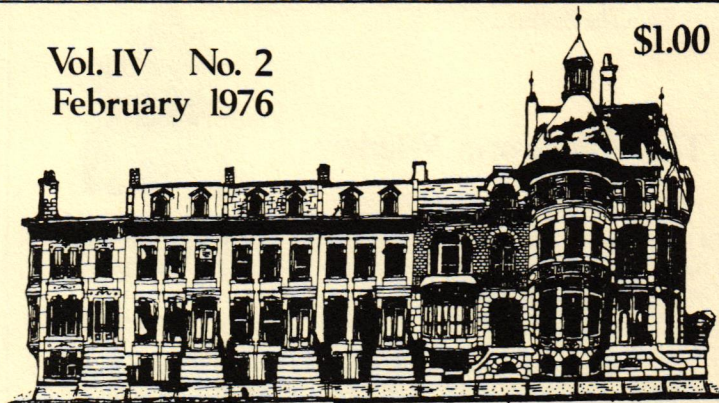


THE OLD-HOUSE JOURNAL

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Renovation And Maintenance Ideas For The Antique House

Plumbing Clinic:

Co-Existing With Old Piping

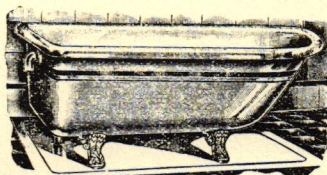
By Clem Labine

PLUMBING is something that most old-house owners would rather not think about. Piping can hardly be considered the most glamorous part of restoration. Yet you ignore plumbing at your peril. If water from leaking pipes doesn't ruin your walls and ceilings, then the plumber will when he is making the repairs.

OBVIOUSLY, the ideal situation when taking on an old house is to replace all old piping—especially if you are doing a top-to-bottom restoration and have the place torn up anyway. We'll deal in greater detail with the fine points of laying out a whole new system in later installments of The Plumbing Clinic.

FOR NOW, we are going to assume that for reasons of economy or convenience you've decided to do the minimum amount of plumbing work. So we'll review some of the characteristics of old plumbing systems and ways that you can get the most mileage out of antique pipes. But one final warning: Plumbing work is just about the messiest job there is—second only to plastering. So before spending many hours and dollars decorating a ceiling or wall, be sure you won't have to tear it all apart a few months later to get at a rotten pipe buried in the partition.

INSTALLATION OF MAIN PIPING is beyond most homeowners. In many areas building codes require such work to be done by licensed plumbers. Besides, most of us don't have the special tools and skills to cut, fit and join big



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Coming Next Month

EARLY AMERICAN KITCHENS

hunks of metal pipe. The advent of plastic pipe—where permitted by the codes—has simplified installation, but most of us are content to let the pros handle the big jobs. The vast majority of plumbers will do a competent job—as long as you know precisely what you want done and insist on it.

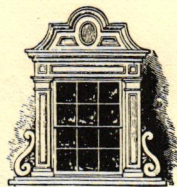


WHAT THE OLD-HOUSE OWNER can do is learn how to make simple hook-ups (like attaching a sink to roughed-in pipes), make repairs and to supervise a plumber in his placement of new lines.

THE ABILITY TO MAKE REPAIRS in old piping—no matter how crude—will save you many dollars and much grief. With many plumbers today, you seem to have to work out an appointment weeks in advance. It's harder to see a plumber than a doctor. Heaven help you if you have a plumbing emergency on a Saturday evening of a holiday weekend. By being able to jury-rig repairs yourself you can at least keep the piping in service until you can arrange an audience with the plumber—and avoid extra charges for rush service.

YOUR ABILITY TO MAKE REPAIRS depends on two things: (1) Analyzing

(Continued on page 9)



Tips On Storm Windows

IN RESPONSE to the request for information on storm windows in old houses, I'll relate one reasonable compromise I've achieved—and one common mistake to avoid.

I PURCHASED AN 1880's FRAME HOUSE with good redwood storm windows on the bottom floor—and none upstairs. After three years of restoration (and rising heating bills), I decided to put storm windows on the second floor—and discovered:

1. Those 1950's redwood storms are not locally available today—even though they are much better insulators than aluminum storms;
2. Custom-made storms are available—but I was afraid to even ask for an estimate;
3. Aluminum storms are highly standardized and uniform in appearance—but not in quality. Three grades are offered.
4. The top grade is available in a range of permanent baked-on colors. You pay no extra charge for the color...the price difference is for the superior insulation and efficiency of operation.

THE TOP GRADE IS WELL WORTH the higher initial cost. You make it up in fuel savings—and the color hides that dreadful bright aluminum look.

HERE'S THE MISTAKE TO AVOID: Since the aluminum color choices offer you only one brown, one yellow, etc., it is advisable to match your house trim colors to one of these. Or if your house is all white, you might opt for the black storms that are also available.

WHILE I HATE TO SEE THE TAIL WAG THE DOG, by matching the window trim colors to the colors available in the aluminum windows you assure the most aesthetically pleasing result...the aluminum storms will quietly blend into the larger wooden window frames. So if you are thinking about painting your house...and also are thinking about getting storm windows, ...try to pick out your storm windows before you paint the house.

UNFORTUNATELY, I bought my storms after I had painted the house. While the chocolate brown storms do not clash violently with my oak brown trim, I would prefer a closer match.

I MADE ONE OTHER PLEASANT DISCOVERY. Although all the aluminum sales representatives told me that aluminum storm doors would not hold paint, I've had excellent results in painting older, weathered aluminum storm doors on my first floor. I used Cabot's special flat oil finish for covering masonry and exterior shingles. (Trade name: Cabot's O.V.T. Solid Color Stains.) It is highly penetrating and provides a chip-free color surface that has withstood hundreds of scratchings by our dog and shows no sign of peeling.

THE OLD-HOUSE JOURNAL

Published Monthly For People Who Love Old Houses

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I'M NOT SURE THAT THIS FINISH would hold as well on smooth new aluminum surfaces as it did on my weathered aluminum. I suspect a bit of wire brushing might resolve this.

NOTE: Cabot doesn't recommend their product for this aluminum-painting application. (On the other hand, they don't recommend against it, either!)

Robert W. Frasch, Chairman
Rochester Preservation Board

The Wonder Of Wedges



To The Editor:

I'm enclosing a sample of a simple, inexpensive tool that I've found immensely useful around the house: A pair of mine wedges. Normally, these wedges are used for blocking timbers tight against rock. Wedges are sold by lumber mills and yards that sell mine timbers.

Most carpenters are aware of the uses of shingles in framing and shimming. Being thicker, mine wedges can be used in similar fashion for such things as:

1. Blocking—two wedges provide parallel sides and variable thickness;
2. Leveling scaffolding and temporary supports;
3. Substitute for jacks. Two opposed wedges driven together with sledge hammers can develop several hundred pounds of lift;
4. Other uses such as door stops, tightening form wires, grading stakes, clamping, etc.

Kenneth M. Turner
Sacramento, Calif.

Ed. Note: If your lumber yard doesn't carry wedges, reasonable substitutes can be cut from 2x4's.

Protecting

Lyndhurst

An American Gothic Castle

By Carolyn Flaherty



LYNDHURST IS A BEAUTIFUL Gothic castle on the banks of the Hudson River. It is an outstanding example of a popular Victorian style--the Gothic Revival. It is also a showcase of a decorating style that was truly Victorian--the painted simulation of wood, stone, leather and other rich materials combined with the real thing.

WALKING THROUGH LYNDHURST with an eye for these effects, it is easy to understand why the Victorians prized the decorator's art of simulation to create a heightened impression of richness. The fairy-tale quality of Lyndhurst is achieved by lavish attention to every detail, and a repetition of the Gothic theme on every wall, floor and ceiling. A marbled wall or grained ceiling was never intended to really deceive the eye, but rather to give emphasis to the decorative scheme and to be admired for the artistic creation it was.

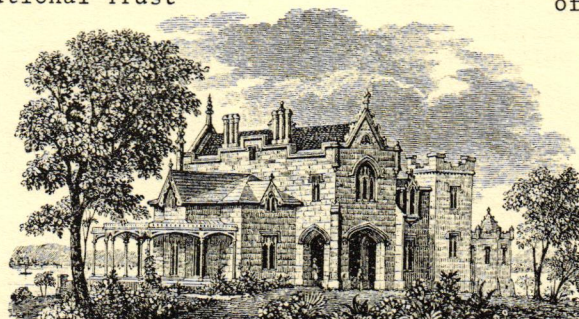
IT IS DIFFICULT to imagine this dramatic castle, situated on a knoll and surrounded by 64 beautifully landscaped acres, being a real home. But home it was for three successive families until given to the National Trust in 1964.

AND LIKE ALL HOUSES, it has been subject to the toll taken by time and weather. In connection with its maintenance by the National Trust, a Restoration Workshop has been set up in the carriage-house complex to deal with, albeit on a grander scale, the same problems that affect every old house--a rotted porch, sagging window sash, peeling paint, etc.

ALEXANDER JACKSON DAVIS, the foremost American romantic architect of the era, designed and built the first part of Lyndhurst in 1838 for William Paulding, former mayor of New York City. Paulding Manor, as it was then called, was constructed of gray-white Sing Sing marble and wood. The wood was given a coat of sand in gray paint to simulate the appearance of stone, creating the impression of a completely stone structure.

THE VILLA had more than the usual number of turrets, bays, oriels, finials, trefoils, and traceries for its time. Although it was not a large house, its beautiful details and costly materials caused some to label it "Paulding's Folly." It was bold and daring for its time. The asymmetrical design broke dramatically from the usual box-shape and symmetrical forms of the Georgian, Federal and Greek Revival styles that had comprised American architecture until that time.

WHEN GEORGE MERRITT, a prosperous merchant, purchased the villa in 1864, he found it too small for his family and he commissioned Davis to enlarge it. Davis now had a quarter-century of experience in designing picturesque structures and created a home that was the culmination of the Gothic Revival style. He added a great tower to the west, a wing to the north, and an impressive porte-cochere (a roofed area for carriages to draw up). He was able to add to the original structure in a way that defies detection. Merritt named the new version "Lyndhurst."



An engraving from Alexander Jackson Davis's drawing, "View of Paulding Manor."



The great Victorian dining room was designed by Alexander Jackson Davis, including the hexagonal table and black-leather covered chairs.

IN 1880, Jay Gould, a railroad tycoon, bought Lyndhurst. He changed very little, adding books and pictures. He also restored the magnificent greenhouse that had been destroyed by fire. The mansion today reflects the way it looked about the time that the Gould family moved in.

The Dining Room

THE SUMPTUOUS DINING ROOM was part of the addition to Lyndhurst in 1864. The very epitome of Victorian decoration, the simulated effects produce a warm, rich and elegant atmosphere.

THE CEILING BEAMS are actually pine and are grained to resemble honey oak. The corner cabinets, embellished with a fruit and leaf design, are also grained to match the ceiling.

THE PAINTED WALLS simulate an embossed leather wallcovering. A floral design was stencilled on and sand added to the petals to give a textured effect. The small center portion of the flower is gilt. The whole surface was then washed over with a raspberry glaze.

REAL ITALIAN MARBLE was used for the fireplace, but the eighteen wooden colonnettes in the room, as well as the arch and baseboard, are painted to duplicate the Italian marble. Like the woodgraining, the marbling is so

well done that you really have to be told it is painted or else get a good deal closer than the average visitor. In this case, the eye is really fooled because you expect to see real marble in such a setting. The extent to which this room is grained and marbled is an example of how highly the decorator's art was prized--both for the art of the illusion and because of the Victorian's fondness for the appearance of rare materials like marble and exotic woods.

THE FIRE FENDERS are steel and wrought iron finished to look like bronze. Bronzed as well are the clock and the plaster copy of "Night and Day" above the doorway.

HEIGHTENING the dramatic effect of the room are the beautifully appointed bay windows. Above the diamond-

shaped glass the small panes are painted intense reds, blues and yellow. There are sliding doors to close out heavy winds and drafts. When closed, the open lattice work at the top of the doors permits light to come in through the colored glass. The hinged window seats are apple green crushed velvet.

THE GOTHIC WOODWORK...the lovely table and chairs designed by Davis...the brass French chandelier...the deep, rich walls...and the dramatic lighting create an opulence that must have made an invitation to dine at Lyndhurst quite an event.

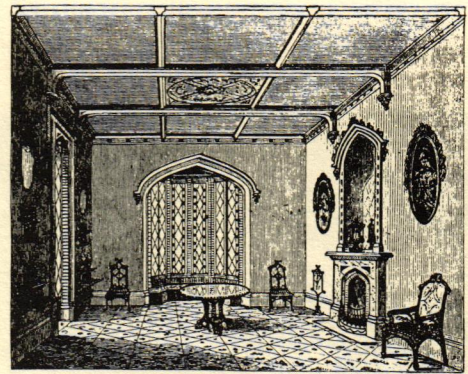
The Gothic Motif Carried Out

ALTHOUGH the dining room is the grandest, the rest of the mansion is awesome in its richness. The large entrance hall is furnished with Davis' Gothic furniture and has a real blue and white marble floor. The walls are painted simulations of marble blocks. A part of this technique included using a turkey feather dipped in hot pigmented linseed oil to make the fine veining.

THE PRINCIPAL ROOMS have ceiling treatments of ribbed vaulting or arched beams carried on corbels. The Gothic motif and the heightened effect of simulation is found in every room. For instance, one of the smaller rooms,

(Continued on page 6)

Gothic Decoration In The American House



CONTEMPORARY FASHIONS in home decoration are influenced by pictures--movies, television, magazines. But the great fad for Gothic decoration in the 19th century was inspired by words--mostly the words by and about Sir Walter Scott. It was not just the popularity of his "Gothic" novels but the romantic figure he himself presented to the public. He built himself a new Scottish castle, Abbotsford, imitating in its construction and decoration the medieval associations of his novels. Publications such as Godey's Lady's Book kept avid American readers informed of its progress.

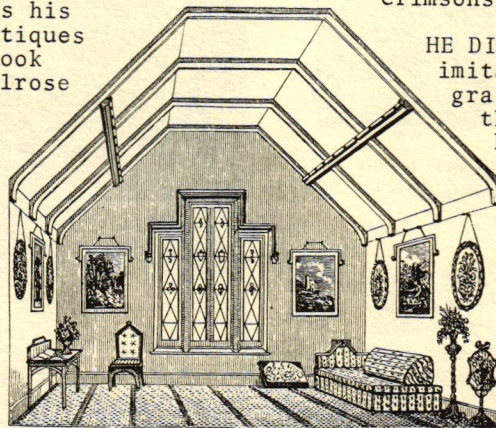
THE DECORATION OF ABBOTSFORD was completely different from the early 19th century style of decoration. The cool, light shades and white woodwork of the Adam period were then common. But Scott liked black oak and rich colors and the art of simulating rare surfaces like hardwood, stone and marble with painted decoration. English oak wainscoting was used in his mansion, but the oak was simulated on ceilings and cornices. Crimson wallpaper complemented the real and grained wood.

IN AMERICA, this combination (using native black walnut or oak) and deep red continued in popularity until the turn of the century--particularly in dining rooms. Tapestry-like wallpapers as well as reproductions of colored or embossed leather (made of papier mache or stencilled and glazed) were popular for their association with the romantic.

THE ROOM IN ABBOTSFORD that had the most lasting effect on American Victorian decoration was Scott's library. Somber, with dark paneling and walls painted to resemble stone, it presented the "ideal" atmosphere for scholarly pursuit. This version of a library was so established in the Victorian mind that although Abbotsford was completed in 1824, the Victorian homeowner would have a grave and Gothic library until the end of the century--no matter what style the rest of the house was decorated in.

ANOTHER OF SCOTT'S interesting contributions to interior decoration was his popularization of collecting antiques and salvaged house parts. He took many items from the ruins of Melrose Abbey for his new home. In a lumber yard he came across an ancient porch dismantled from an Edinburgh prison. He rescued it for its carved panels which he used for wainscoting.

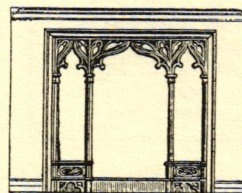
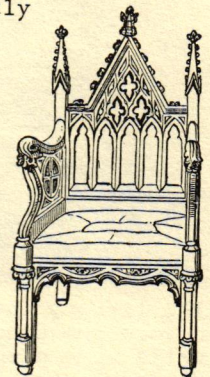
A BOOST FOR THE Gothic style in decorating was provided by Queen Victoria herself. She had the private dining room at Windsor Castle decorated in Gothic motifs. Its pointed arch panelling, carved



tracery ceiling and carpet with a Gothic cross pattern was much admired and imitated.

IT IS DIFFICULT TO imagine the way the Victorians used the trefoil, quatrefoil, and other Gothic motifs to decorate furniture, wallpaper, cast-iron stoves, jewelry and other common household items. That is because we think of Gothic as ecclesiastic and see it mostly in cathedrals.

BUT THAT WAS NOT the way the Victorians thought of it. To them it was romantic and there was nothing incongruous about furniture that resembled architecture on a very small scale. This kind of popular decoration often had little to do with the style of the house in the early part of the 19th century.

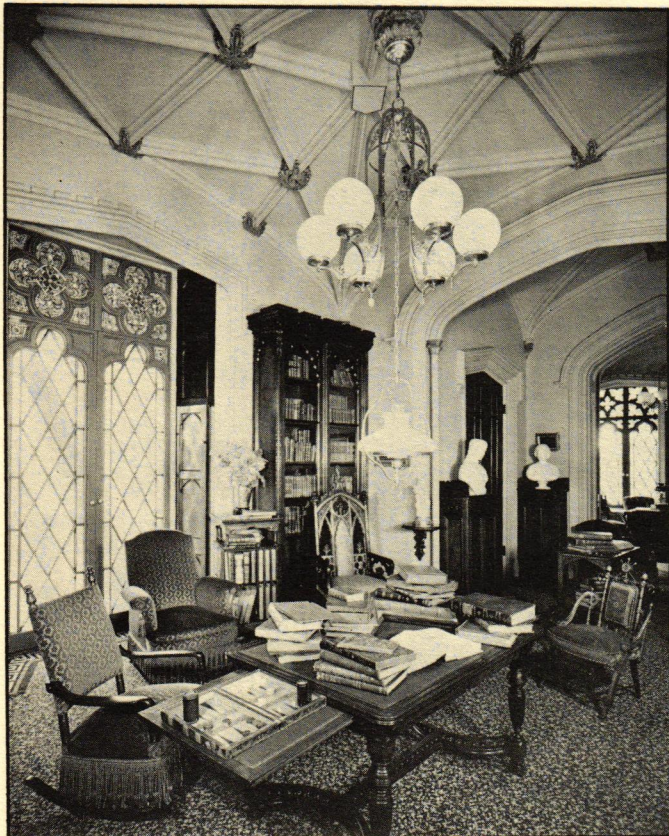


AS THE Industrial Revolution produced more wealth in America, real wood tracery and vaulting was found in interiors. And as Downing and Davis popularized the Gothic styles for houses, even simpler rural houses began to sport an arch or two or the type of square-headed drip mouldings as shown in the drawing below (a design for a bedroom by A. J. Davis) for interiors.

IN HIS WIDELY-READ BOOK, "The Architecture Of Country Houses" Andrew Jackson Downing gave advice for decorating the interiors of houses in the Gothic mode. In general, he recommended lighter shades such as rose or gray for parlors and dining rooms as being more appropriate for rural homes than the deep crimsons and purples.

HE DID, however, recommend a painted imitation of stone for hallways and graining for wood in all parts of the house to create a rich, dark hardwood effect when less expensive woods were used. He supplied drawings for oriel and bay windows with heavy drip moulds and diamond-shaped panes, and many illustrations of simple furniture with a Gothic motif.

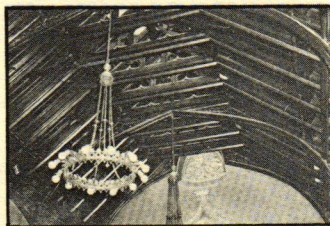
FOR LIBRARIES, of course, he gave only one decorating theme: "Comparatively grave." ■ ■



The library was formerly the dining room before the great tower was added and the walls were originally painted to simulate stone blocks. The carpet pattern is intended to create the illusion of marble. The ribbed vaulted ceiling has large gilt bosses at the intersections of the ribs.

the office, has a paper border at both the top and bottom of the walls that gives the illusion of three-dimensional tracery. This adds great visual effect to an otherwise relatively plain room. The lancet windows throughout the house feature many kinds of colored, etched and stained glass. The elaborate parlor windows are attributed to Tiffany.

THE GREAT SURPRISE of the house is on the second floor. The art gallery/billiard room is over forty feet long, ending in a large traceried window with a smaller stained glass window above it. The room extends up to the ridgepole. Light filters down from the top and combines with the colored light through the stained glass producing a truly dramatic effect.



ASIDE FROM THE FINE collection of art found in this room, some of the details are quite interesting. The corbels that support the arched beams have been carved into the heads of famous historical and literary figures--Shakespeare, Washington and Jefferson among them. The paintings are hung in a typical

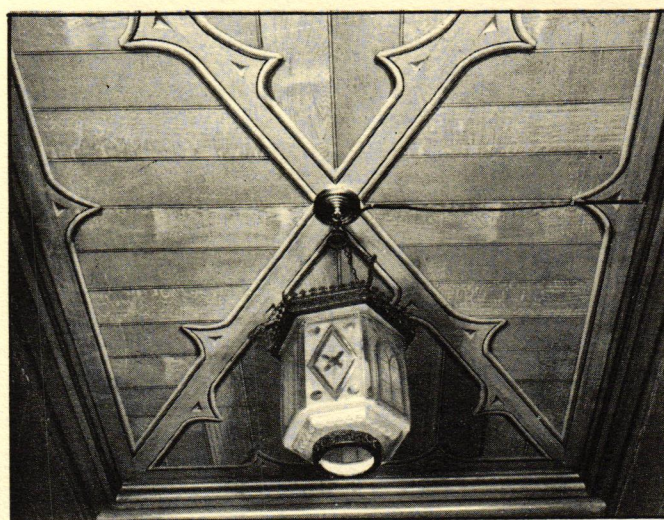
Lyndhurst is located south of Tarrytown, N. Y., on Broadway, U. S. Route 9, approximately 1/4-mile south of the interchange of the New York State Thruway (1-87), at the Tappan Zee Bridge. It can also be reached by taking the New York Central to Irvington and walking down Main Street to Broadway and along Broadway to Lyndhurst. Open daily.

Lyndhurst is owned by the National Trust for Historic Preservation. The administrator of Lyndhurst, Mr. William Taggart, was very helpful in assembling information for this article. For additional information write: Lyndhurst, 635 South Broadway, Tarrytown, N. Y. 10591. (914) 631-0313.

Victorian manner--placed high and low and all over the walls, with some of the smaller ones tucked in odd places between a chair and sofa. The rest of the second floor is divided into relatively small bedrooms.

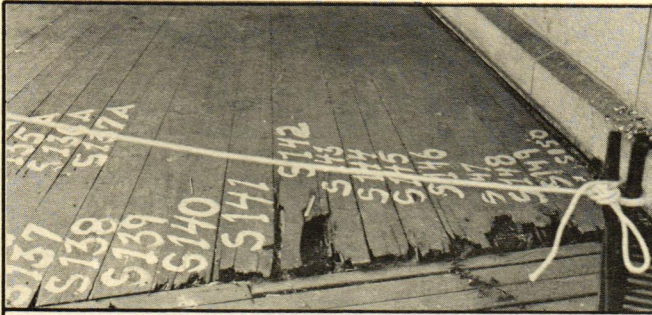
AMONG THE MANY splendid furnishings that will delight the visitor to Lyndhurst is a Wooten Patent Desk in the office and a maple bedroom set with inlaid Japanese tiles and finished in bird's eye maple.

THE LAST TWO RESIDENTS of the house were Gould's daughters--first Helen and then Anna. They continued the respect for the original design that all its inhabitants had while they lived there. Painters were instructed to reproduce the old decoration, and new furnishings did not replace the old but were simply added. Lyndhurst today reflects over a hundred years of life on the Hudson and the romantic ideals of a great American architect.

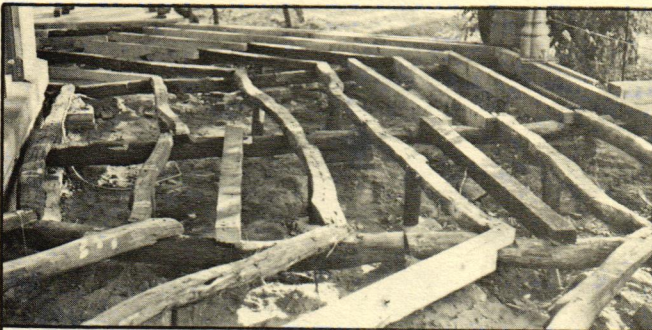


This trompe l'oeil grained ceiling is found in the passage way between the art gallery and a guest bedroom. Underneath all the decorator's art is just a flat plaster ceiling.

Preserving Exterior Woodwork



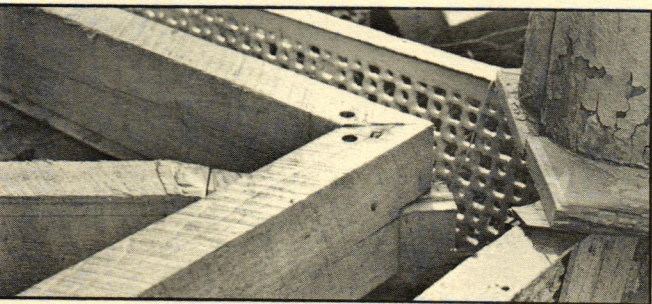
Rotted wedge-shaped floorboards in the Lyndhurst porch were carefully numbered prior to disassembly so they could be used as patterns in cutting new boards.



As many of the original locust beams as possible were kept. The irregularities of these log timbers required many shingle shims to true up the surface.



Lap joint in one of the original locust girders—resting on rebuilt footing.



Corner required new joists and girders. Note thickness of the cast iron grille.

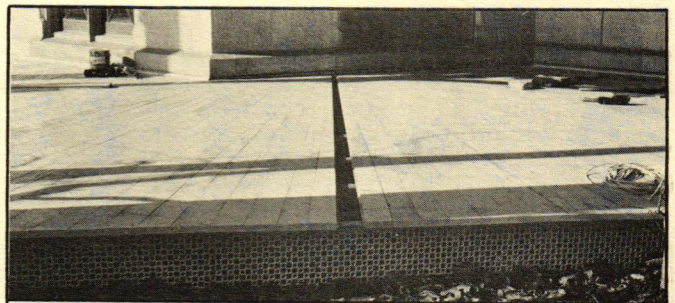
LYNDHURST—for all the glamour of its decoration—suffers from the same mundane ailments as all old houses. But because of its enormous size, the task of keeping up Lyndhurst is truly mind-boggling.

FORTUNATELY FOR THE OLD GOTHIC CASTLE, Lyndhurst is home base for the Restoration Workshop established by the National Trust for Historic Preservation. Alan Keiser, Chief of the Restoration Workshop, says that the group has a two-fold mission: (1) To train craftsmen for high-quality restoration work; and (2) To perform high-quality restoration work on National Trust properties. There are now 5 apprentices at the Workshop in addition to Keiser. They work out of what was originally the stable building at Lyndhurst.

WHILE SEPARATE FROM LYNDHURST administratively, the bulk of the Workshop's activities have been involved with Lyndhurst—because the exterior of the great house had badly deteriorated. Although the house gives the appearance of being made entirely of stone, much of its decorative detail is wood. And wood, alas, rots. Many of the procedures used by the Workshop personnel in restoring Lyndhurst can be adapted by homeowners working on slightly less grand structures.

LIKE MANY OLD HOUSES, Lyndhurst suffered from a bad case of sagging porch. The steps that Keiser and his crew went through to rebuild the porch illustrate that there are few simple solutions to porch problems—since most of the problems start from the ground up. With the badly rotted Lyndhurst porch, all they could do was carefully pull the thing apart and start over.

PORCH FOOTINGS WERE REPAIRED, and as many of the original locust log joists as possible



New porch floor in place—awaiting the last wedge-shaped board.

were reused. Where replacements were needed, 3" x 6" locust members were used.

FOR A WOOD PRESERVATIVE to treat the porch timbers, they decided not to use pentachlorophenol ("penta"). Though penta is the most common wood preservative, it can be absorbed through the skin. Since they were using large quantities of material, they decided not to take any chances. So they used a preservative of tributyl tin oxide (TBTO) in a mineral spirits solvent. (They mixed their own, although TBTO preservatives are available commercially under such trade names as "Osiose.")

NEW FLOOR BOARDS were made of vertical-grain fir. Sections of the porch that had wedge-shaped boards required special cuts for each board—which then had to be milled for tongues and grooves. Before installation, all floor boards were treated with TBTO, and then primed on the back with paint. Paint was also spread liberally in the grooves just as the boards were being installed to help make a watertight surface.

THIS PROCEDURE OF PATCHING IN NEW WOOD has been followed in most places where flat boards have rotted. However, in much of the carved wood decoration—such as the crockets that adorn the cupola—it is more desirable to rebuild the original piece rather than replace it...even when rot has set in.

ALTHOUGH THE MATERIALS USED in wood restoration vary with the problem, there are usually two distinct steps involved: (1) impregnating all rotted wood fibers with a low-viscosity (thin) epoxy resin that stabilizes the wood and seals out moisture; (2) Filling in damaged areas with a putty composed of epoxy resin plus a filler such as fiberglass, wood flour (very fine sawdust) or glass microballoons.

ONE SPECIAL PROBLEM AREA, for example, is exposed end-grain on decorative carving. End grain is highly absorbent—especially after weathering for years—and therefore very rot-prone. Such areas are liberally soaked with the low-viscosity epoxy (which will migrate many inches into the wood) to thoroughly plug the water-absorbing capillaries.

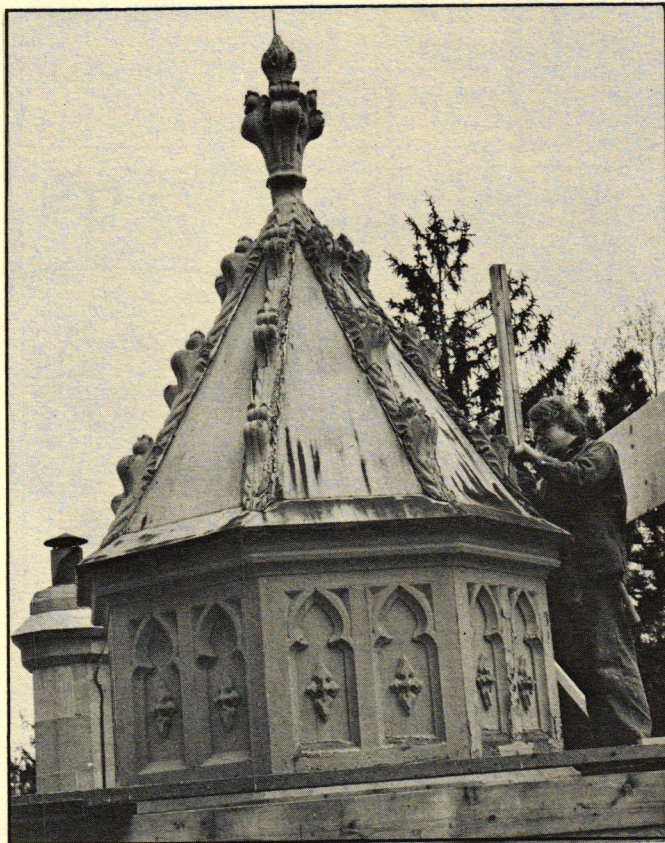
THE RESTORATION WORKSHOP formulates most of their own resin for economy's sake because of the large quantity they use. However, the low-viscosity epoxy they use is similar to such commercial products as "Git-Rot"*, "Rot Not" and "Cure-Rot."

FOR FILLERS, where a build-up of the surface is required, a variety of commercially available substances can be used. The most important characteristic, notes Keiser, is that the filler should retain some flexibility after it has set, so that it can adapt to swelling and contraction in the wood.

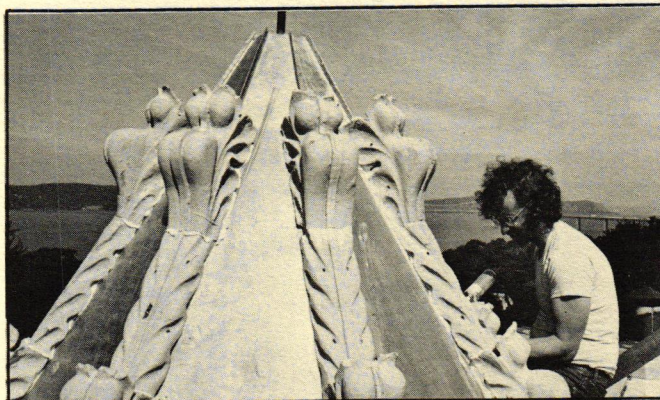
*"Git-Rot" is sold as a boat repair product and is available through marine supply outlets. It can also be ordered from Mutual Hardware, 5-45 49th Ave., Long Island City, N.Y. 11101. Price is \$3.95 for 4 oz. plus 75¢ handling and postage.

Ordinary window putty or glazing compound is the easiest and cheapest for plugging small holes and cracks.

WHERE GREATER BUILD-UP IS NEEDED, a wood putty can be made by mixing wood flour or very fine sawdust with epoxy resin. Next up the scale in sophistication are some of the epoxy-glass fiber materials made primarily for boat repairs. We'll be getting into these in greater detail in an upcoming issue. ■■



Apprentice Duke York about to start work on the mansion cupola. Rotted roof boards, decorative crockets and the finial had to be completely removed.



New roof boards were covered with lead-coated copper. Crockets were treated with epoxy to repair rot damage and painted prior to remounting. Alan Keiser is shown here sealing all joints with long-lasting butyl caulk.

the plumbing system in advance of any difficulty so that you know what pipes go where and what each does; (2) Having on hand the tools and materials that you will need to make emergency repairs. Your plumbing tool box should pass the "Sunday Afternoon Test": That is, could you make repairs with tools and materials on hand when all the hardware stores are closed?

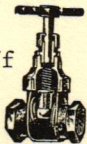
Test The Shut-Off Valve

ALL THE BOOKS TELL YOU that the first thing to do when checking out your plumbing is to locate the main water shut-off valve. The main shut-off valve is your final line of defense in event of emergency. If a leak occurs—and you can't isolate the problem line quickly—then you have to be able to shut off the flow of water to the entire house.

WHAT THE BOOKS OFTEN DON'T TELL the old-house owner is to be sure to TEST the main shut-off valve to be sure it works. Sometimes, an old valve that has remained undisturbed for years will be rusted tight in the open position. No amount of twisting on the handle will budge some of these "frozen" valves. In fact, excessive twisting with a wrench may succeed only in breaking the handle. You don't want to discover that you have a frozen valve just when your basement is starting to fill up with water!

ABOUT THE ONLY WAY TO DEAL with a stuck valve is to liberally soak the valve with a penetrating lubricant like "Liquid Wrench." Give the valve a few raps with a hammer to help the Liquid Wrench penetrate—then leave the valve alone for a day. If this doesn't loosen the valve, repeat the dousing and rapping. After doing this two or three times, if the valve stem is still stuck—so are you! It means you'll probably have to replace the whole valve. In the case of houses connected to a water main, this means cutting off the water out at the street. This is definitely licensed plumber time!*

AFTER MAKING SURE that the main shut-off valve works, you ought to label this all-important valve with a big tag so that someone who is not familiar with the system could shut it off in your absence.



ONCE YOU'RE SURE you can cut off the flow of water to the house, you are ready to turn your attention to the rest of the system.

*The fellow next door to me once changed his own shut-off valve without having the water turned off at the street. He packed the main water pipe on the street side of the valve in dry ice. The water in the pipe quickly froze, forming an ice plug that kept the water back while he put on a new shut-off valve. It worked fine for Fred—he was an eternal optimist!—but is a very chancy procedure and definitely not recommended.

EVERY HOUSE HAS TWO SEPARATE PARTS to its plumbing system: (1) The supply pipes; (2) The DWV (Drain-Waste-Vent) piping. The supply side is easy to understand. You obviously need a pipe for hot water and a pipe for cold water running to each fixture. About the only thing to watch out for on the supply side—other than leaks—are the materials of which the piping is made.

MOST MODERN INSTALLATIONS use soldered copper or plastic pipe. In older installations, you may find brass, galvanized iron—or even lead. Sometimes you'll even find creative combinations of these metals. (A sure invitation for trouble; joints between dissimilar metals corrode from galvanic action.)

GALVANIZED IRON AND LEAD are also trouble. Galvanized iron has a shorter life than other materials—and is prone to scale build-up. If you have low water pressure in your house—and you have galvanized iron supply pipes—it's likely that you are getting pressure drop from scaled-up pipes. It only takes one plugged up section at a key spot to lower pressure throughout the entire house. The only way to tell for sure if scaling is the culprit is to remove a section and take a look. If you find significant scaling, you had best be prepared to replace all the galvanized pipe.

FUNCTIONING OF THE DRAIN-WASTE-VENT is less well understood by many people—especially the venting system. Water flows to the sewer (or septic tank) through the drain lines. The problem is that sewer gas can also flow back through these same pipes into the house.

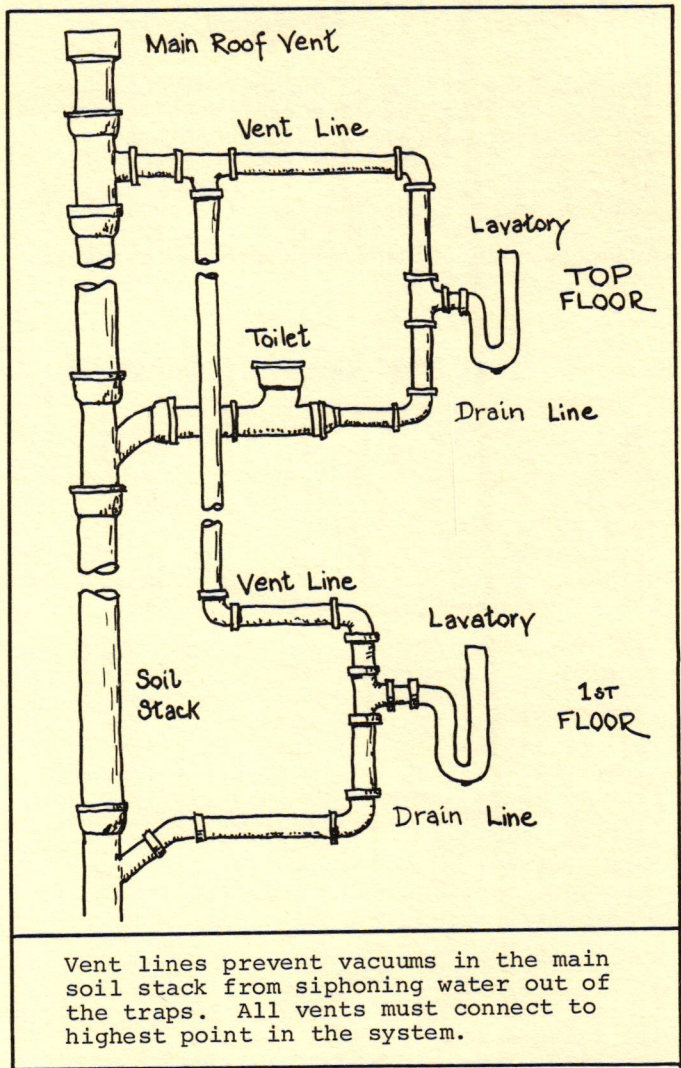
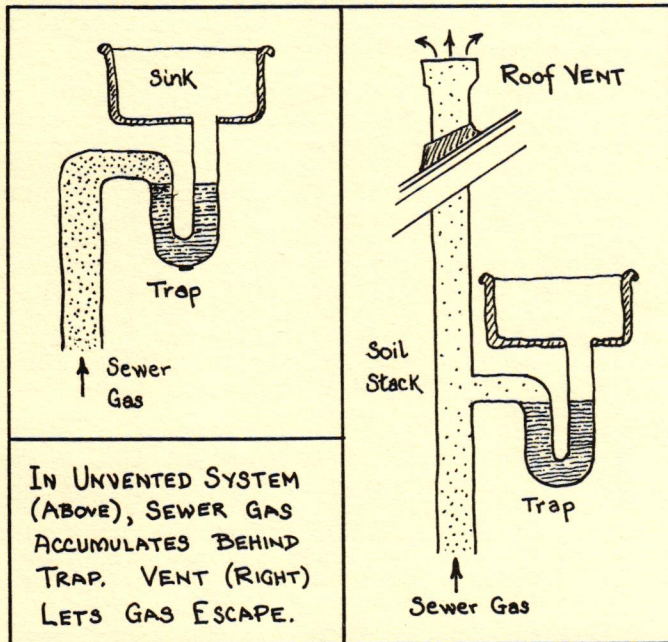
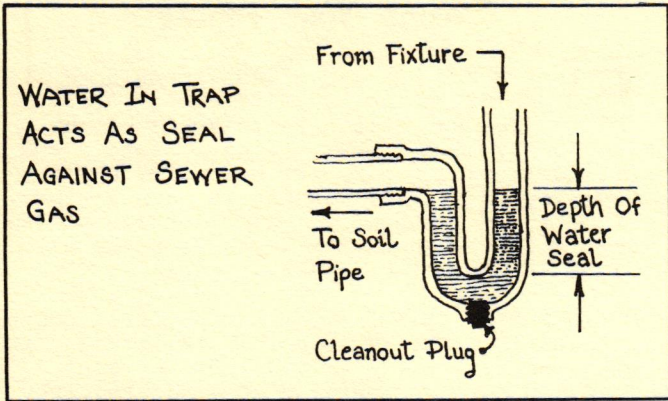
THAT'S WHY EACH PLUMBING FIXTURE should be fitted with a trap. Traps form a water seal that prevents sewer gas from leaking out through the fixture. (Contrary to popular myth, the primary function is not to catch rings and hair pins that fall into the drain!)

BUT A TRAP ALONE is not enough. Sewer gas can accumulate behind the trap and leak into the house through any joint that isn't gastight. So main waste stack (also called "soil stack") is carried up through the roof—and left open to the atmosphere. Any accumulated sewer gas

Pipe Type Test

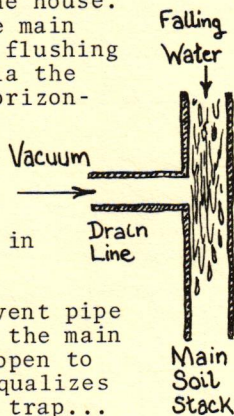
IF THERE IS ANY DOUBT about the material of which your piping is made, a magnet and small knife will tell you quickly:

- COPPER—Magnet won't stick. When scratched with knife, color showing is orange-gold.
- BRASS—Magnet won't stick. When scratched, color is yellowish gold.
- LEAD—Magnet won't stick. Soft when scratched with knife; color is silvery gray.
- GALVANIZED & CAST IRON—Magnet sticks.



is then vented harmlessly to the atmosphere and dispersed by the wind.

IN ADDITION TO THE VENT on the main soil stack, there should be a vent line between every fixture trap and the main soil stack... a vent line that carries up above the highest plumbing fixture in the house. Reason: Water falling down the main soil stack (especially from a flushing toilet) can create a vacuum via the aspirator effect in all the horizontal waste lines connected to the stack. Thus, water in the fixture traps could be pulled into the main stack by the vacuum—breaking the protective water seal in the trap.



THE TRAP IS PROTECTED by the vent pipe inserted between the trap and the main soil stack. This vent line—open to the atmosphere at the roof—equalizes pressure on both sides of the trap... so no water-siphoning vacuums can form.

WITH OLD PLUMBING, alas, you may find that some fixtures are not properly vented. In these cases, you can probably continue to live with them. Codes usually make allowances

for leaving old piping in place as long as it is in working order. As for safety, as long as no one has been killed by sewer gas in the house in the last 100 years you can figure that there is no imminent peril. Many Brooklyn brownstoners have been peacefully co-existing with old lavatories that are not vented in accordance with the new codes.

IN ANY NEW PLUMBING WORK, however, all fixtures should be vented properly. (If common sense doesn't demand it, the plumbing inspector will!) The requirement for a vent doesn't present much of a problem when the work is being done on the top floor. On the ground floor, however, the requirement to run a vent line up to the top of the house can pose the annoying problem of how to conceal the pipe. The plumber will want to take the most direct route... which often means exposed piping.

IN THIS SITUATION, it will pay you to know about the pipe chases and other "secret passages" in the walls of your house (see The Journal, Jan. 1974). Telling the plumber where you want the vent pipe to run may cause him to mumble and grumble... but if you've thought it through carefully, he'll do it.

Lead Piping

IF YOU HAVE ANY LEAD supply or waste pipes, this stuff is probably 75-100 years old... and near the end of its service life. Although you should plan on replacing it as soon as is practical, circumstances may require you to live with the lead pipes for a little while longer. Which means that you should know how to patch the pinhole leaks that inevitably occur.

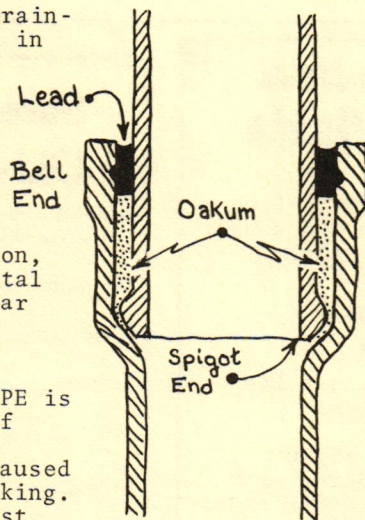
SIMPLEST METHOD OF REPAIR is based on lead's softness. The procedure was demonstrated by a plumber that a fellow brownstoner called in one day when a lead supply pipe sprouted a pinhole leak. When the plumber arrived, he smiled at the dismay my friend exhibited while looking at the gentle rain of water. The plumber reached into his tool box and took out a ball peen hammer. He gave the pipe a sidewise rap in the area of the leak. The little spout of water stopped immediately. The lead was soft enough so that the lead closed over the pinhole after it was struck with the hammer.

IF YOU FIND YOU DON'T HAVE THE MAGIC TOUCH with a hammer, leaking lead piping can also be mended in the following manner: (1) Turn off water supply so that pipe empties of water; (2) Dry the area around the leak thoroughly with heat from a hair dryer, heat lamp or high-wattage light bulb. (If you use a propane torch as a heat source, be gentle—the flame is hot enough to melt lead!); (3) Thoroughly clean the pipe with steel wool or a wire brush on an electric drill so the lead is shiny at least 3 in. around the leak; (4) Apply plastic lead, plastic steel or equivalent patching compound to the leak. Build to at least 1/8-in. thickness and spread 2 in. all around the leak. Allow to dry thoroughly in accordance with manufacturer's directions.

Leaks In The DWV System

MOST LIKELY, the Drain-Waste-Vent system in your house is a combination of galvanized and cast iron. Horizontal drain lines are usually 1½-in. or 2-in. galvanized; the vertical soil stacks are normally 4-in. cast iron, as is the main horizontal waste line in the cellar that leads to sewer or septic tank.

THE 4-IN. CAST IRON PIPE is subject to two kinds of problems: (1) Loosened joints and (2) Leaks caused by rusting and/or cracking. Joints in the 4-in. cast iron pipe are rather complex affairs. First, the spigot end of one section is fitted into the bell



CROSS-SECTION OF LEADED JOINT IN SOIL STACK



Calking Iron

end of the adjacent section. The joint is then packed with oakum (a specially treated fibrous material) and is driven tight with hammer and calking iron. Molten lead is then poured into the joint, on top of the oakum. On horizontal runs, an asbestos joint runner has to be clamped in place to hold the molten lead in place. After the lead cools, it is packed tight using a hammer and calking iron.

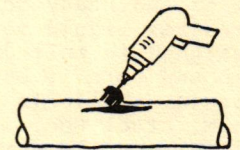
MOVEMENTS SUCH AS SETTLEMENT of the house can disturb the lead seal in these joints. The symptoms: Slow leaks ("weeping") from a horizontal line; the smell of sewer gas from either vertical or horizontal lines.

REPACKING THESE JOINTS is beyond the ability of most homeowners; handling molten lead is not something you undertake casually. However, there is one thing you can try if you are absolutely determined to avoid another encounter with the plumber. Take a hammer and calking iron (or blunt cold chisel if you can't locate a calking iron at a plumbing supply store) and with sharp blows re-work the entire face of the lead. The object is to move the lead enough so that it once again seals tight against the iron.

CAST IRON PIPE can also fail due to cracking or rusting through. Cracks in vertical stacks are especially insidious. They can dump water into the walls intermittently for months before surface discoloration gives them away.

A PIPE THAT HAS CRACKED or that has a rust hole can be repaired so that it is serviceable for many months. But realize that the section (and maybe most of the waste pipe) is seriously flawed and probably will have to be replaced within 24 months.

TO REPAIR a small crack or pinhole leak in a cast iron pipe, you can use plastic lead or plastic steel, following the procedure outlined earlier for patching lead pipe. For larger holes and cracks, you can use the procedures shown at the right: Shut off flow of water and dry the pipe with heat. Clean the pipe with wirebrushing. (Use strip of coarse emery paper if pipe is close to wall and hard to get behind.) Coat cleaned pipe with polyester or epoxy resin—at least 6 in. on either side of the hole. Wrap with fiberglass strip; coat with resin then put on a second wrap of fiberglass. Finally, coat the whole patch with a topcoat of resin. Allow to cure overnight. This patch will last a long time; it's the rest of the pipe that you have to worry about. More next month. ■■



1. Thoroughly Clean Area Around Leak



2. Brush On Epoxy Or Polyester Resin



3. Wrap With Fiberglass Cloth. Re-Coat With Resin.

Products For The Old House

Finish Reviver Kit



FRANK BROADNAX is an experienced professional furniture refinisher. He has developed a method of reviving old wood finishes rather than stripping all the old finish off. Total stripping is a tedious process that often injures the wood--and destroys the patina acquired by the piece during the years.

HIS METHOD IS SIMILAR to the one used at the Stuhr Museum (The Journal, Dec. 1975). However, the Broadnax kit contains a liquid refinisher that has the ingredients already mixed and ready to use. The Broadnax liquid refinisher is designed to melt down the finish and turn it back to a liquid. While in its liquid form, steel wool is used to filter out the dirt and wax. The wood is left with less finish--and a cleaner one. The finish can then be built up with tung oil if desired.

MR. BROADNAX explains the excellent properties of tung oil and when to use it. Tung oil, which is fairly hard to find, is also available from Broadnax in the 8 oz. or larger size.

WE HAVE TESTED the kit here at The Journal and find that it is far simpler than refinishing procedures that require total stripping. Having the ingredients all together in the right amounts saves a good deal of assembling and shopping time.

THE KIT CONTAINS one qt. of refinisher, one 8 oz. bottle of Broadnax lemon oil furniture polish, one 8 oz. bottle of tung oil, steel wool and an instruction folder. It is \$8.50, plus \$1.50 UPS shipping charge. All of the ingredients in the kit are available separately.

MR. BROADNAX has also written a very interesting book (paper-bound) titled, "Good News for Antiques and Fine Furniture." It contains expanded directions for using his products, as well as chapters on furniture woods, cleaning metals, redoing a bevelled edge mirror, and other helpful items.

THE BOOK is \$2.50, and if it is ordered with the kit, there is no additional postage charge.

YOU CAN ORDER the kit and book, or ask price information on other items, by writing: Broadnax Refinishing Products, Inc., P.O. Box 196, 11a, GA 30647. Or call (404) 789-3346.

Home Restoration Show



PETE CASTAS, Director of the home restoration show held in San Francisco last November, reports that public reaction to the initial show was so encouraging that he has scheduled a return engagement for April 8-11.

IT WILL BE HELD—as before—at The Showplace in San Francisco. (The Showplace, appropriately, is a 19th century warehouse that has been recycled into an exhibit hall.) There will be restoration seminars held concurrently with the show.

SUPPLIERS TO THE RESTORATION market who are interested in exhibiting their wares to a large West Coast audience can contact Castas at: Restoration Show, 33 Bartlett St., San Francisco, CA 94110. Telephone: (415) 282-2047.

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For Sale

ORIGINAL ARCHITECTURAL ornament--Cast red and white terracotta, carved brownstone and graystone, cast iron, stained glass. Leonard Schechter, 302 Elizabeth St., New York, N. Y. 10012. (212) 777-8847.

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