOORS, use a glass telltale. Use a small piece of single-strength window glass to bridge over the crack; a microscope slide is the perfect size. Epoxy the ends of the glass to the brick or stone on either side of the crack. Do this in an inconspicuous spot, because epoxy is hard to remove. (This type of telltale often doesn't work when applied to wood, because the glass pulls the paint off rather than breaking).

IT IS ALSO POSSIBLE to discover crack movement by simple observation of the area around the crack. For instance, cracks may have been patched several times in the past. If the patch has a crack in it, then the building has moved since the patch was made.

**Evidence**

WHEN investigating cracks and their causes, compare all your evidence before judging what movement is causing the cracks. The size of a crack is an important clue to its severity. Very small cracks are not worth worrying about, while large ones may mean that you should move out of the house.

TO MEASURE the true width of a crack, you must measure the distance between two points that were originally touching. The temptation is to measure the width perpendicular to the sides of the crack, but this is rarely the right distance. Often the sides of the crack will slide relative to one another while making only a narrow crack. By measuring between two easily identifiable places (for example, where the crack makes a sharp turn), the total distance of travel can be determined.

CRACKS THAT HAVE already been patched are sometimes difficult to measure. When possible, try to identify the original sides of the crack before it was patched. Then the total distance the building has moved can be measured rather than just the width of a fresh crack.

**Crack Measuring**

The apparent crack width can be used as a guide to the severity of the building's problem. Small cracks up to 1/64th of an inch are of no concern structurally, and, unless they are extensive, will probably not even be noticed. Cracks up to 1/16th of an inch begin to cause aesthetic problems on the interior of a house. And on the exterior of a building, they will allow water penetration which may eventually cause a structural problem. This size crack is easy to spot on the outside of a brick building, but very difficult to see on a wood one. As the cracks increase in size to a quarter of an inch, think about structural repairs.

**The Shape of the Crack** is also important when measuring its width. Cracks frequently taper from open on one end, to closed on the other end. When using the crack chart, the measurement of the widest part of a tapered crack should be considered.

<table>
<thead>
<tr>
<th>Class of Crack</th>
<th>Crack Size</th>
<th>Degree of Damage</th>
<th>Effect on Structure &amp; Building Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-0</td>
<td>HAIRLINE</td>
<td>INSIGNIFICANT</td>
<td>NONE</td>
</tr>
<tr>
<td>O-1</td>
<td>HAIRLINE TO 1/64&quot;</td>
<td>VERY SLIGHT</td>
<td>NONE</td>
</tr>
<tr>
<td>O-2</td>
<td>1/64&quot; TO 1/32&quot;</td>
<td>SLIGHT</td>
<td>MOSTLY AESTHETIC; ACCELERATED WEATHERING ON THE EXTERIOR</td>
</tr>
<tr>
<td>O-3</td>
<td>1/32&quot; TO 1/16&quot;</td>
<td>SLIGHT TO MODERATE</td>
<td></td>
</tr>
<tr>
<td>O-4</td>
<td>1/16&quot; TO 1/4&quot;</td>
<td>MODERATE</td>
<td>PLASTER BEGINS TO FALL AND BUILDING BECOMES UNSTABLE AS SIZE INCREASES</td>
</tr>
<tr>
<td>O-5</td>
<td>1/4&quot; TO 1/2&quot;</td>
<td>MODERATE TO SEVERE</td>
<td></td>
</tr>
<tr>
<td>O-6</td>
<td>1/2&quot; TO 1&quot;</td>
<td>SEVERE TO VERY SEVERE</td>
<td></td>
</tr>
<tr>
<td>O-7</td>
<td>GREATER THAN 1&quot;</td>
<td>VERY SEVERE TO DANGEROUS</td>
<td>BUILDING IS DANGEROUS</td>
</tr>
</tbody>
</table>

© 1980 Ward Bacher, Architect

The Old-House Journal 114 May 1981
A fourth type of movement is CYCLICAL, where the crack opens and closes in different seasons. The solution here again is to do as little as possible since this type of crack rarely causes structural problems.

The Plot Thickens

The DIRECTION of a crack is another good clue to its cause. Horizontal and vertical cracks of small size (C-3 or less) are rarely any cause for concern. Diagonal cracks always indicate that the house is, or has been, in movement and one part of the house has shifted relative to another part.

A DIAGONAL CRACK in an old house is almost always at a 45° angle to the floor or wall. This is the result of a phenomenon called SHEAR. When a solid material is pulled or pushed enough, it shears or breaks along a 45° angle, and slides to a new position. Brick walls, plaster-covered stud walls, and plaster ceilings all can act in this way.

Shear Cracks

THOUGH it's hard to imagine a wall being pulled apart, tension cracks are very common in old houses. Tension is a result of one part of the building staying in place while another part sinks. For example, a column may rot at its base and sink while an outside wall stays in place. One end of the wall above will then drop relative to the other end. Since the plaster on the wall can't move far without breaking, it shears along the familiar 45° angle.

THE TOP of a tension shear crack points toward the end of a wall which has dropped from its original position. If, instead of the column sinking, the outside wall had settled, the crack would slant the opposite way.
WHEN YOUR MENTAL PICTURE of the crack pattern is complete, you should be able to determine the location of the cause. Sometimes the cracks will only be found in one corner of one room. This would indicate a localized abuse, such as a rotten beam end. Other times every room in the house may have been affected by cracking. By observing which way diagonal cracks slant and which end of vertical or horizontal cracks is wider, you can determine which part of the house has moved from its original position. The key to finding the cause of a crack is discovering the movement pattern of the house.

ANOTHER EXAMPLE of a tension crack is the result of lintel failure in brick or stone walls. If the arch or piece of stone or wood at the top of a door or window stops doing its job, the brick above the lintel starts to drop. As the brick is pulled down by gravity, the wall on the side of the opening is pushing up. This tension creates two shear cracks which run from the top corners of the opening to form a triangle above the door or window. Since the mortar is often softer than the bricks, the cracks tend to follow the pattern of the brickwork, creating a stepped pyramid appearance.

More Clues

COMPRESSIO SHEAR CRACKS are less common than tension shear cracks. They are easily identified because there will be some crushing of the material along the line of the crack. This kind of crack is the result of one part of the building pushing down on another part.

ONE KIND OF compression shear crack occurs when the outside of a building settles into the ground while an interior bearing wall or column stays in its original position. In this case, the column is pushing up while the exterior walls are pushing down. A wall which is above the column will shear in compression, causing 45° diagonal cracks whose tops slant toward the column.

Both tension and compression shear cracks set up an overall pattern which can be readily observed. Frequently these cracks come in groups which literally point to the cause of the problem. Since houses are usually divided up into many rooms, it is not possible to see the entire pattern at one time. The direction of cracks should be noted in each room and mentally added together like a jigsaw puzzle. It is helpful to start at the top of a house and work down floor by floor, checking rooms and halls on the way. One of the best places to look for cracks is in closets, since they are often not patched and painted with the other spaces.

False Leads

HERE ARE SOME PATTERNS of cracking which do not necessarily indicate structural problems. The first of these is ALLIGATORING of plaster walls and ceilings. This pattern is an interconnected grid of small cracks in a roughly rectangular form. On close inspection, one direction of the cracking can be seen to follow the lines of studs in the wall, or joists above the ceiling; the other direction of cracking is a bit more random, but follows the line of the spaces between the wood lath behind the plaster.

THE ALLIGATOR PATTERN may develop after the plaster has been in place 50 or 60 years. As cracking continues, the plaster will eventually fall down. The solution is to replace the plaster or repair it. (Techniques for plaster repair have been described in OHJ: Oct. '80, Jul. '77, Jun. '77.) This cracking is caused by a failure of the finish material, not by a structural problem. A similar pattern is called MAP CRACKING. Here, the cracks form enclosed areas surrounded by cracks, like a map with a lot of countries on it. This may be caused by the plaster's finish coat flaking off the base coats of plaster. This is, again, a failure of the finish, not the structure of the house.

ALLIGATORING  MAP CRACKING

MAP CRACKING is sometimes seen on an outside wall, or on a ceiling that has had a water leak. The cracks have a puffy deposit of plaster sticking above the original surface, and are usually accompanied by peeling paint. Before you patch, the water penetration must be stopped. Although this map cracking pattern is not directly caused by a structural problem, the area around the cracking should be checked for possible wood rot due to the water.
Corroborating Evidence

Further clues to understanding cracks are found by observation of the way the building has changed shape. In most cases, older houses were made as straight as their builders could manage. Over time, though, they bend, bulge, and sag (just like people). Even when the builder wasn't able to make things truly square or then causes cracks.

To check the plumb of walls, use one of the world’s oldest measuring devices—a plumb line. This is essentially just a weight on a string. A plumb bob (the weight) can be bought at a hardware store, but any small heavy piece of metal will do in a pinch. While standing on a ladder, hold the plumb line next to the wall.

To check exterior walls, hang the plumb line from the roof or out a window on a windless day. By sighting along the string you can see if the wall leans outward or inward. To measure the amount of lean (if it is substantial), have someone measure the distance from the string to the wall at both the bottom and the top. Generally, the most important thing is to note the direction of the lean.

Look around room perimeters to check the levelness of floors. There is often a space below the baseboard trim where the floor has dropped. Sometimes this gap is so large, a new shoe molding has been used to cover it up. Note which way the floor slopes. A marble can be dropped at several places around the room to see which way it rolls. The levelness can also be checked with a carpenter’s level: Set it on a long board, and lift the low end of the board until the bubble is in the center of the level. Measure the distance between the end of the board and the floor to determine the slope of the floor.

Look at other parts of the house which were originally horizontal to see if they are still level. The easiest to see are the tops of doors, window sills, and stair treads. The important thing is to note the general pattern of movement. For example, all of the doors may slope down toward the center of the house, or perhaps toward one side of the house. This knowledge helps the detective uncover the culprit which is causing the cracks.

Don’t overlook the obvious

Generally, the newer the building is, the straighter it started out in life. This is the result of greater and greater use of machines in the manufacturing process. Lumber from the sawmill, milled steel and machine-made bricks all are much straighter than broadaxed beams, wrought iron, and sand-cast bricks. Therefore the age of the house should be kept in mind when evaluating movement clues.

The age of the building is important for another reason. Brick and wood are relatively stiff materials if you try to bend them quickly, but after carrying the load of a building for long periods of time they act differently. Beams can sag or deflect incredible distances under continuous heavy loads without ever breaking. Brick walls can slowly bow outward without cracking on the outside. The older the building is, the more likely it is to have been bent by its own weight.

The weight on a floor or roof makes the joists or rafters sag in the middle. A small amount of sag always happens, but too much can cause falling plaster and in extreme cases collapse of the floor. By sighting along the ceiling you can often see a visible sag, usually in one direction. Holding a flashlight next to the ceiling will create a shadow which will emphasize the bend of the ceiling.

Ideally, the amount of steel sag when the building is full of furniture and people will be small enough that the plaster on the ceiling below will not crack. Over the short term (one day), the amount the floor deflects divided by the length of the joists should be less than 1/360. For example, this would be a deflection of about 3/8-inch over a 12-ft. length. Ceilings with drywall can sag more without cracking (1/240). House floors with this amount of deflection (or less) are usually very safe.

Over the long term, a loaded floor can continue to sag very slowly without cracking the plaster on the ceiling below. Eventually this deflection can be so great that you feel like you’re running down hill as you enter the room. Unfortunately there is no easy rule to determine if such a floor is safe. An architect or engineer familiar with old houses should be contacted for advice. After measuring the length and size of the joists, an architect can determine whether they are stiff enough and strong enough to carry the weight.

Now that you have carefully gathered all the clues of the case, the next step is to line up your suspects. In the coming installments, we’ll discuss the probable and possible causes of building movement and cracks. Once guilt has been established, we’ll talk about rehabilitation.
Hot-dipped galvanized nails are best in this situation. The following specification is appropriate for eighteen-inch shingles:

3d hot-dipped galvanized nails, two nails per shingle not more than 3/4 inch from the edge of the shingle at each side and as near as possible to the butt line of the covering course without exposing the head--drive flush, do not crush wood.

Larger shingles would require longer nails. More information can be obtained from the Red Cedar Shingle & Handsplit Shake Bureau, Suite 275, 515 116th Ave. NE, Bellevue, WA, 98004.

Marble Slabs

Several of our rooms have hot-water radiators, and the floorboards under them are severely warped and cracked. I was thinking of cutting out the boards in these areas and inserting some kind of waterproof stands. Is this ever done? If so, what kind of stand would you recommend?

--David Fay Chicago, IL

Good results can be obtained by using a slab of marble. Just cut away the damaged section of the finished flooring and set the marble in on top of the sub-flooring--this way, you won't even need a thick slab. It will look great and last forever--and then you can get around to fixing those leaky radiators!

Saving Your Graining

Help! We recently purchased a 100-year-old house and would like to salvage the graining on the interior doors and some of the woodwork. Most of the doors are badly checked and considerably darkened. I have used denatured alcohol with 0000 steel wool on some inconspicuous spots and wiped this off almost immediately, and found that the graining is still visible, but so are the small 'checking' lines.

Is there any method we can use to remove the old varnish without the graining?

--Emily R. Boudreaux Opelousa, LA

Unfortunately, any solvent that will remove the clear varnish will also remove the graining underneath. Occasionally, graining was protected with a layer of shellac instead of varnish. If this is the case, the shellac can be removed with alcohol and fine steel wool without damaging the graining. You can then recoat with a new layer of either shellac or varnish.

If alcohol and steel wool don't work, you might try cleaning the varnish without removing it. The Hope Co., listed in the OHJ Catalog, makes a finish reviver that cleans and restores the existing finish.

Nailing Shingles

What type of nail is best suited for the installation of cedar siding or shingles?

--Harry Piehl van den Kerkhoff Augusta, GA

Our February '81 issue contains an article on the use of jack posts. If the reason for settlement in your house is failure of the foundations, then you will certainly want to support the floor on columns while you repair the stone piers. As a general rule, a quarter-turn on the screw column every three or four days is a safe rate. Make sure to watch for cracking walls or separating trim during this procedure.

Keep in mind, however, that you will probably not be able to return everything in your house to a true and square position. A certain amount of crookedness is to be expected in an old house, and providing it is structurally sound, it is better to live with some settlement than to attempt correcting it all.

Attacking Tacks

Can you recommend a good technique for removing hundreds of tacks from hand-planed pine walls? The tacks were used to hang wallpaper and are flush with the surface. I have tried using a small wedge-shaped tool to pry them out but that gouges the surface.

--Robert I. Doyal Atlanta, GA

You might try using a pair of diagonal-cutting pliers (the kind with the pointed tips). Insert the points under the head of the tack, squeeze gently, and rock the handles back. The leverage from the handles should lift the tack out. If you find the heel of the pliers denting the wood, slip a thin piece of sheet metal underneath.

Of course, this is still rather tedious, and when you get through you'll have a lot of holes to putty. Depending on the size of the tacks, it might be easier and faster to set them with a nail punch and putty over with wood filler. Try a small area first and see how it looks.
Prize Doors

MY HOUSE HAS A LOT OF interior doors, with several styles present. Most are panel doors, on which one side is rather decorative while the other side is rather plain. Should the more decorative side of a door face the hall or the room? I suppose the decorative side should face the hall, but the doors in my home give us a choice depending on the installation.

--John Ruch Ironia, NJ

A VERY UNSATISFYING "IT DEPENDS" ANSWER is the best we can give you. If a door is normally closed, then we prefer to see the plain side facing the hall, and the decorative side facing the inside of the room. If a door is normally open, however, then we prefer to have the decorative side facing the hall. That way, with the door open and folded back against the wall, the decorative side shows.

OF COURSE, WE ALL TEND TO BE A LITTLE LAZY here at the JOURNAL, and if one of our doors didn't meet these criteria, most of us wouldn't go through the trouble of re-hanging it!

Keeping Your Lath

I NEED TO REPLACE INTERIOR PLASTER in my 1851 house. When I had the plastering contractor in to estimate the job, he said I would have to replace the sawn wood lath with rock or wire lath. I would like to retain the old lath if possible, feeling that it is part of the original fabric of my house. Is it really necessary to replace it?

--Dick Perkins Freeport, IL

MOST PLASTERERS, not without reason, are wary of replastering directly on old wood lath. The dry lath will absorb water out of the plaster before it has cured, causing a weak set, and the resultant expansion of the wood can cause cracking of the plaster. (In the original application this problem was avoided by soaking the lath before it was used.) As a result, most contractors opt for wire lath, which is either fastened directly to the joists or studs or simply tacked over the wood lath.

STILL, IF YOUR ORIGINAL LATH is sound and attached firmly, there's no reason for not using it. Just make sure that it's thoroughly dry before the plaster goes on. This can be done with a simple pump-spray bottle. Start a day or two ahead of the first plaster coat; this gives the wood time to absorb the water and expand a little. The lath shouldn't be dripping, just not drinking up the water anymore.

THE OTHER ALTERNATIVE is to coat the lath with a masonry bonding agent, available from most supply houses. This is a fast-drying latex which brushes on easily. It forms a firm bond with the plaster and seals the wood from absorbing water.

Exposed Bricks

OUR HOUSE HAS AN ADDITION that was built late in the nineteenth century. We'd like to expose the brick on those back walls. Is this a good idea?

--Cynthia Smollowitz Dayton, OH

NOT REALLY. If the brick was originally covered, then it probably is not of a quality that merits showing. Moreover, it is almost impossible to remove all the covering material without damaging the brick surface and mortar joints. There's one more problem too: Everyone we know who has stripped down walls in an addition has regretted it because of cold-air infiltration. So don't do it unless you're prepared to put up with a lot of drafts.

Paint Oversead

THERE'S A PAINT BUILD-UP PROBLEM on the ceiling of my old farm house. Layer after layer of paint was applied over the years, and it's now peeling and hanging overhead. If the loose paint is scraped the ceiling looks like it had a bad case of chicken pox. Paint stores say to put up gypsum wallboard; other people say to apply a coat of sand paint. What is the answer?

--Judy Clapp Pottersville, NJ

A LAS, THERE IS NO EASY ANSWER. If there's nothing wrong with the ceiling but the paint, then it's wasteful to cover it over with gypsum wallboard. Sand paint or texture paint will only make matters worse: It will cling heavily to the peeling paint and just cause more of it to drop off. Similarly, if you scrape only problem areas and fill them in, your troubles won't be over: Old peeling paint is old peeling paint, and the unre-touched portions of the ceiling will continue to deteriorate.

THE BEST THING TO DO is strip or scrape all the old paint from the ceiling. You can use any of a variety of methods—none of them will harm plaster (just be careful not to gouge it when scraping). But it'll be hard work. One word of caution: One of those old layers may be a lead-based paint. Inhaling or ingesting that dust can make you very sick, so be sure to wear a mask when removing the paint; also, avoid eating in the dusty room, and clean up thoroughly after each round of work.

Do You Have Questions for OHJ?

Send your questions with pictures or drawings, if possible. (We prefer black & white photographs. We cannot promise to answer all questions personally, although we will try to answer all questions from current subscriber/members. Questions of general interest will be answered in print. Write: Questions Editor, Old-House Journal, 69A Seventh Ave., Brooklyn, NY 11217.)
In Search Of The Short Hopper Clamp...

Replacement Parts For High-Tank Toilets

By Joseph V. Scaduto, Lynnfield, MA

If you own a Victorian pull-chain toilet, you may have noticed the difficulty of trying to buy replacement parts for them. I have for the past several years owned a 12-unit apartment house in the Boston area. All 12 of the units have pull-chain toilets. Originally, when I purchased the building, I had intended to replace these ancient warriors. As with most of my good intentions, nothing was changed and all 12 pull-chain toilets are still in the building.

WHAT REALLY brought the problem home was the time I had to replace a bowl for one of my tenants. In attempting to secure the new bowl to the waste pipe, I found that the metal clamp had deteriorated and would also have to be replaced. This metal clamp is referred to as a "short hopper clamp."

I CALLED SEVERAL local plumbing supply firms trying to purchase a replacement clamp. My frustration mounted as I found that NONE of these firms kept this item in stock. Some of the younger clerks I spoke to had never even HEARD of a short hopper clamp.

I WAS STARTING to get desperate. It was a Saturday and most suppliers closed early. My tenant was getting nervous. Finally, the last supplier I called had a few in stock. This was Circle Supply--a dealer located in the Roxbury section of Boston. I immediately drove over to the store and purchased the three remaining clamps he had in stock.

IN SPEAKING TO THE OWNER of the store about my plight, I learned that a few dealers still stock parts for high-tank toilets. These suppliers, like Circle Plumbing Supply, are usually located in the inner core of the city--areas that still have old buildings with ancient plumbing.

I DECIDED THEN AND THERE that I would not get in a similar predicament again. I asked the store owner, Martin Sidell, to put together an order for me that would give me at least two replacement parts for each major section of the pull-chain toilet.

NOW, whenever I need a replacement part I have it at hand--and there's no panic. As I use a part from my inventory, I place an order with Circle Plumbing Supply for a replacement. For the convenience of other OJ readers, I have prepared a list of the various parts I use...along with typical cost in the Boston area.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TYPICAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOODEN HIGH TANK BOX</td>
<td>$7.50</td>
</tr>
<tr>
<td>COPPER BOX LINER</td>
<td>$19.00</td>
</tr>
<tr>
<td>HIGH TANK BALLCOCK</td>
<td>$25.00</td>
</tr>
<tr>
<td>FLOAT ARM</td>
<td>$0.75</td>
</tr>
<tr>
<td>FLOAT BALL</td>
<td>$2.00</td>
</tr>
<tr>
<td>FLUSH VALVE</td>
<td>$17.00</td>
</tr>
<tr>
<td>TAIL PIECE</td>
<td>$21.00</td>
</tr>
<tr>
<td>SHORT ELBOW</td>
<td>$3.00</td>
</tr>
<tr>
<td>SPUD</td>
<td>$4.00</td>
</tr>
<tr>
<td>BOWL</td>
<td>$50.00</td>
</tr>
<tr>
<td>GASKET SEAL</td>
<td>$2.00</td>
</tr>
<tr>
<td>BOWL (HOPPER) CLAMP</td>
<td>$3.75</td>
</tr>
</tbody>
</table>

WARNING: These prices are typical of late 1980. Expect prices to increase at least 10% per year.

SOURCE FOR HIGH-TANK TOILET PARTS

If you are having difficulty locating parts for high-tank toilets in your area, you can contact the same supplier used by the author. Contact:

Martin Sidell
Circle Plumbing Supply
2407 Washington Street
Roxbury, MA 02120
(617) 442-7750

Mr. Sidell will quote latest prices over the phone or by letter. You can then send him an order that will be shipped via UPS COD.
IGNITE your decorative imagination as you wander through what Tennyson called "the eternal landscape of the past"... enter 269 Victorian and turn-of-century rooms through the original historical photographs of *Tasteful Interlude*. These photographic portals to the past will inspire old-house owners, restoration architects, preservationists, interior designers and history buffs.

William Seale's expertly analyzed and interpreted collection traverses 57 years of evolving American interiors during the tumultuous period between the Civil War and World War I. Seale's insights enrich our perspectives on the decorative arts of the time; his words and pictures chart the reconciliation of American homes to the products of mass manufacture. He presents objects as documents, and interiors as essays in history.

Originally published in 1975, *Tasteful Interlude* has been out-of-print for 4 years. Now – actually back "by popular demand" – the second edition is available, with additional photos and commentary. You can now explore the book's gamut of residential fashions, from moneyed Manhattan drawing rooms to a seedy shanty in Colorado's silver mining country.

This broad range, from ostentatious opulence to stark simplicity provides an excellent brainstorming guide to the decorative styles of these eras. Anyone enamored with American history will surely delight in this unique expedition into Victorian and turn-of-century life and culture.

**The Critics Have Said:**

"One of the most useful & corrective books about the 19th century to come onto the market."
—*Architectural Digest*

"Photographs of real rooms when they were inhabited by real people. The author should be commended for keeping an economic and geographic balance."
—*Journal of the Society of Architectural Historians*

**About The Author:**

William Seale, historian & award-winning author, is Adjunct Professor of Architecture at Columbia University, and former editor of *19th Century* magazine. Seale consults on restoration projects throughout the country, & is presently writing a scholarly history of the White House.

288 pages, 269 original period photographs. Softbound.

*Use order form in this issue, or send $12.95 + $2 postage & handling to:
The Old-House Journal Bookshop, 69A Seventh Ave.
Brooklyn, New York 11217 • (212) 636-4515*
FREE ADS FOR SUBSCRIBER/MEMBERS

Classified ads are FREE for current member/subscribers. The ads are subject to editorial selection and space availability. They are limited to one-of-a-kind opportunities and small-lot sales. Standard commercial products are NOT eligible. Photos of items for sale are also printed free—space permitting. Just submit a clear black & white photograph along with your ad copy.

Examples of types of ads eligible for free insertion: 1) Interesting old houses for sale; 2) Architectural salvage & old house parts for sale; 3) Restoration positions wanted and vacant; 4) Hard-to-find items that you are looking for; 5) Trades and swaps; 6) Restoration and old house services; 7) Meetings and events.

Free ads are limited to a maximum of 50 words. The only payment is your current OHJ mailing label to verify your member/subscriber status. Deadline will be on the 5th, 2 months before the issue. For example, ads for the December issue are due by October 5th. Write: Emporium Editor, Old-House Journal, 69A Seventh Ave., Brooklyn, NY 11217.

WANTED

DOVE COTE. Need an old dove cote or else plans for same. Elise Monroe, 618 Pecan, Texarkana, AR 71852.

HELP WITH CISTERNs. Several members have asked for help with either: 1) Reactivating an old cistern, or 2) Dealing with water problems caused by water collecting in an old unused cistern in the back yard. For an upcoming Workshop-In Print, the edition would like to hear from any members who have had experience with cisterns. Write: Technical Dept., Old-House Journal, 69A Seventh Ave., Brooklyn, NY 11217.

PLASTER ORNAMENT MOULDS wanted for collection. Send clear photos. Willing to pay good price for perfect units; less for damaged moulds. Contact Dean Russell, Rt. 1, Box 243A, Mattituck, NY 11952. (516) 765-2481.

BOOKS & PUBLICATIONS


CONFRONTING THE OLDER HOUSE—A HOME-OWNER’S GUIDE: Reviews architectural possibilities of older houses and streetscapes. Contains general descriptions of purchase, remodeling, restoration and renovation that will help preserve architectural heritage and character of older neighborhoods. Send $3.60 to: Utah Heritage Foundation, 335 Quince St., Salt Lake City, UT 84103.

FOR SALE

40 ASSORTED STAINED GLASS WINDOWS—all in same yard. Some $1000 worth. Contact Patricia C. F. Box 487, Quincy, MA 02169. (617) 471-4118.

ORNATE PINE WOODWORK from older home. Over 217 ft. of milled facings; over 32 ft. of plainer facings. 64 ft. of plain baseboard; 16 base blocks. Still lacquered in good condition. $150. Dennis Newby, 307 E. 7th, Marysville, MO 64648. (816) 582-4003.

ANTIQUE BARD SIDING and hand hewn beams. Chestnut floor and chestnut beams. (201) 355-2317 or (518) 695-9244.

PAIR OF SLIDING DOORS. 36 in. x 90% in.; 2 in. thick. Two 36 in. pans in each. Mortised for locks; original working rollers. Call (212) 852-8078 even. or (212) 935-2749 days.

HAVE AN OLD BED IN YOUR HOUSE. Illustrated brochure for making queen and king size headboards out of junk solid wood beds. $3.00 from: Victorian Bed, 121 Parkins Lake Rd., Dept. J., Greenville, S.C. 29607.

AGED CHERRY WOOD—Approx. 1,000 running board ft., random cuts (up to 10 ft) and thicknesses, not milled. Aged 17 years. Available at Columbia Oak, Inc. House. Appraised market value plus handling. Geo Eldridge, 261 Garth Rd., Scarry, NY 10583. (914) 823-7094.

PAIR OF SMALL GREEK REVIVAL PEW MANTELS from ca. 1845 house. Also one larger mantel (ca. 1845) and one very large pine Federal mantel (ca. 1815). Large selection of electric bell-shaped glass shades and some original gas-light shades. Lots of old hardware. Robert Brown, R.D. 1 Dundee-Himrod Rd., Dundee, NY 14437. (716) 243-7781.

5 TONS OF PETRIFIED WOOD. Fossil wood grain beautifully preserved. $160 per ton. T. G. Carter, P. O. Box 487, New York, NY 10013. (212) 439-0943.

ANTIQUE WATCHES—Would a pocket watch help express your interest in things antique? I've collected a wide range of (mostly) American watches (all in the bank), which must go for pay to fund my house. Cheerful replies to all inquiries. Steve Levy, 615 22nd St. NW, Washington, D.C. 20037.

BRASS STAIR CORNER DUST COVERS—Antique, never used. Available mill finish @ $1.50 ea., or machine polished (not lacquered) @ $2 ea., with nail. Quantity: One to 10 per order, please. Bryan Kane, 1141 Winner's Circle, Libbyville, UT 86048.

SOLID BLACK WALNUT NEWEL POSTS—$50 to $150. Also: Black walnut handrail—12 ft. 5 in.; 9 ft. 3 in. 25 black walnut balusters; 16 oak balusters. A. Church, 41 Washington Ave., Irvington, NJ 07111. (201) 399-3760.

WEATHERSTRIPPING: Unique design for doors and windows. Easy installation avoids defacing old houses. Highest quality EPDM material for long life. Send $1 for brochure and sample (refundable with purchase). R. Richardson, P.O. Box 741, Athens, WV 24712.


WOODWORK—ca. 1910, including buffet with 2 leaded doors and full-length beveled mirror, 6 ft. 7 in. long. WIndow, kitchen, door complete. Baseboards, mouldings, interior doors, Hoosier pantry cabinet. Oak entry door with 9 bevelled lights. 5 over 1 double-hung windows; push-button electric switches with brass plates. (312) 854-3393.

CRINKLY WAVY GLASS and frames from double-hung windows ca. 1885. $5 per window; 8 available. 313 Scott, Fairbanks, CA 94417. (415) 681-1795.

TRANSOM OPERATORS ca. 1895, copper weathered finish. Vertical rod is 3 ft. long; all hardware included. 5 sets. A few large parts. Price to sell all 5 for $50. Paul Schoenher, 2393 Kemper Ln., Apt. 9, Cincinnati, OH 45206. (513) 961-8583.

OLD BARN BOARDS—different widths and lengths; one black walnut tree to be taken down. A few oak, inside doors, oak firniture, 11 Hall Rd., Oxford, MA 01540. (617) 987-5084.

INTERIOR/EXTERIOR DOORS, MANTELS; Stained/Leaded Glass, bannisters, misc. old-house parts, decorative artifacts. New Boston Wrecking Co., 84 Arsenal St., Watertown, MA 02172. (617) 924-9090.

12 x 12 BEAMS and assorted smaller beams from 123-year-old church steeple. Assorted rounded shingles 3 ft. and under. Dismantling and purchase of materials negotiable. Madeleine or John Peterson, United Church of Christ, Oswego, NY 13126. (315) 342-0133.

WIDE PINE BOARDS approx 20 in. wide. Also wide oak boards. Dale Carlisle, Rt. 125, Depot, RPN, Stillwater, NH 03464. (603) 446-3937.

COMPLETE TRANSOM HARDWARE. Sash locks, ornate hinges, door knob sets, sliding door hardware, and just about everything needed in house hardware line. All original. Happy to help match patterns. Reasonable. Grandpa's Hardware, 1852 S. Broadway, Denver CO 80210. (303) 933-3369 or (303) 776-6650.


May 1981
REAL ESTATE

1836-1857 GREEK REVIVAL Handsome "Dumb­
barton Mansion;" curving mahogany staircase; 5 ori­
ginal marble fireplaces. Bellefontaine, Pennsylvania. 9 acres trapped. 1856. Listed by Pennsylvania His­torical Society, Philadelphia. $325K.

1869 ITALIANATE COUNTRY VILLA near Pella,
barton - Mansion;* cuning mahogany staircase; 5 ori­
mounts Braddock-Meason House (ca. 1802), The Old-House Journal

1820. Located in his­torik Sefa

885-6666.

1836-1857 GREEK REVIVAL Handsome "Dum­
bass-stocked

CHOICE VICTORIAN ON STATEN ISLAND. Sil­
ver Lake area. 2 family; 5 over 4; large plot. Over­
looks park & 2 lakes. Bus in front; golf, tennis & pool

1869 ITALIANATE COUNTRY VILLA near Pella, barton - Mansion;* cuning mahogany staircase; 5 ori­

MOUNT BRADDOCK-Meason House (ca. 1802), The Old-House Journal

1820. Located in his­torik Sefa

885-6666.

1836-1857 GREEK REVIVAL Handsome "Dum­
bass-stocked

CHOICE VICTORIAN ON STATEN ISLAND. Sil­
ver Lake area. 2 family; 5 over 4; large plot. Over­
looks park & 2 lakes. Bus in front; golf, tennis & pool

1869 ITALIANATE COUNTRY VILLA near Pella, barton - Mansion;* cuning mahogany staircase; 5 ori­

MOUNT BRADDOCK-Meason House (ca. 1802), The Old-House Journal

1820. Located in his­torik Sefa

885-6666.
Does Your Store Specialize In Renovation?

If the answer is "yes," you probably wouldn't mind increasing your business. By carrying The Old-House Journal Catalog you add to the marketplace atmosphere of your store, and whet the restoration appetites of your customers.

The deal is terrific: Send in a check for a minimum of 5 copies (sorry, we don't bill), and you get 50% off the cover price of $9.95. If for some reason you have unsold copies, you may return them for a refund.

Ah, to extol the virtues of The Old-House Journal's Group Rate subscription plan, is to tell the tale of all-around satisfaction...as poetically as we can. Glean a fabulous 25% discount off the regular price, and enrich your group's treasury by pocketing half the cash — wouldn't that be nice? Share your zeal for restoration ideals!

Merely persuade (a minimum of) 10 interested members of your preservation group, historical society or neighborhood organization to subscribe. They receive a 25% discount (one $16 subscription for a mere $12), and for your treasury you get $6 legal tender per signed member — both of which give your members an additional incentive to renew membership in your organization. Last year, organizations across the nation made $10,000 with this noteworthy Group Rate arrangement.

For order forms, and details, tell us you're interested through a call or the mail!

Do you know a friend, relative or business associate who might like to see The Old-House Journal? If you do, we'd like to help you spread the word to them. Chances are they'll really appreciate your thoughtfulness.

What do you have to do? Not much. Just fill out this coupon with their name and address (use additional sheets, if you have a few people in mind). Feel free to put this coupon in the easy-fold postpaid order envelope in this issue.

Yes, I'd like to help spread the word. Please send a free sample copy of The Old-House Journal to

Name________________________________________
Address______________________________________
City__________________________________________ State____ Zip________

Restoration Products News

This national publication reports on new products and services available for the restoration, rehabilitation, and renovation of old buildings.

It is read by architects, contractors, interior designers, manufacturers, store owners, and other professionals in this field. Many readers are homeowners involved in the renovation of old houses. All are seriously interested in what is available to them, whether it be structural materials, antique lighting, reproduction accessories or a particular hard-to-find service.

Restoration Products News is the only publication that provides an editorial environment that focuses solely on restoration products.

Use Order Form in this issue, or send $10 for a full year's subscription to: Restoration Products News, 199 Berkeley Place Brooklyn, New York 11217 — (212) 857-3907
Use This Self-Mailer To Order:

- New Subscriptions to OHJ
- Renewals
- The Paint-Stripping Heat Gun
- New 1981 Old-House Journal Catalog
- Back Issues
- Book—"Late Victorian Houses"
- Subscriptions to Restoration Products News
- Gifts

See Other Side
ORDER FORM
Please Send The Following:

☐ New Subscription to Old-House Journal — 12 issues — $16
NOTE: Allow 8 weeks for 1st issue to arrive.

☐ Subscription Renewal:
(Enclose current mailing label if possible)
☐ 1 Year — $16
☐ 2 Years — $24
☐ 3 Years — $32

☐ Subscription to “Restoration Products News” — 10 issues — $10.00

☐ Master Appliance HG-501 Heat Gun — $64.95 (N.Y. State residents add tax)

☐ “Everything Package” — Includes Back Issues from January 1975 through present; all the Indexes; latest Old-House Journal Catalog; plus a subscription running through December 1981. In all, you get 84 issues + The Catalog. All for only $59.95. (You save $55!)

The Old-House Bookshop

☐ Tasteful Interlude—Rare photographs of original room interiors from the Civil War to WWI (Seale), $14.95 (softbound)

☐ Century Of Color—Authentic paint colors for your home’s exterior. Covers period from 1820 to 1920. Ties in with commercial colors you can buy today. $12.00 (softbound)

☐ Binders—Brown vinyl binders embossed in gold with OHJ logo. Holds a year of issues. $5.25

☐ 1981 OHJ Catalog—Sources for hard-to-find old-house products and services. $10.95 ($7.95 to OHJ subscribers)

☐ The Old-House Journal Compendium—Collection of the most helpful articles from the OHJ’s first 5 years of publication. Hardcover. $21.95

☐ Late Victorian Architecture—Largest collection of late 19th century house plans and ornamental details (Palliser). $21.95 (softbound)

All Prices Include Postage & Handling
N.Y. State residents add Sales Tax

☐ Amount Enclosed $ __________________

NOTE: If your order includes a Catalog, Heat Gun or Back Issues, we need a STREET ADDRESS—not a P.O. Box number. We ship via United Parcel Service, and they cannot deliver to a P.O. Box.

Allow 4-5 weeks for delivery

Send To:
Name ________________________________
Address ________________________________
City ___________________ State _______ Zip ________

Cut out this page and fold as indicated on reverse side. It will form its own envelope. Just enclose your check and mail. No postage needed.
PRACTICALLY EVERYTHING IS NEW about the 1981 Old-House Journal Catalog: New companies... new listings... and new information about old companies. Here’s a partial list:

- More pages—40% more than the 1980 edition;
- 328 companies were added—ones that did not appear in the 1980 Catalog;
- More than 1,100 companies are listed;
- 74% of the companies who are repeating from the 1980 Catalog have changed addresses, phone numbers, product lines or literature prices;
- 53 companies were deleted because they have gone out of business, or because they didn’t return the verifying questionnaire, or because they didn’t live up to the editors’ service standards;
- 18 entirely new categories were added to the Product & Service Directory;
- 1,640 new listings will be found in the Product & Service Directory.

USE ORDER FORM in this issue, or send $7.95 (price to non-subscribers is $9.95 + $1 postage) to: The Old-House Journal, 69A Seventh Ave., Brooklyn, NY 11217. Catalogs are shipped via United Parcel Service, so give a street address—not a P.O. Box number. Allow 4-5 weeks for delivery.

HEAT GUN...THE EASIEST, CLEANEST WAY TO REMOVE PAINT

The electric heat gun softens paint in a uniform way so that it can be scraped off with a knife. Some clean-up with chemical remover is required, but the volume needed—and the mess—is vastly reduced. Heat Gun is safer: It avoids the hazards of methylene chloride vapors present in paint removers. Operating temperature is lower than a propane torch, avoiding danger vaporizing lead. See article in November 1979 OHJ for operating details.

The Master HG-501 Heat Gun is #1 in paint removing. More than 6,000 are in use by OHJ subscribers... and the testimonials to its effectiveness come in every day. It is a heavy-duty industrial tool operating at 500-700 F. and draws 14 amps at 120 volts. Rugged all-metal construction: no plastics!

There’s a two-month replacement guarantee: If the unit should fail for any reason within 60 days of purchase, return it to The Old-House Journal and we’ll provide a free replacement.

Price of $64.95 includes: (1) Pedestal stand worth $6.75; (2) Shipping via United Parcel Service; (3) The Old-House Journal replacement guarantee. Telephone orders also accepted on VISA or via COD (there’s a $2 charge for COD).
company." Each paper is hand-printed to order, and all workmanship is guaranteed. Since he sells direct to the customer, the prices are amazingly affordable for hand-printed paper: $18 to $22 per roll, plus shipping.

TWELVE PATTERNS are available, in four colorways each. (Shown above is William Morris' "Bird and Anemone.") Most of the Bradbury & Bradbury patterns have not been available before -- and thus are a great help to anyone decorating a late 19th century home.

BROCHURE, available for $1, shows the 12 patterns. Bruce will also send sets of each pattern in its different colorways for $1 additional per set. Contact: Bradbury & Bradbury Wallpapers, Dept. OHJ, Box 155, Benicia, CA 94510.

Affordable Victorian Wallpaper

BRUCE BRADBURY has just announced an event we have been waiting for for a long time: The commercial availability of his new line of wallpaper.

BRUCE, a longtime OHJ subscriber, has spent five years researching and perfecting his line of late 19th century wallpaper. He has reproduced papers of William Morris, Christopher Dresser, C.F.A. Voysey and Augustus Pugin -- plus an anonymous Gothic Revival paper found in a house in California.

BRUCE now runs what he calls "America's smallest wallpaper company." Each paper is hand-printed to order, and all workmanship is guaranteed. Since he sells direct to the customer, the prices are amazingly affordable for hand-printed paper: $18 to $22 per roll, plus shipping.

TWELVE PATTERNS are available, in four colorways each. (Shown above is William Morris' "Bird and Anemone.") Most of the Bradbury & Bradbury patterns have not been available before -- and thus are a great help to anyone decorating a late 19th century home.

BROCHURE, available for $1, shows the 12 patterns. Bruce will also send sets of each pattern in its different colorways for $1 additional per set. Contact: Bradbury & Bradbury Wallpapers, Dept. OHJ, Box 155, Benicia, CA 94510.

Historic Markers

THE FINISHING TOUCH for many restorations is a plaque or marker denoting significant dates. Many historical markers today are made from cast aluminum -- and one of the leading suppliers of these is Lake Shore Markers. A weatherproof vinyl coating -- available in several different colors -- can be applied. The firm also does custom ornamental castings in aluminum.

CATALOG 178 is available free. Contact: Lake Shore Markers, Dept. OHJ, 614 W. 19th St., Erie, PA 16512. (814) 456-4277.

Custom Millwork & Joinery

As interest in restoration and sensitive rehabilitation has soared, so has the demand for skilled woodworking services. It has been most gratifying to see people begin again to make things that "they don't make anymore."

THERE ARE many skilled woodworkers around the country -- if you know where to find them. Two fine shops that have come to our attention are:

ARKTYPE FINE CABINETS--Builds custom cabinetry as well as architectural fabrications including custom doors, circular and oval wood windows, custom wood stairs, complete period interiors. No literature. Arktype Fine Cabinets, 858 Humbert St., Dept. OHJ, San Luis Obispo, CA 93401 (805) 544-7166.

PERIOD PRODUCTIONS, LTD.--Makes interior and exterior architectural millwork. All work custom-manufactured to order. Price estimates from customer's drawings or specs. No literature. Period Productions, 1823 W. Main St., Dept. OHJ, Richmond, VA 23220. (804) 353-5976.