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OLD-HOUSE JOURNAL

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RESTORATION'S BIG JOBS

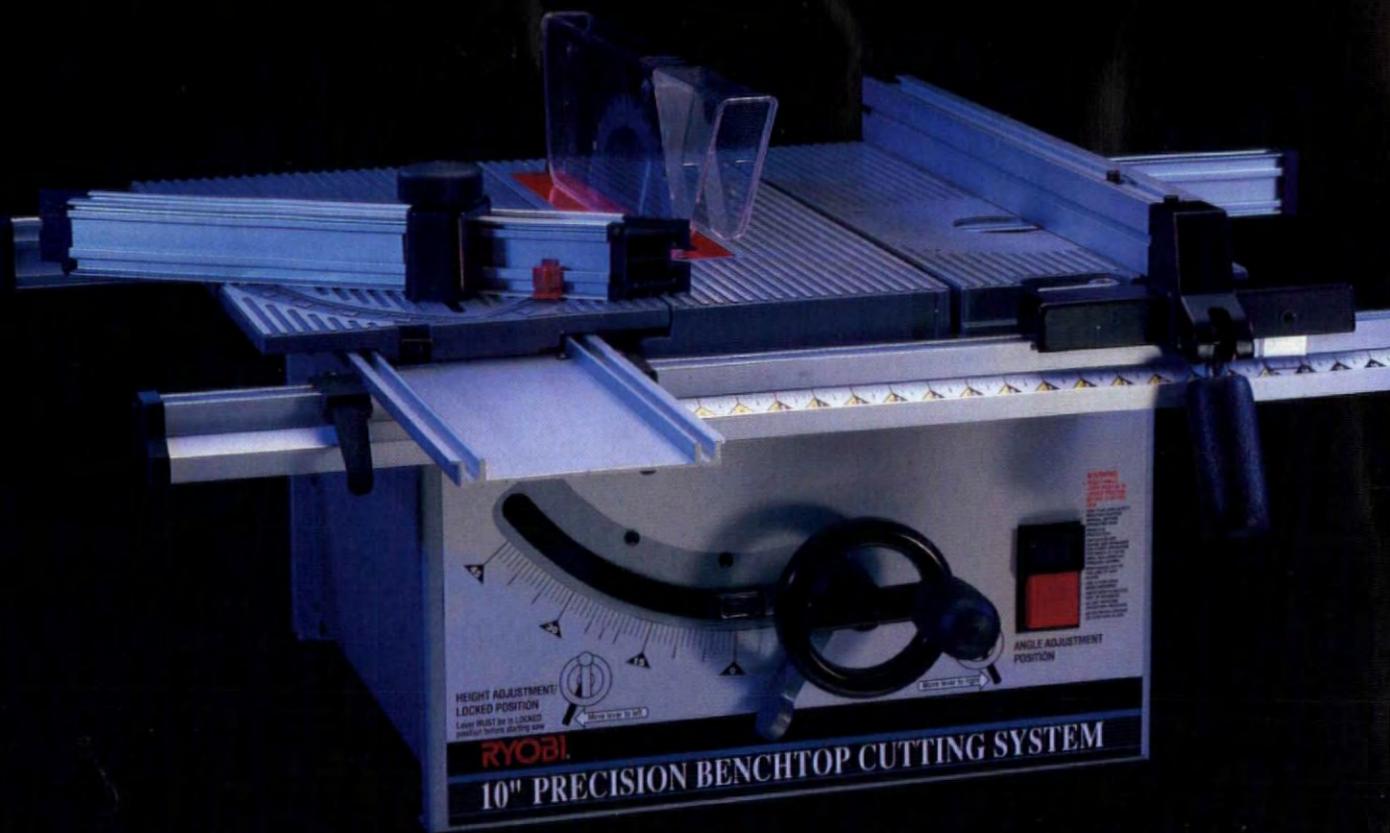
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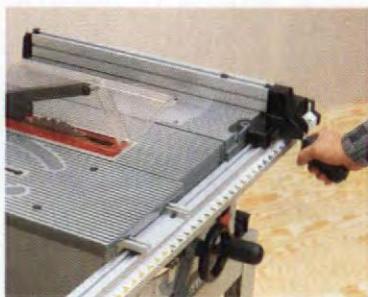


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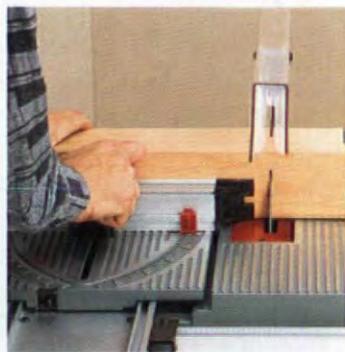
THE RIP FENCE HAS A UNIQUE LOCKING MECHANISM WHICH ASSURES PERFECT ALIGNMENT FOR PRECISION CUTTING. THE LOCK SECURES THE FRONT END OF THE FENCE INTO PLACE, AUTOMATICALLY BRINGING IT INTO ALIGNMENT, THEN CLAMPS THE BACK SECURELY ONTO THE REAR RAIL.



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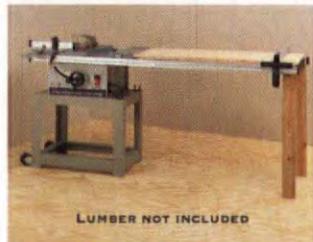
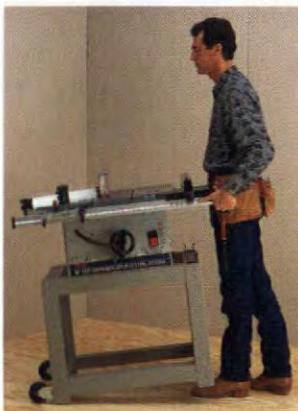
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OLD-HOUSE JOURNAL

Volume XX, Number 2

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Photograph by Steve Marsel.*



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EDITOR'S PAGE

Air Nails and Old Houses



A FAVORITE PLACE IN MY old house is the attic loft, an area where the naked skeleton of the building is all around you in amber-colored wood. Up there in one of the rafters is a spot where a knot fell out, leaving a pocket on the upper side. Right in this pocket the ends of a four nails poke through from the roof like mini-stalactites. Since childhood, I've come nose-to-nose with this spot every time I've gone up there, yet it didn't really dawn on me what this clot of nails represented until I was older and had done a little carpentry.

When the roof was built many years ago, someone (probably sharing a little DNA with yours truly) hit that pocket when they were nailing on the sheathing. That person knew they had missed the rafter because the nail went in easily — an “air nail” in the lingo of some carpenters I've met. Still, judging from the outside, there should have been a rafter there because all the previous nails had found “home,” so they sunk another nail. When that one felt soft too, they sunk another and another, all in too much of a hurry to stop for a minute and look at what was happening on the underside of the roof.

Today, as I slowly make progress on my house, every time I see those nails they serve as a sort of reminder for me. They're my “wake-up call” to think about what I'm going to do that day be-

fore I take action, and to check on the results after I've stopped. A little contemplation like this is worth plenty when you work on an old house.

First, it forces you to do some planning. Especially in the construction arts, you get a better job with more efficiency if you work with a logical sequence of efforts in mind. For instance, structural repairs should be completed

cases where I succumb to this impulse, though, the work tends to turn out poorly and usually has to be redone.

Planning and a little research are necessary for restoration, too. I once dove feet first into stripping paint on a door and wound up destroying any record of what the original finishes were like. At one time or another we've all thrown out unidentified “junk” in a fit of cleanliness, only to realize much later that we had actually jettisoned valuable window or stair parts.

Second, it forces you to work safer. Moving fast and ignoring “feedback” from the materials around you leaves the path clear for trouble. Ladders that shake, electrical cords that get warm, or timbers that groan are sending stress alarms. This is especially true for the structural work and heavy carpentry covered in this issue. Think about what the effects will be before you make a move, and then doublecheck the results. As John Leeke makes clear in his article, you can't always predict what is going on in the guts of old houses, how they have aged, or how they are going to react to major intervention.

Even though those nails up there are a little threatening, rusting away right where there's just enough room to stand up, I wouldn't think of removing them.



These foolish things remind me to think through.

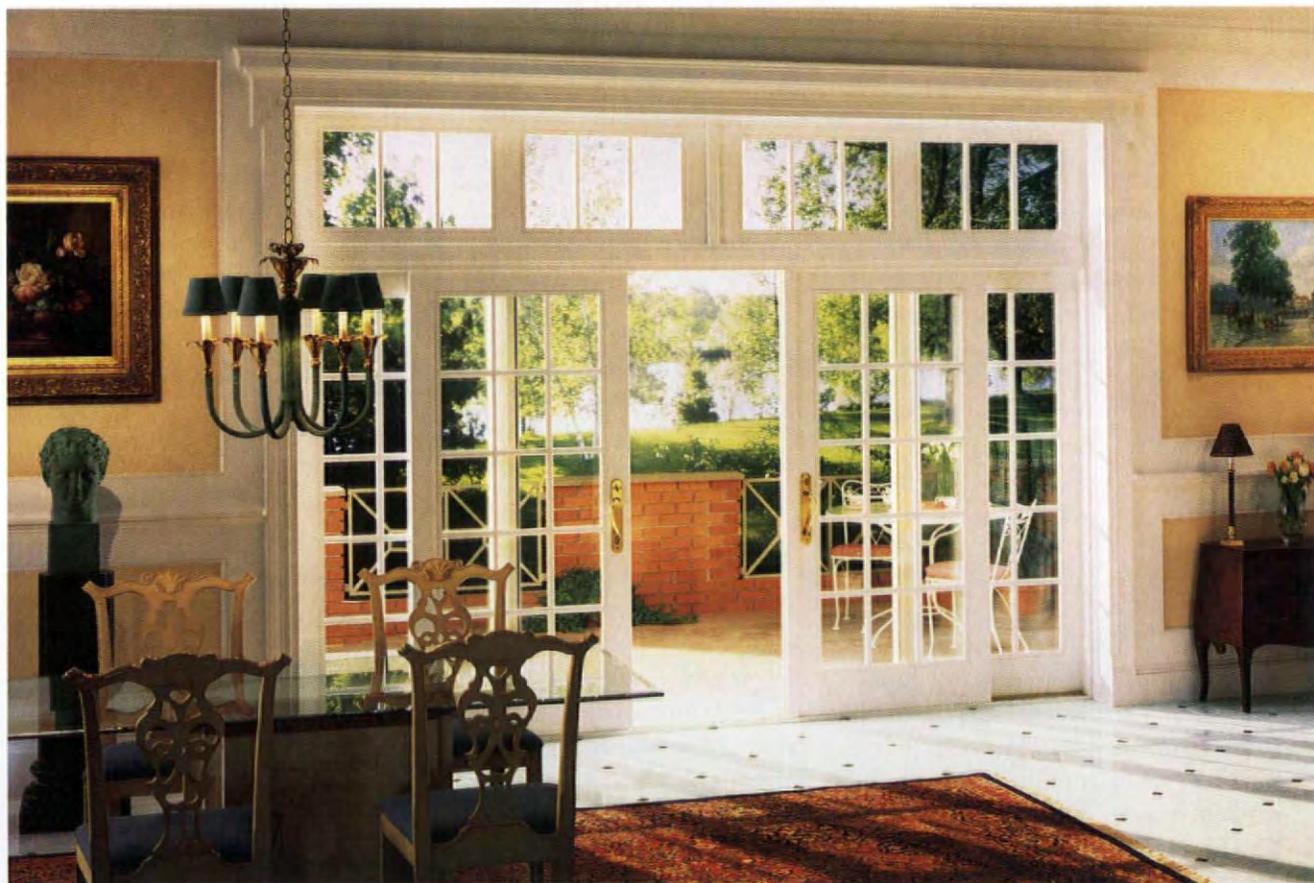
before the finish work is started. This way, mouldings, plaster, and paint are fresh and undisturbed when the job is done. I'm the first to admit that there are times when I just want to gut a wall, throw some nails around, make some sawdust fly — anything to produce tangible movement in my project. In

Gordon Beck

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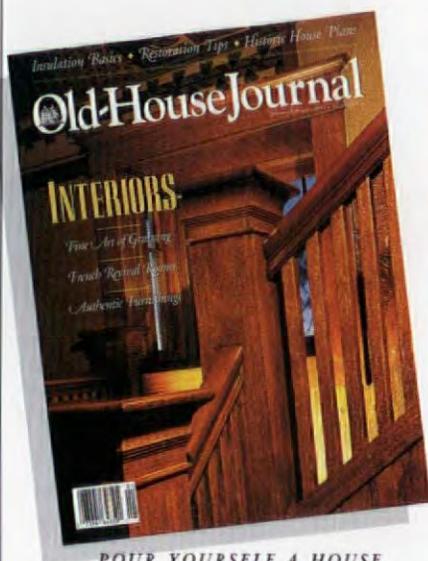
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LETTERS



POUR YOURSELF A HOUSE

Dear OHJ,

The refreshing letter by Mary Sorensen in the Nov/Dec '91 OHJ brought to mind my own association with Frazier Forman Peters.

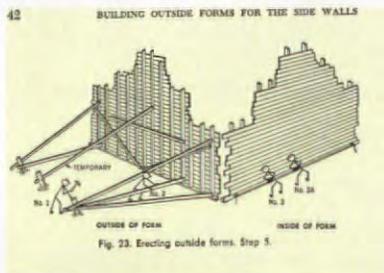
No, I never met the gentleman. My recollection was of his book *Pour Yourself a House* (McGraw Hill, 1949). In my young life in the service, I would spend those hours of boredom (between the moments of panic) designing a house I would build when the war was over. It was not to be right away: When I was recalled for Korea, *Pour Yourself a House* was in my barracks bag. As a can-do book, it literally showed how to combine sticks and stones into a warm home. I designed my home on my mythical lot during the sleepless hours before mission briefing. Again, it was not to be.

In the ensuing years I had the opportunity to observe home-building techniques and materials in Japan and Korea and later in Britain, Germany, Italy, Norway, and Finland. During my travels I collected a partner and we raised two sons. When my sons needed a stable location for their education, we came home. We did not have time to "pour" a house. We took over a derelict summer bungalow and used all the techniques we had learned. We repaired and expanded our home. My then-

teenage sons shoveled and transported 128 bags of cement (and about five truckloads of sand and gravel) to pour our stone-faced Rumford fireplace. My wife made her very visible contribution: She did most, if not all, of the taping, wallpaper, paint, and tiles. Besides a home, our efforts brought another reward: We were able to mortgage the home for enough to start the boys on their college education.

I still have my *Pour Yourself a House* book and I still dream about my future stone house ... with workshop and garage. (If I can get there before old age sets in.) Mentioned in the book are some homemade stone houses in Alpine, New Jersey, and Westchester County. And some farm buildings by the author in Warwick, New York.

— ROB ALTSCHULER
Peekskill, N.Y.



House building from Frazier Forman Peters.

COTTON INSULATION

Dear OHJ,

A trivia footnote to your excellent article on insulation ["Insulation for Old Houses," Jan/Feb '92]: I bet you didn't know that in the late 1940s, cotton insulation, made up in kraft-faced batts similar to glass-fiber batts and rolls, was sold for building insulation. It was supposedly fireproofed in some manner, but it looked exactly like the cotton you find in the top of your medicine bottles. And it was very competitively priced: Cotton was still king then.

I put some in the attic of my mother-in-law's 1903 house, and it was still there in good condition when the house was demolished in the mid '70s. How effective it was, I can't say. The old house had no subflooring or sheathing, just pine flooring, drop siding, and plaster interior walls — a common construction method up 'til the '30s in South Carolina. It was hard to heat and it would have taken more than 3-1/2 inches of cotton in the attic to improve it!

— DONALD L. MCKINSEY
Charlotte, N.C.

APPALLED

Dear OHJ,

I am simply appalled that you would print the submission by Mr. Fields ["Restorer's Notebook," Jan/Feb '92] with his assertion that his remuddled moulding was "virtually indistinguishable from the original." This can be true only for one who is architecturally and visually illiterate. I shudder to think of what his baseboards look like.

— LAURENT JEAN TORNO, JR.
St. Louis, Mo.

WITH THE GRAIN

Dear OHJ,

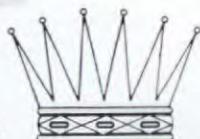
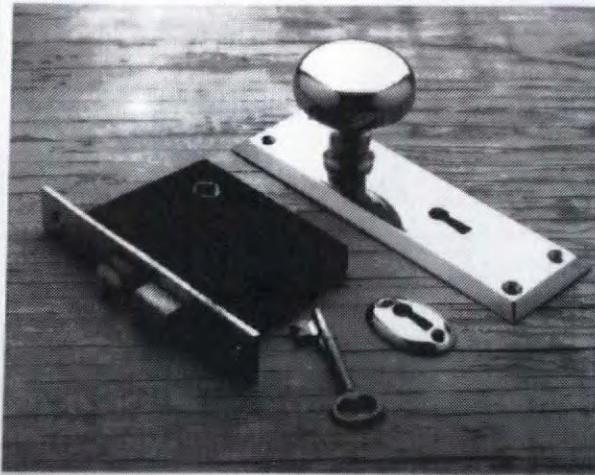
I'm sure you have heard this type of response to your magazine often
[continued on p. 12]



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LETTERS

[continued from p. 10]

but I still feel compelled to write.

While waiting in a doctor's office, I picked up your publication and found an extremely interesting article about the graining of woodwork. The home we own has this type of wood graining throughout. When we bought the house six years ago, we were astounded by the quality and condition of the woodwork. Until I picked up your magazine, I was continually wondering about the woodwork, as I had never seen it before. Now I finally can relate to visitors just exactly what it is. I am of course thrilled that it does not need refinishing. I dabble in refinishing a few pieces but would not want to tackle repro-

ducing graining.

This house was built about 1906 by the local merchant who owned a hardware and general store here in Perth. They opened the store in 1898 and lived over the store until the house was completed. I will be ever grateful to them for the care they gave their home. Perth, like many small towns in North Dakota, has dwindled to five homes. It is a peaceful, quiet existence. As in other areas of the country, once the job market goes, the people must leave. We are fortunate to be teaching at

a local Indian reservation.

— BARBARA BUKOWIEC
Perth, N.D.

THE REAL THING

Dear OHJ,

In the Sept/Oct 1991 "Ask OHJ," you supplied a drawing of a post-Victorian buffet. Our house, built in the early 1900s, contains its original buffet. We thought you might like a picture of it.

— RICK GEORGE
Cedar Lake, Ind.

[continued on p. 14]



A for-real buffet, all the way from Indiana, U.S.A.

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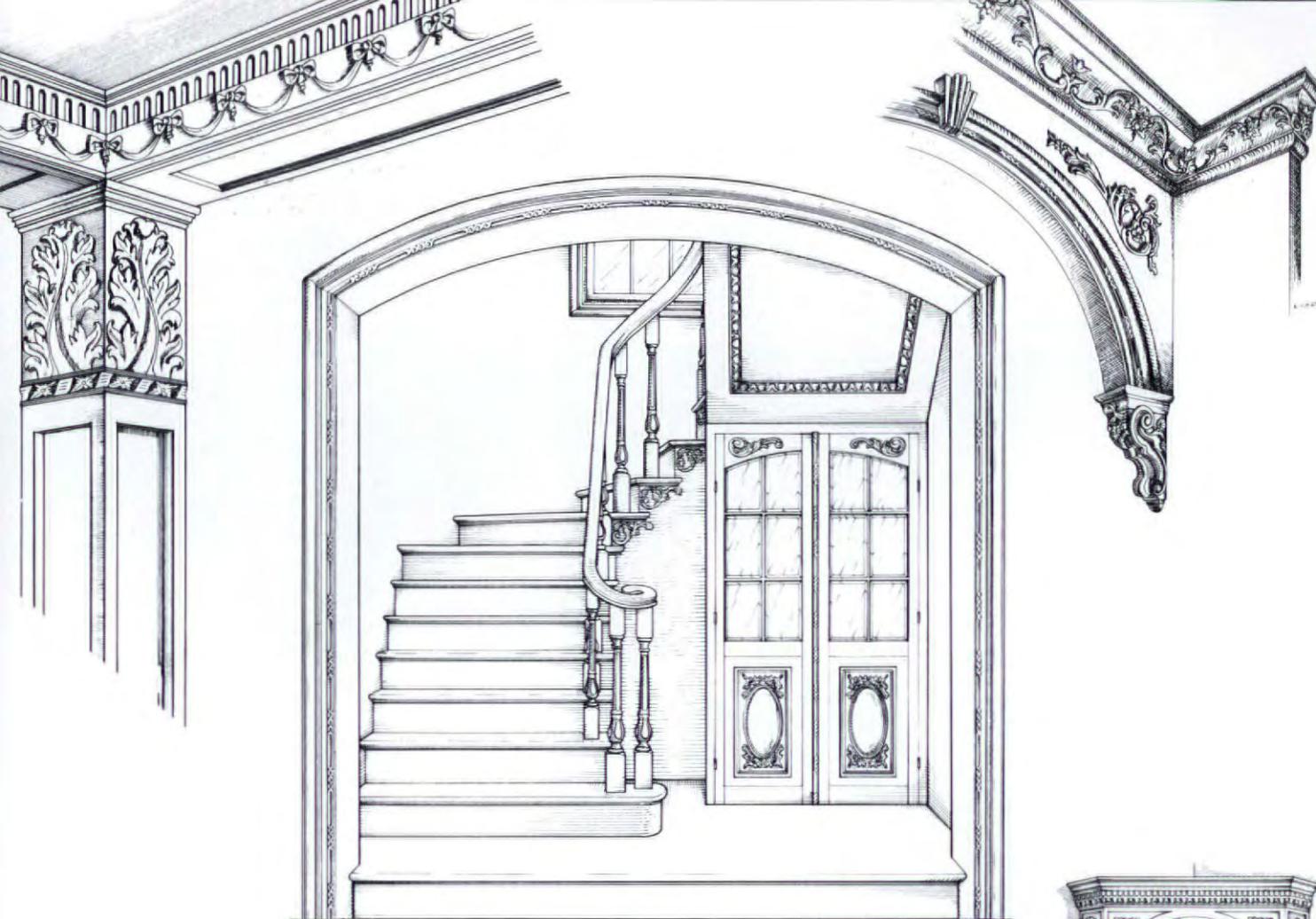
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The old "tin" roof...

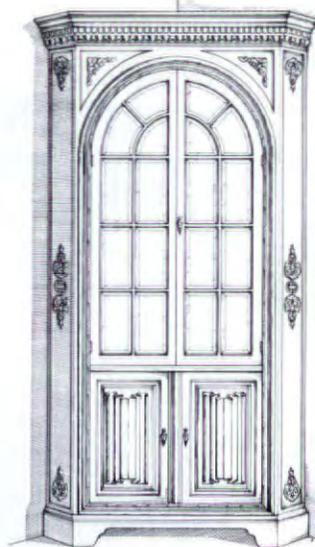
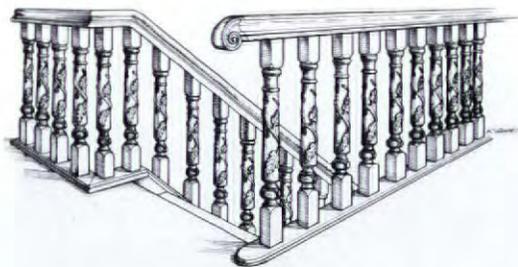
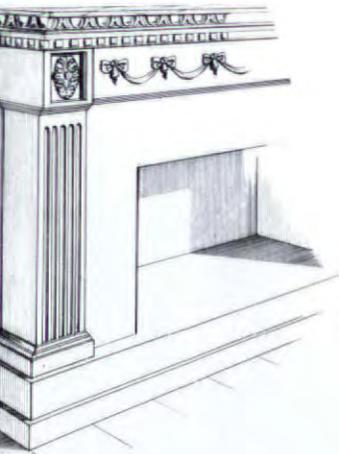
...that's what it has been called since the early settlers brought it to America. Its proper designation is TERNE, a steel sheet coated with an alloy of 80% lead and 20% tin. On the roof, it can be formed as standing seams, batten seams, or in a bermuda style. Follansbee also produces TCS, a stainless steel sheet coated with the same alloy. TCS need not be painted, and weathers to a pleasant, warm gray color.

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LETTERS

[continued from p. 12]

MORE ON MUD

Dear OHJ,

Southwest England has a number of mud houses, all of which have three characteristics that are missing from the one described in your article "Old-House Living in a Mud House" [Jan/Feb 1992]. They have large overhangs on the roof; white-washed walls; and the bottom 36 inches is painted with black tar. The roof overhang keeps a lot of water off the side walls, and the tar keeps rain and rain splashes off lower walls and footings.

I have been in a "Friends Meeting" constructed of mud. The walls were 36 inches thick at the base and tapered to about 12 inches thick at the

top. It was said to be built in the same manner as the houses and was in excellent condition.

— RICHARD T. WHITE
Grosse Ile, Mich.

MISSISSIPPI GRAINING

Dear OHJ,

Readers who enjoyed "The Fine Art of Graining" in the Jan/Feb 1992 OHJ might also enjoy seeing the Charles Manship House in Jackson, Mississippi. Charles Manship, the mayor of Jackson during the Civil War, was also very skilled in the art of wood graining and he extensively decorated his family's home. In addition to wood graining, he also painted many mantles to resemble marble.

Sometime after the house had fallen into disrepair, it became the

property of the state of Mississippi. Extensive work was done to restore the house, and a modern-day artist from England was hired to restore Charles Manship's work.

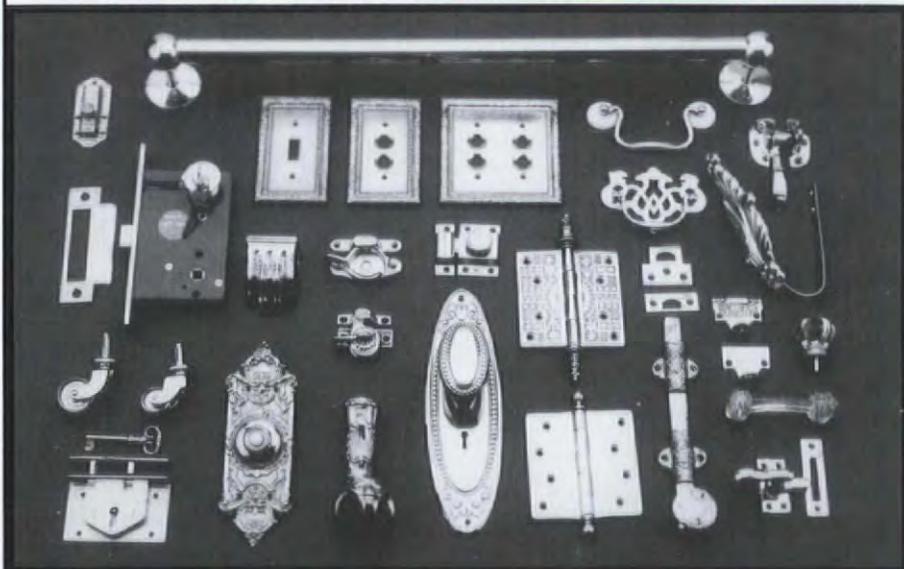
The house was open for tours when I saw it within the last few years. In addition to seeing the house, visitors saw a video presentation of the work involved by the artist in researching and then painstakingly reproducing Manship's work.

It's been a while since I've been there, so I would suggest contacting the Jackson Chamber of Commerce for the exact address and for information as to whether the house is currently open for tours.

— SUE NIELSEN
Oak Park, Ill.

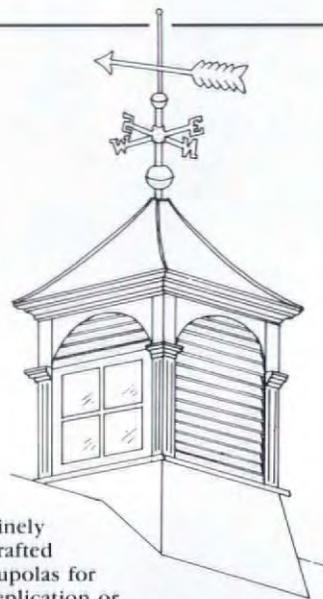
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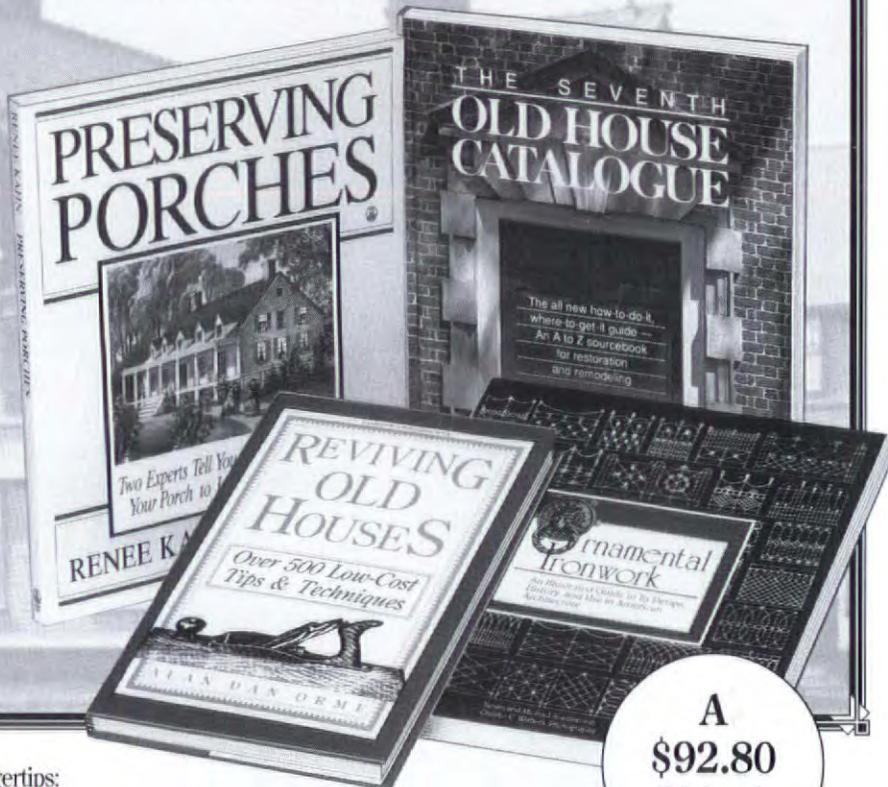
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Old House Journal 34/92

8DH5

LETTERS

[continued from p. 14]

COLORFUL RESPONSE

Dear OHJ,

In reply to Ms. Emery's letter ["Pink Stink"] in the Jan/Feb 1992 issue, I think she is apparently allowing the tail (color) to wag the dog (restoration of a sadly neglected building). In restoring the Shirt Factory Building [pictured in Jan/Feb Letters], the crumbling 1940s asbestos siding was removed. The original clapboards were 90% intact, and exact replicas were used to replace those that rotted from water trapped behind the substitute siding. Original window and door trim were patched where possible and in a few spots replaced. Lurking unseen in the cellar were the numerous truck-

loads of scrap metal (old bicycles, car wheels, auto parts, pipes, tools) which we hauled to the recycling yard and the garbage that necessitated having the dumpster emptied 60 times.

Except for the "Painted Ladies" colors — which are intended not to be original but to call attention to the restoration — the building is exactly as the Liebowitz brothers built it in 1920, except for the replacement of five windows with doors, which was done by the man who bought the building in 1940 and converted it into apartments. His son sold it to us in 1989. We kept the configuration of the apartments, exposed the original maple flooring, rewired, replumbed, and did lots of (expensive) things to pass the strict

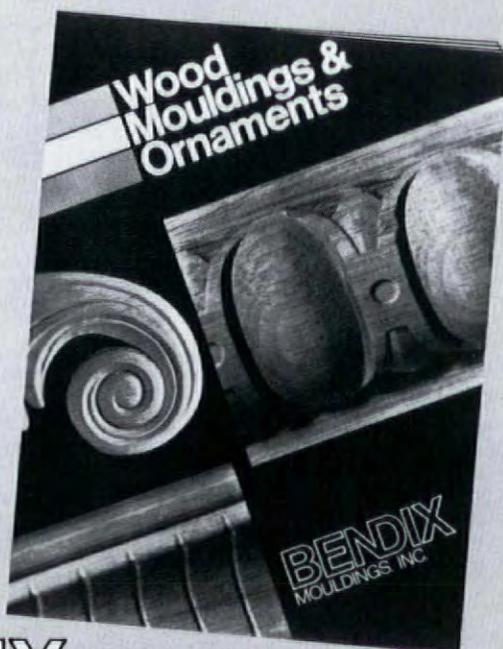
Pennsylvania Department of Labor and Industry fire laws. Then we painted. Perhaps Ms. Emery should spend less time criticizing color schemes and more time working on her own home which needs "facelifts" and painting.

Ms. Smith in the second letter thinks Ms. Aptacy should have asked town residents their opinion. Why not allow everyone to form their own ideas? Some people like the restoration, especially homeowners near the Shirt Factory, who suffered from the activities of its previous tenants: screaming, juvenile pranks, constant littering, petty drug dealing, wild parties, car racing, drunkenness, woman beating. The previous owner had lost control of this building, had no money

[continued on p. 18]

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LETTERS

[continued from p. 16]

to maintain it, and was delighted to sell it to us with a pittance down to rid himself of this nightmare. If a "picturesque little working-class town" means to Ms. Smith apartments unrentable at \$75 per month because of their squalid condition, fire-code violations, and deferred maintenance, then she will not like our buildings with exteriors restored and painted and interiors remodeled and safe.

The year before the "Painted Ladies" bloomed on Main Street, Shartlesville had three stabbings (one murder stabbing and two "recreational" stabbings where the victim lived). There was drug dealing, derelicts, and lots of juvenile delinquency. Since the "Painted Ladies" and the general cleanup of the

town, which many different people helped with, the crime rate has dropped dramatically.

What I resent about Ms. Smith's letter is her attempt to accuse my friends or neighbors of arson. The fires she mentioned were caused by a freak thunder storm. The Pennsylvania State Police Arson Squad did a thorough investigation of the fire and found no evidence to support the arson theory.

— KAREN KINNANE
Shartlesville, Penn.

Before & after in Shartlesville: "I prefer the frame Victorian without its asbestos siding and superfluous concrete porch posts," asserts Karen Kinnane.



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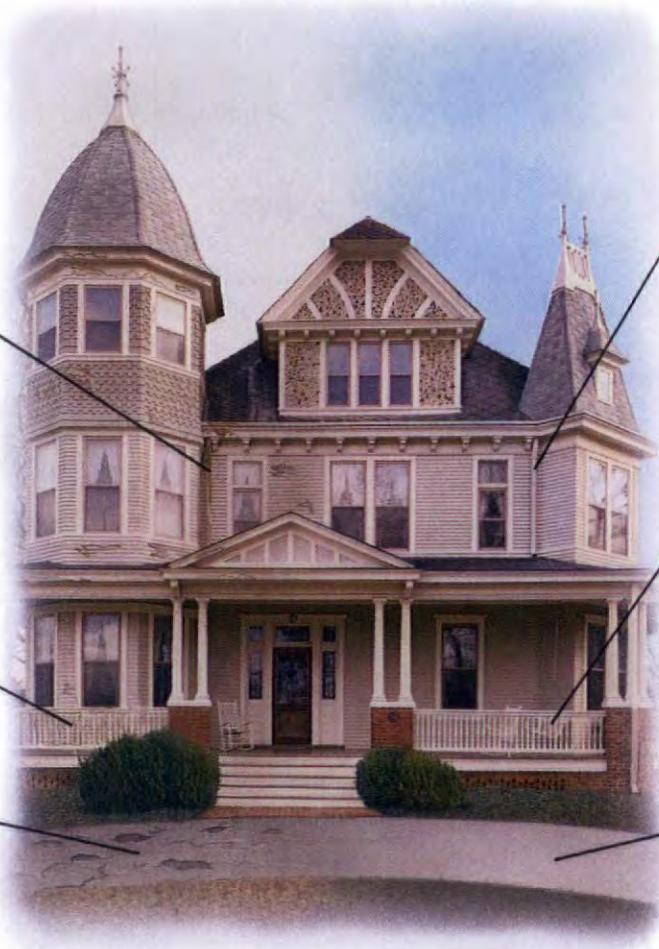
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dozens of new uses for this technology on restoration projects around my own 100-year-old home. Now, you can use the Mr. Mac family of home repair solutions and get easy, inexpensive and long-lasting results. Mr. Mac's. They're the first step in restoring the natural beauty of your home.



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RESTORER'S NOTEBOOK

BEE-SIEGED

HONEY BEES HAD INVADDED OUR wood siding and their activities prevented us from painting. Because they were on the second storey, the cost was very high for an exterminator to kill the bees. A kinder (and cheaper) way had to be found! We looked in the Yellow Pages under "Bee Keepers" and found a very excited bee keeper who came out to collect and save the bees for his hive business. He was grateful for the queen and didn't charge us to climb up and smoke out the bees from our house. We did have to repair the siding — the nest was 12 feet by 2 feet! — but it was worth the effort.

— MARGO HILDEBRAND
Southport, Ind.

CUT IT RIGHT

WHEN TRIMMING AN EXTERIOR OR interior door, try this method to avoid cutting too much or too little off the bottom of the door. Swing the door open until it touches the floor or carpet. Then lay a yardstick on the floor or carpet, flush against the door, and mark a pencil line on the door along the top edge of the yardstick. Trim the door to this line, and you are assured of a uniform amount of space under the door, regardless of whether the floor is level or not.

— JOHN ARMENTI
Iselin, N.J.

SECRET FORMULA

YEARS AGO, A FURNITURE-MAKER friend shared with us his "secret formula" for a quick restoring job on fine wood furniture. In a jar, mix equal parts of wood stain (we usually use walnut), turpentine, and boiled linseed oil. Stir or shake well. Apply a small amount of mixture to a pad of fine (0000) steel wool and rub gently over the entire wood surface. Apply more mixture as needed and work it smoothly into the wood. Let it dry for about

half an hour. Buff with a clean cloth. Watch it shine.

We don't have enough fine wood furniture, so we've put the technique to use in other ways — on wood paneling, newel posts, and chair rails — with gleaming results.

— SUZANNE FREEMAN
Manchester, Mass.

CONCRETE SCREWS

WE LIVE IN A SMALL, 1928 SOLID-brick house with limited storage space, and I have had very little luck in mounting shelving and coat racks. I tried a number of solutions recommended in how-to books and was left with my shelf unmounted and ugly holes in the wall. But in the last year I discovered a wonderful product for screwing into brick and cinder-block walls: Tapcon™ concrete screws from Buildex (a division of ITW Canada Inc., Markham, Ontario L3R 4C1). These screws are a Canadian product but are available in the U.S., and they are fabulous. All you need to install them is a masonry drill bit (which they sell in a set with some screws and a screwdriver). The screws are removable and can be used in the same hole again and again.

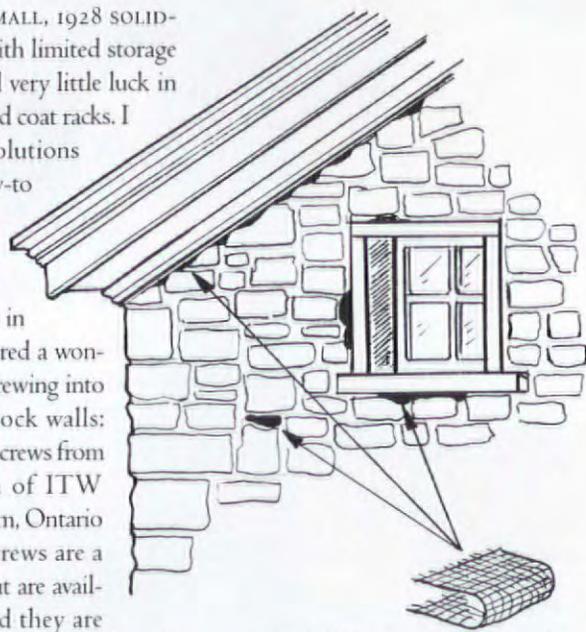
— SUSAN L. MALTBY, CONSERVATOR
Toronto, Ont.

CLOSING THE GAPS

HAVING SPENT 24 YEARS IN A CIRCA-1800 limestone farmhouse, we've faced nearly every conceivable restoration problem. Our primary concern over the years has been sealing the exterior of our ancient home against the weather, small animals, birds, and bats.

Most important was the closing of gaping chinks between stones, door and window frames, and roof overhang

fascia trim. Here's a simple means I've found for filling openings that are too wide to be closed with unreinforced mortar: Add a length of quarter-inch mesh screen (available from masonry-supply stores) bent in the shape of a "U" with the convex side facing out. Make the formed piece wider than the space to be filled so that it must be forced into the opening. The applied



Some folded mesh screen can make all the difference if you have to patch gaps in stonework.

mortar will adhere to the stone surfaces and be supported across the opening by the wire. I find that Quikrete, a pre-mixed concrete patch, works great for regrouting in these applications.

— ALFRED BONNELL, JR.
Greencastle, Penn.

TIPS TO SHARE? Do you have any hints or short cuts that might help other old-house owners? We'll pay \$25 for any how-to items used in this "Restorer's Notebook" column. Write to Notebook Editor, Old-House Journal, 2 Main Street, Gloucester, MA 01930.

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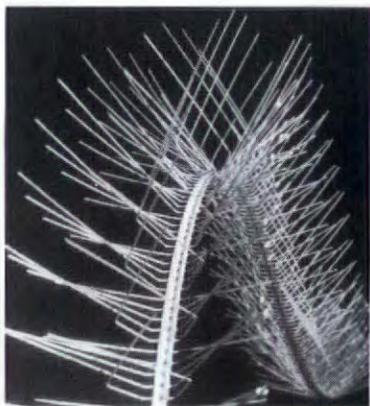
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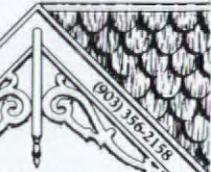
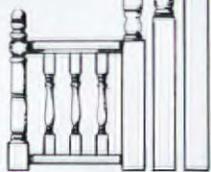
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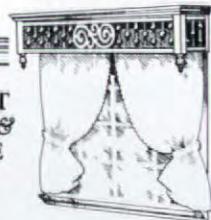
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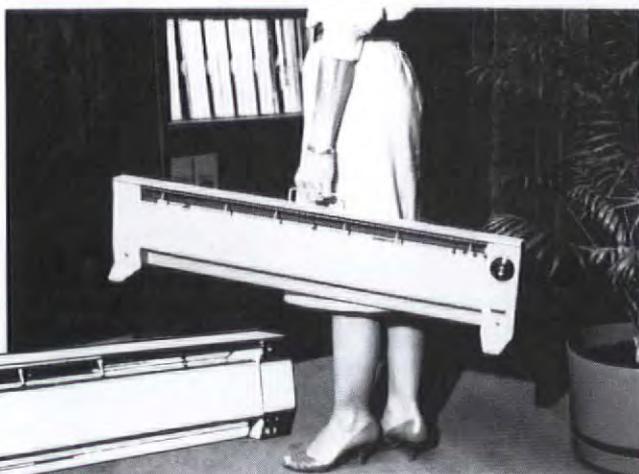
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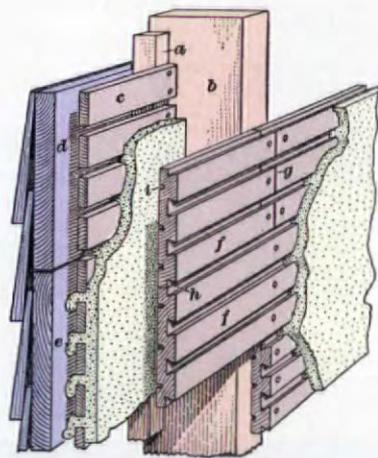
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ASK OHJ

BACKPLASTERING

Q WE RECENTLY HIRED A CONTRACTOR to insulate our 1840s house with blown-in cellulose. The first few holes they drilled through the clapboards and sheathing revealed that each stud bay contained a lath-and-plaster subwall just within the sheathing of the house. Drilling past this subwall, they then found the more-typical 3- to 4-inch wall cavity which could then be insulated as per normal practice. The lath for this plaster subwall was laid vertically rather than horizontally. Was such a double plaster wall ever standard practice?

— LAUREN & DOUGLAS REED
Greenfield, Mass.



Horizontal lath (c) is nailed to vertical furring strips (a) to create a second plastered surface — backplastering — behind the exterior sheathing.

A BACKPLASTERING OF OUTSIDE walls was an occasional practice well into the 20th century and is usually a sign of quality construction. The purpose was to stop drafts through the siding and create an insulating dead-air space in the wall cavity. In most jobs, furring strips were attached to the studs at each side of the bay to provide a nailing surface for the horizontally-applied lath. In your house, the

backplastering lath may have been nailed up vertically to eliminate the furring step and still allow the sheathing to lie directly on the stud faces.

GOTHIC REVIVAL AND QUEEN ANNE

Q WE RECENTLY PURCHASED a house in New Windsor, Maryland, and need some help identifying its style. We are new to this old-house life and your articles have already helped us immensely.

— TERRY & DEBBIE SULLIVAN
New Windsor, Md.

A MANY OLD HOUSES are difficult to pinpoint stylistically. Original owners sometimes incorporated favorite elements from different styles in one building. As tastes changed, subsequent owners often influenced a building's appearance. Judging from the photo, your home is either a hybrid or else it has been altered over the years.

The basic form of the building, with its steeply-pitched, cross-gable roof, is typical of the Gothic Revival style. The decorative vergeboards and small window centered in the gable also point to Gothic Revival. A possible explanation for the tower is that it was added at a later date when the Queen Anne style was fashionable. Evidence supporting this notion is the change in siding: The main house is in clapboards, the tower in patterned wood shingles. The windows — though very similar — also change at the tower. At the time the tower was added, the porch was possibly upgraded as well. Classical columns like the ones present were a standard part of the Queen Anne vocabulary — not the Gothic Revival.



The basic form may be Gothic Revival, but the tower — perhaps a later addition to this house in New Windsor, Maryland — points to the Queen Anne style.

JAPAN VARNISH

Q COULD YOU PLEASE TELL ME where I might get a small quantity of black japan varnish which was used on the tools, hardware, and appliances of the early 1900s?

— STEPHEN B. ROBERTSON
Bridgewater, Conn.

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[Continued on page 26]



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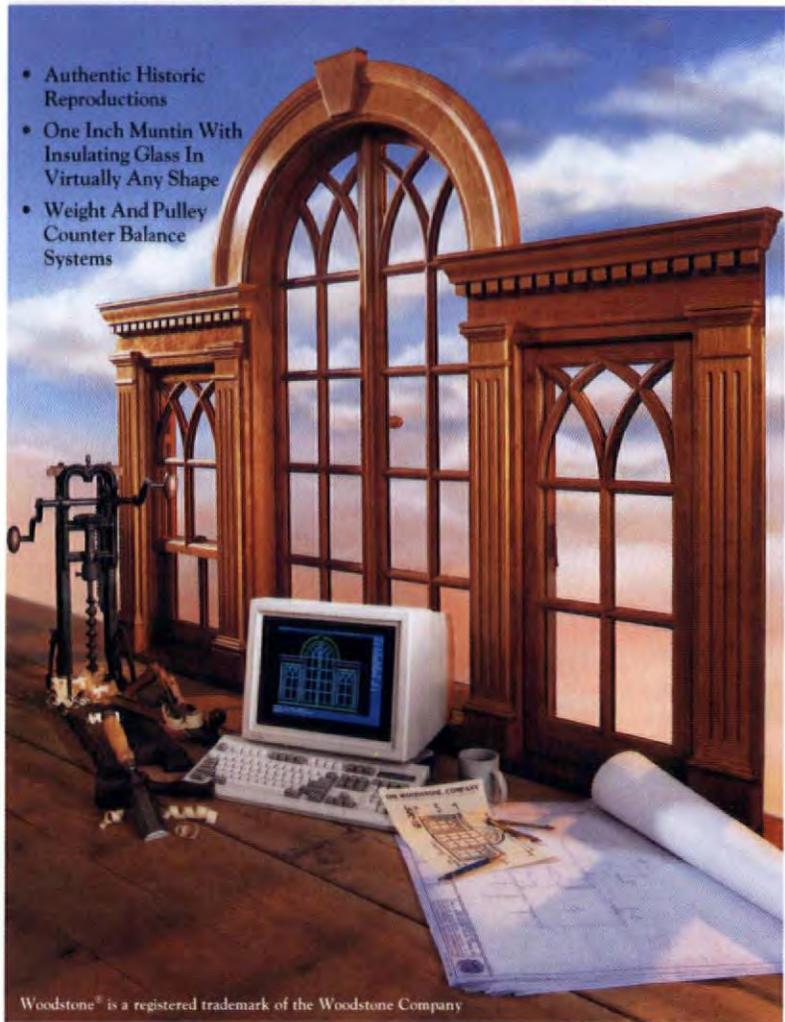
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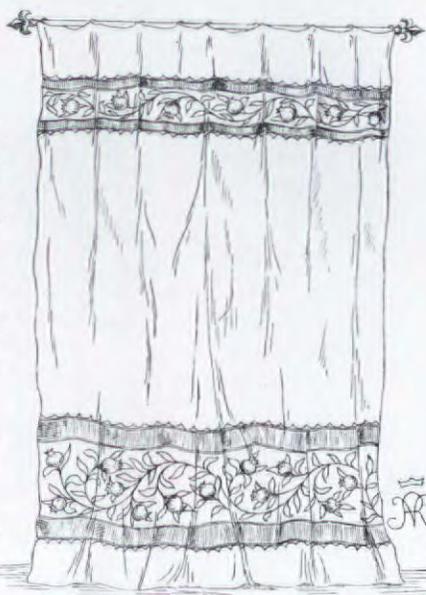
[continued from p. 24]

PORTIERE REPORT

Q I OWN A HOUSE BUILT IN 1906. Between the living room and the front hall is a large doorway that shows evidence of once having been adorned with a portiere. Could you give me more information on portieres? Were they common in houses built the same time as my house?

— GARY A. MIECZKOWSKI
Greeley, Col.

A THE VOGUE FOR PORTIERES — doorway curtains — took hold in the 1870s and continued until the end of the Victorian era, sometime after 1900. They were most



This portiere with a sunflower design was featured by Harper's Bazar in 1881.

popular for the entrances of libraries, parlors, dining rooms, and similar entertaining areas of the house. Portieres could be made of window-curtain material, but fabrics with embroidered patterns, tapestries, exotic textiles from the Far East, knotted ropes, and strings of beads or bamboo were also the rage. The curtains, usually hung on rods or poles using rings, were on display in both of the areas they divided and might have different designs, back and front, to match each room.

General-interest questions will be answered in print. The Editors can't promise to respond to all questions personally, but we try. Send your questions to: Questions Editor, Old-House Journal, 2 Main Street, Gloucester, MA 01930.

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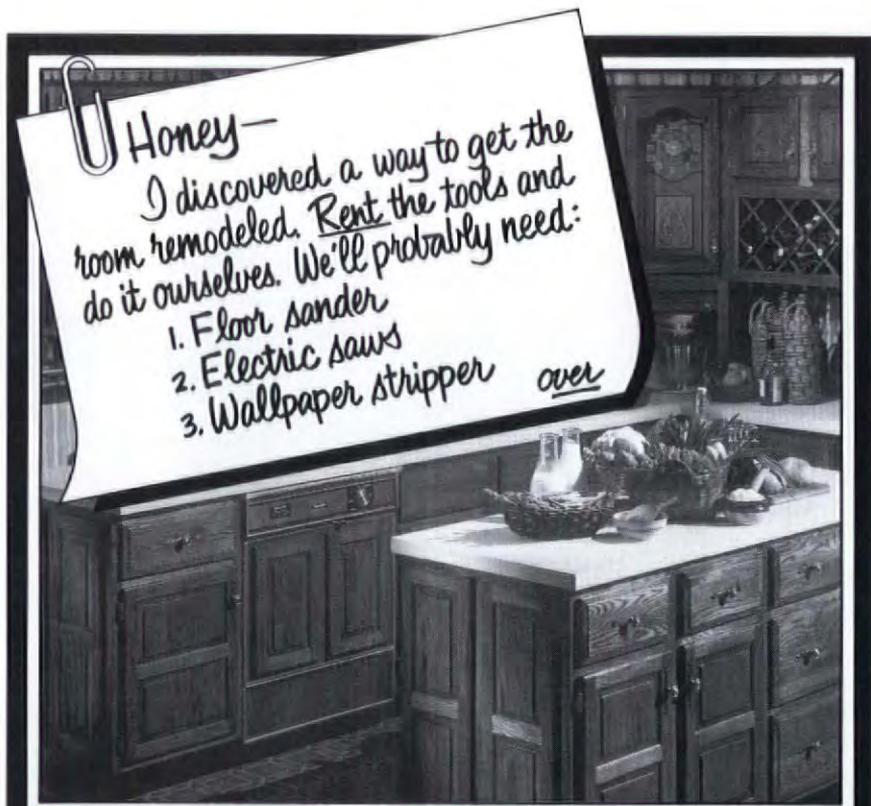
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OUTSIDE THE OLD HOUSE

Early Wire Fences

by Kathleen Randall

WIRE FENCES — PARTICULARLY those around school yards and parking lots — may not sound like glamorous materials. Nonetheless, the utilitarian chain-link fence now so common evolved from earlier forms that were as decorative and desirable as any in their day.

Early forms can still be found around some old houses and are roughly divided into two types: 19th-century models made of iron and 20th-century varieties made of steel. If you are fortunate enough to own either example, think twice before you replace it. Much of the iron-wire and decorative steel-wire fence of the past is gone — and nothing comparable is being produced today.

IRON-WIRE FENCING

THE IRON-WIRE FENCE STARTED out with a fairly functional design. Heavy wire drawn from wrought iron in $\frac{1}{8}$ " to $\frac{3}{8}$ " diameters was woven in simple diamond patterns, or cold-bent around a jig and then woven for a more decorative, crimped effect. Lengths of this woven wire were set in framed panels, seven to ten feet wide, for later attachment to plain or decorative cast-iron posts. This type of fence was used in England during the 1830s, but did not become commercially popular in North America until the late 1840s. It remained fashionable, though, for about four decades, overlapping a

period when traditional wrought-iron fences were undergoing a revival.

Iron-wire fencing found favor with late-19th-century landscape designers who hailed its light, visual character. As an 1870 garden guidebook noted, the proper fence was one that was "least seen and best seen through." Wire fencing was engineered to provide transparency

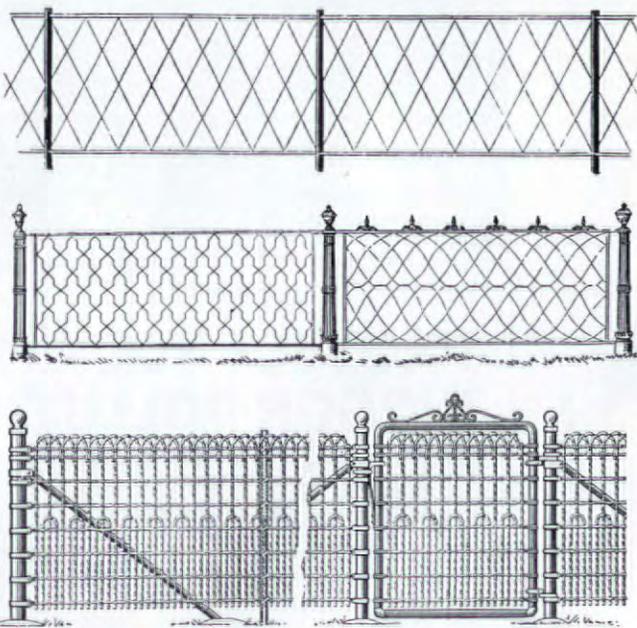
iron and wrought-iron fences, the wire fence had to offer aesthetic appeal along with its price advantage. The solution was a composite fence of wrought and cast iron, an idea that dated to the mid-18th century. Beginning in the 1850s, Wickersham and others began applying cast-ons to wire fences. These decorative iron elements were cast in place over the intersections and where wires passed through the top rail of the frame. Using a process called a booked chill, hinged, two-sided moulds were clamped over the wires, one after another, and then quickly filled with molten iron. Cast-ons acted like a weld, giving the fence rigidity and integrity.

Iron-wire fences were ordered for private yards, parks, and cemeteries until about the 1880s. The same product was used for interior balcony railings, verandahs, and window grilles. While it is not always easy to find examples today, samplings remain in Savannah, Georgia, Washington, D.C., and the Garden District of New Orleans. If you have an iron-wire fence, it should be restored and preserved in the

same manner as a wrought-iron or cast-iron fence, including periodic rust removal and painting (see "Architectural Ironwork," Jan/Feb 1990 OHJ).

STEEL TAKES OVER

THE ARRIVAL OF THE STEEL AGE AT THE turn of the century coincided with a

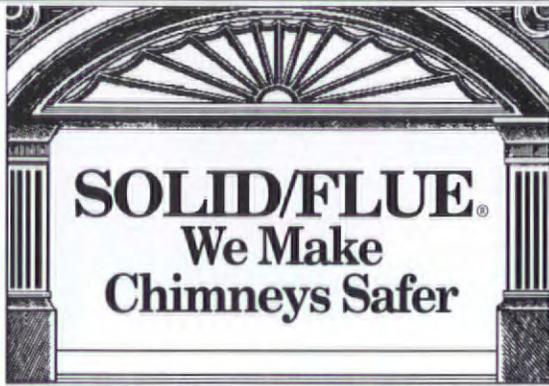


Top: An iron-wire Hurdle Fence, the earliest style in a simple diamond pattern. Middle: A crimped-style iron-wire fence (left) and a woven iron-wire fence with cast-on decorative elements (right).

Above: A woven steel-wire fence in a "Colonial" style from the 1930s.

and elasticity while nearly matching the strength of traditional cast- or wrought-iron fences. One of the earliest American manufacturers was John Wickersham's New York Wire Railing Company which sold fences in a variety of patterns, heights, and wire gauges.

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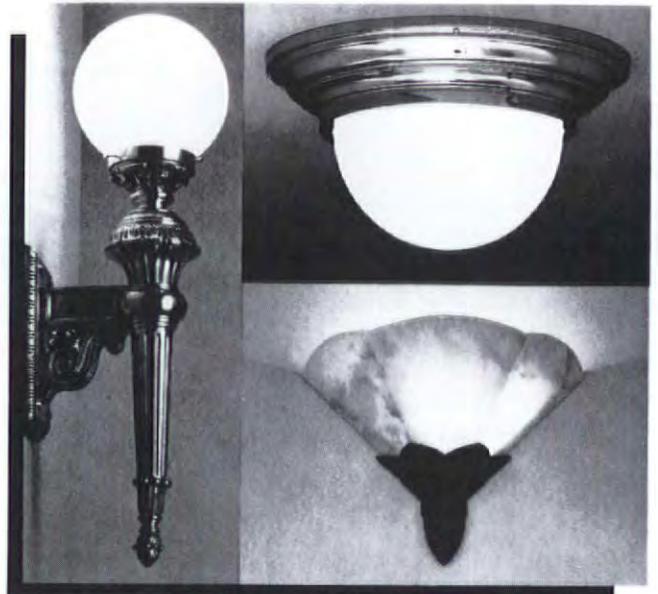
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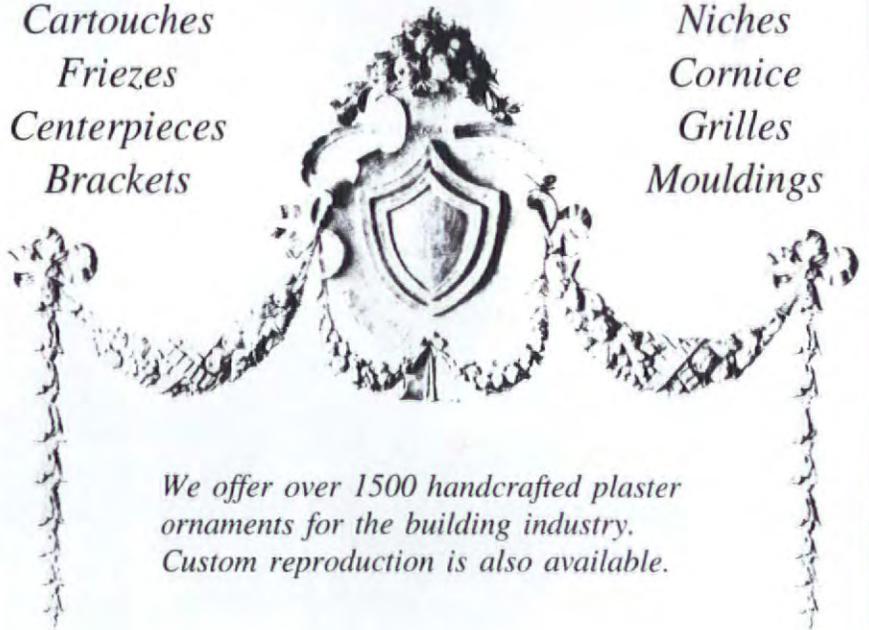
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OUTSIDE THE OLD HOUSE

search for affordable, practical, easy-to-install fences. Soon, a completely new breed of composite wire fence hit the market: steel and malleable iron.

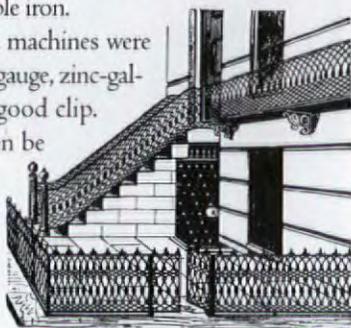
In the mid-1890s, machines were perfected to weave light-gauge, zinc-galvanized steel wire at a good clip. This product could then be sold in rolls and installed on posts. Malleable iron, a new iron alloy that was tempered after casting, proved better for ornaments than cast iron because it was not as brittle. While

the first fence designs were mundane weaves of squares or rectangles intended for farm and industrial use, patterns and sizes appropriate for the post-Victorian suburban home started to appear in catalogs around 1901. These complete fence systems combined the woven-wire mesh with steel pipe posts and top rails, decorative elements of cast malleable iron, and scrollwork of mild steel intended to appear as wrought iron. In an attempt to rival cast-iron fences, "cresting" (decorative pieces of malleable iron roughly resembling Fleur-de-Lis) were attached to the top rail pipe at regular intervals.

Some of the largest proponents of this new composite fence were the consumer catalogs of Sears Roebuck and Co. and Montgomery Ward. In 1918, Montgomery Ward observed that "A substantial-looking ornamental fence is an indication of

prosperity that everyone will notice."

Gradually, the cresting was phased out and wire fences manufactured after about 1916 relied on patterns in the mesh and limited scroll work on the gate to distinguish them from the woven-wire farm fence. This ready-made fence — complete with posts and gates — could be purchased up until World War II. The mesh itself was in catalogs as recent-



By the 1860s, composite iron-wire fencing had many outdoor and indoor uses.

ly as the 1960s, by this time imported from Western Europe.

AN INDUSTRY CHANGES

WAR EFFORTS PLAYED A significant role in the story of wire fencing. Many of the old iron-wire fences were melted down in First World War scrap drives. During the Second World War, all wire-fence production was converted to strictly industrial types: mesh, chain-link, rectangular, and hexagonal weaves. Major fence manufacturers never resumed production of the dec-

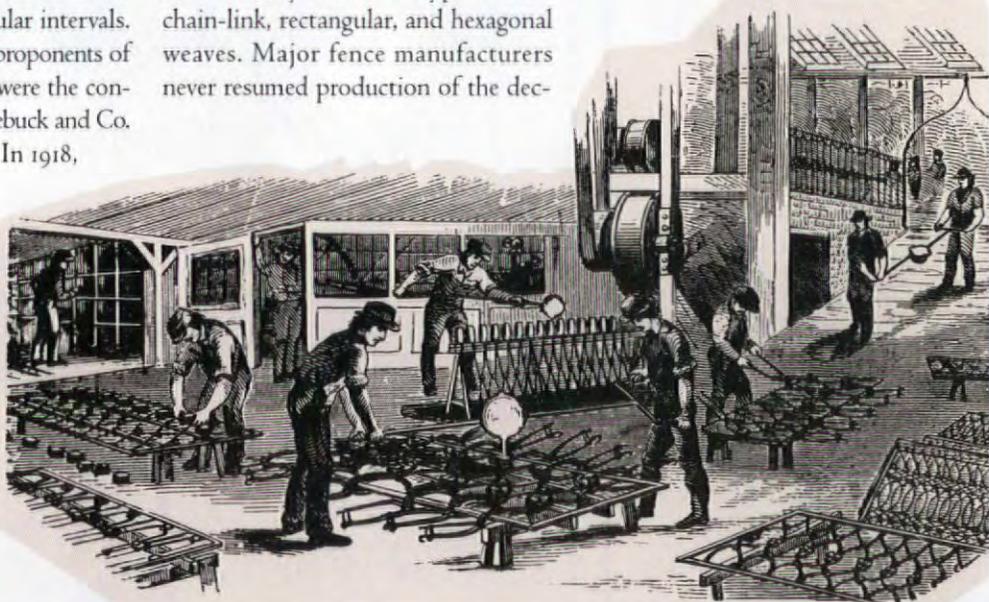
orative patterns.

Galvanizing, too, was a factor in the changing production and popularity of steel-wire fences. At the end of the 19th century, thin coatings of zinc were being applied to steel wire, but by the mid-1920s pre-woven wire mesh could be hot-dip galvanized to produce a thicker coating and a much more durable product.

If you have a galvanized-steel-wire fence in good condition, a little care and maintenance can extend its lifespan. Avoid placing fence parts in contact with materials that might accelerate corrosion of the galvanizing, among them: cedar, oak, sweet chestnut, redwood, plaster, and cement. Technically, galvanized steel doesn't need painting but it will add

more protection. Prime with a zinc-rich, oil-based product made for galvanized surfaces; rust-inhibitive iron and steel primers or standard alkyd paints offer poor adhesion on zinc.

Latex primers have also been gaining acceptance in recent years.



The booked-chill process for making cast-ons, from an 1871 Wickersham Iron Works catalog. Inset photo: Cast-ons in a Washington, D.C. garden. Photograph by Kathleen Randall.



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The Structure of Wood-Frame Houses

A Guide to Their Construction ♦ by Gordon Bock

THERE ARE MANY WAYS TO BUILD A HOUSE OUT OF wood. And why not? In North America, wood has always been incredibly abundant, and as a building material it is amazingly adaptable. Wood is so versatile, it has been employed for making almost every part of a house, including foundations, chimneys, plumbing, and doorlocks. Not surprisingly, this versatility has led to an interesting variety of construction methods. This is important to understand when working on old houses because the vast majority of contemporary homes are assembled in basically the same manner: platform framing. Houses built before 1940, however, may use platform framing, or any one of the other framing systems that lead up to it — and this can affect the restoration process.

As background for looking at the different types of wood-frame houses, it's useful to note the difference between frame construction and non-frame (solid-wall) construction. The most familiar example of non-frame wood construction is the log

house where whole tree sections are stacked horizontally and lapped-and-keyed at the corners to build walls.

Other types such as horizontal-plank construction or log-butt construction are more obscure, but all unframed construction methods rely on load-bearing walls of solid (or near-solid), horizontally laid wood to support the roof. Much like

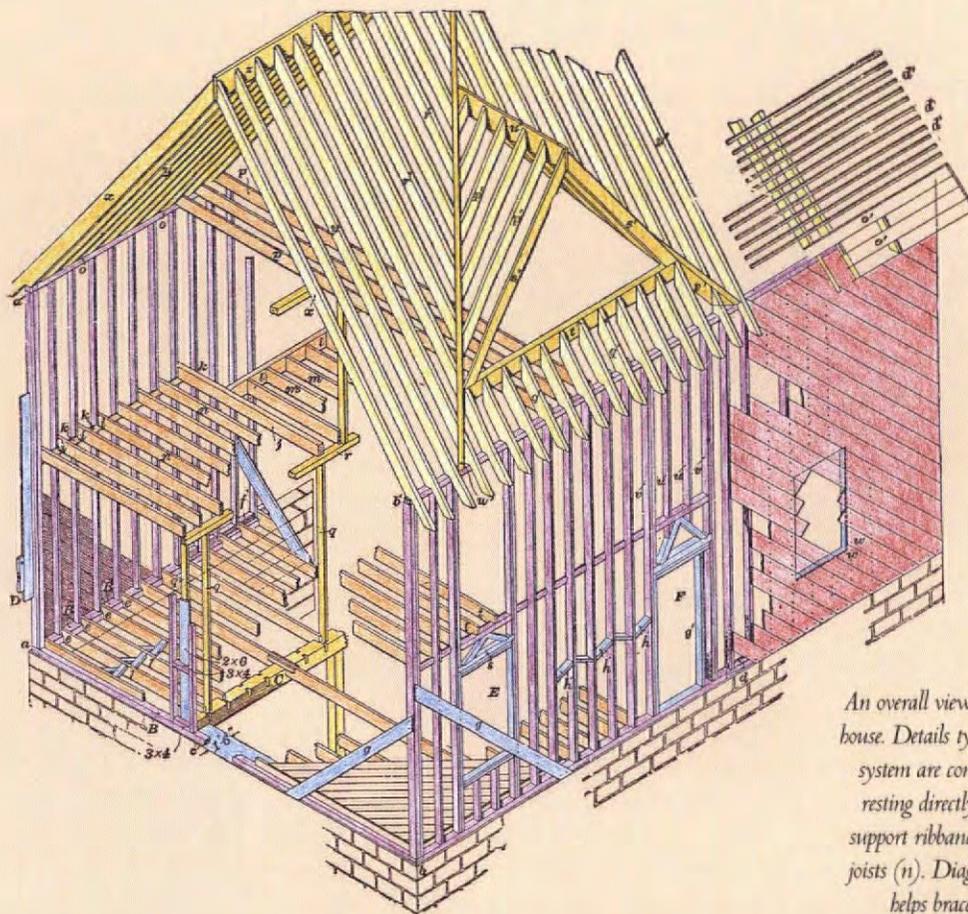
masonry, the building stresses are transferred from piece to piece through all parts of the wall and down to the ground. Solid-wood walls, however, require tremendous amounts of raw material to build, and make it difficult to incorporate voids such as windows and doors. The alternative is to build a wall where all the load-carrying units are vertical and the stresses are collected at these points — a frame.



A c. 1815 timber-frame house, sans siding. Note the extensive wind bracing needed for this seacoast site. Photo by John Leeke.

TIMBER-FRAME HOUSES

THE MOST SIGNIFICANT OF THE EARLY frame buildings in North America made use of timber-frame construction, a medieval technology with a long history all over Europe. In the 1600s, this tradition emigrated along with



An overall view of a balloon-frame house. Details typical of this framing system are continuous studs (v) resting directly on sills (B) that support ribbands (k) and the floor joists (n). Diagonal sheathing (w) helps brace the structure.

colonists from England and France, and it became the dominant method for building a house in the North Atlantic regions well into the early 1800s. Timber framing continued in modified forms throughout the 19th century for the construction of mills and barns, and was still being used in some rural areas after 1900.

Timber-frame construction (also called post-and-girt construction) relies on a system of massive interconnected timbers to hold up the building. Specific colonial timber-framing practices evolved through several well-documented periods in areas such as Connecticut and Massachusetts, but the principal design remained the same. Large vertical posts, usually the full height of the building at corners and a storey high elsewhere, carried the wall and roof loads down to the horizontal sill and the foundation. These posts were spanned and held in place by horizontal girts.

During the building process, posts, girts, and diagonal braces were preassembled on the ground in a framework called a bent. Three or four bents maneuvered into an upright position and connected with more girts formed the basic frame of the house. The girts themselves might carry a horizontal member called a summer beam, and together they would support the floor joists. At the top of the wall, plate

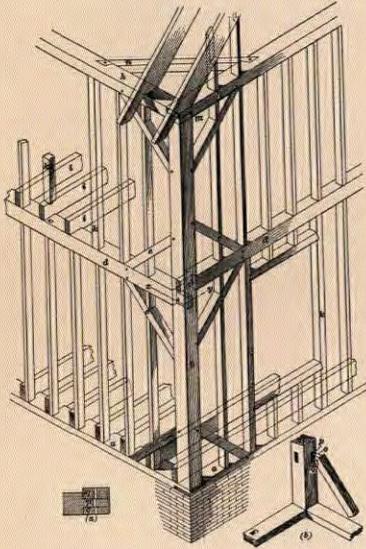
timbers were lowered on to support each rafter and the roof. Along the walls, diagonal braces were added between posts and girts to stabilize the frame, and lightweight vertical studs might be placed between posts to fill in the wall and support exterior siding and interior finishes.

The stunning ingenuity of timber-frame houses is in their sophisticated, pinned, mortise-and-tenon joints — some as intricate as Chinese puzzles. Though necessary in an age when nails and fastening hardware were hand-forged and hard to come by, making these joints required advanced carpentry skills and only added to the labor invested in a house built out of hewn timber. As a result, timberframing was on its way to becoming obsolete when building with a few large hand-dressed and -fitted members became more expensive than building with many small machine-sawn members. Since the 1970s, timberframing has experienced a minor rebirth for the construction of high-end and advanced-design houses.

BRACED-FRAME HOUSES

JUST AFTER 1800, CARPENTERS IN NEW ENGLAND AND ELSEWHERE were experimenting with adaptations of the timber-frame scheme, which would produce a lighter and easier-to-build house. The innovations that made this new system —

BALLOON-FRAME HOUSES



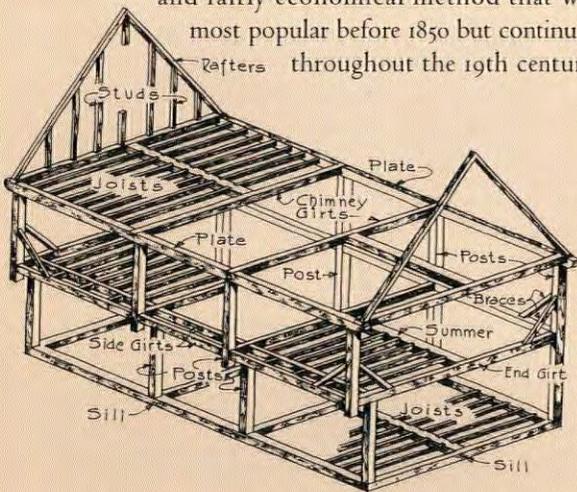
In braced framing, girts (d), posts (b), plates (h), sills (a) and braces (e) are still timbers connected with pinned joints (inset). Studs (k) are 2X lumber mortised or nailed in place.

braced-frame construction — possible were machine-sawn lumber and mass-produced nails.

Braced-frame construction is a transitional system that embodies concepts from timberframing and balloonframing. In a braced-frame house, the principal frame parts — sills, corner posts, girt, and braces — are still relatively heavy timbers and connected with pinned mortise-and-tenon joints. Braces are used at each corner (hence the name) that

stiffen the bents for raising and also make the completed frame stable without sheathing. Walls between posts are filled in with lightweight, sawn studs that may be mortised into sills, girts, and plates, or simply toenailed in place, 16" or so apart. These studs do not, however, share the building load with the principal posts. As in timberframing, floor joists were added across sills or girts after the frame was up.

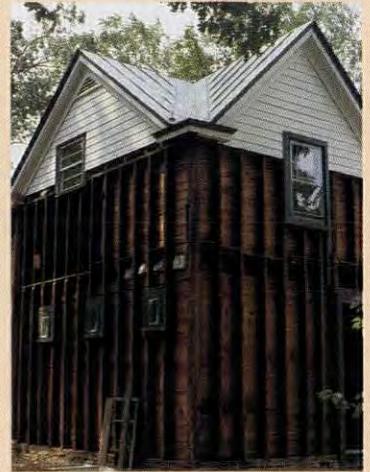
Braced-frame construction was a strong and fairly economical method that was most popular before 1850 but continued throughout the 19th century.



A skeletal view of the 1650 Gleason House in Farmington, Connecticut, highlighting all the principal members of a timber-frame building. Illustration from *Building With Wood* (John I. Rempel author and artist). Courtesy of University of Toronto Press.

IT IS GENERALLY ACCEPTED THAT BALLOON-FRAME CONSTRUCTION — the building revolution synonymous with 19th-century America — was invented in Chicago in the 1830s. As several accounts have it, the system was first used in 1833 (or '39) by Augustine Taylor to rapidly rebuild a small church lost in a city-wide fire. The term itself may reflect impressions of these new houses that appeared to be "light as a balloon," "thin as a balloon," or erected as quickly as "blowing up a balloon."

What is sure is that balloon framing did away with heavy timbers and pinned wood joints altogether. Instead, it relied exclusively on nails and light, machine-sawn "scantlings" (lumber between 2x2s and 4x5s in size) to build a frame. Smaller lumber meant more of it was needed to support the typical house loads. As a result, corner posts and horizontal members such as plates were built up from two or more pieces of 2x lumber. Solid sills were replaced by either simple sill plates of lapped 2x lumber or later, box sills that employed 2x8s or 2x10s in various configurations designed to duplicate the functions of a 6x8 timber. Walls were comprised solely of closely spaced 2x4 studs that carried all loads. One unmistakable characteristic of balloon



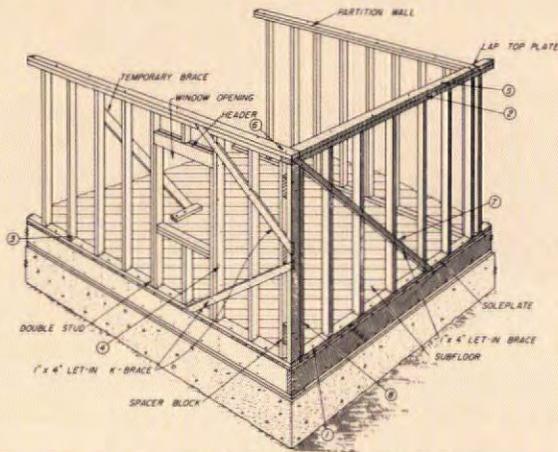
Only the joist ends and fire stops mark the second floor of this balloon-framed stable in Richmond, Virginia. Photo by Whela Tarboszcz.

framing was that these studs ran continuously in a single piece from sill to top plate. Another unique feature was that second-storey floor joists were hung on a horizontal ribband let into the studs. This arrangement meant that the bays between studs, unobstructed by girts, were essentially shafts that ran through all storeys of the building. While these shafts might prove useful for running services such as plumbing, they acted like flues if the building caught fire, so horizontal blocks called fire stops were nailed in random places to prevent the movement of air.

Because the building was framed in place, builders could get by with only rudimentary braces to hold the frame steady before the sheathing went on. However, better-built houses customarily made use of full braces to resist the effects of wind and age. Sheathing, though, was intended to be an active part of the structural system and was applied diagonally

to help stabilize the building using boards 1" thick.

Balloon framing was and popular from before the Civil War until World War One. Because it eliminated the time and need for highly skilled labor, it was much faster than earlier systems and, according to an 1890s text, cost "half the money" of braced-frame construction. The major disadvantage to balloon framing was that when the carpentry was poor, buildings lacked rigidity and were prone to racking. In modern construction, balloon framing is limited to special applications such as brick veneering, in which the continuous studs make cracks due to settling less likely.



In platform framing, wall studs are only a story high. The next storey begins with joists laid on the top plate, and then a second floor of walls.

PLATFORM-FRAME HOUSES

PLATFORM-FRAME CONSTRUCTION (ALSO CALLED WESTERN-FRAME CONSTRUCTION) is arguably a 20th-century version of balloon framing. The major difference is that each floor and wall is built independently and in a sequence. In platform-frame construction, the sill and a first-storey platform of joists and subfloor are built first, extending to the outside edges of the building. Next, the first-storey walls are framed on top of this platform, using studs no taller than a single storey. Then, a second-storey platform is built on top of the first-storey walls. Later, second-storey walls are framed on top of this platform. Sheathing (normally plywood) is applied to close in the frame once it is complete; because the walls, frames, and floor platforms are not structurally integrated, it helps tie these units together as well.

The advantages of platform framing are that the platforms add greater stability to the structure and the building can be erected very quickly. In addition, this system uses shorter lumber than balloon framing does, and allows first-storey walls to be built horizontally and then raised into position. Platform framing was common by the early 1930s and became the premier framing system for house construction after 1940. 

Wood-Frame House Glossary

BEAM: Any principal structural member used to support a load from post to post or over an opening.

BENT: A framework (usually timber framed) designed to carry both lateral and vertical loads, and transverse to the length of a structure.

BRACE: An inclined piece of framing lumber used to resist weight and stiffen a structure.

COLLAR: A horizontal tie beam connecting a pair of opposite roof rafters well above the top plate.

CORNER POST (also studs): In timber framing, a post which is placed in a corner. In balloon- and platform-framing, two or three studs nailed together to form a corner.

GIRDER: A principal, horizontal beam that carries concentrated vertical loads at points along its length.

GIRT (also intertie): A horizontal member used in timber- and braced-frame construction, which supports joists.

HEADER: A beam placed over an opening to support the ends of floor joists, rafters, or studs.

JOIST: One of a series of parallel beams, laid edgewise, to which floor boards are nailed.

POST: An upright member of a building frame or partition.

PURLIN: A horizontal beam in a roof, which supports common rafters.

RAFTER: One of a series of sloping structural members, extending from the hip of the roof to the eaves, which supports the roof loads.

RIBBAND (also riband, ribbon, ribbon board, ribbon strip, ledger board): A wood strip or narrow board, common in balloon framing, let into the studs to add support for the joists.

RIDGE POLE (also ridge board): The horizontal board, set edgewise, which supports the rafters.

SHEATHING (also sheeting): Wood boards or plywood that cover a structure's exterior studding or rafters.

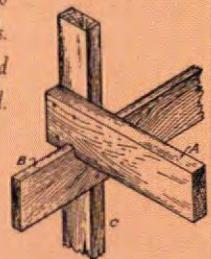
SILL (also sole, sole plate, ground-sill): The lowest horizontal member on which wall studs and posts rest; the basic support for the framing.

STRINGER (also string, stringboard): A long, horizontal timber or other support.

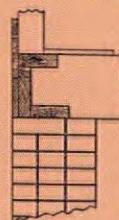
STUD: A vertical timber used in the framework of a wall to which the lath and sheathing are nailed. Like posts, the studs help support the roof.

SUMMER BEAM (also summer, summertree): In timber framing, the principal, horizontal timber or beam which serves as a bearing surface for other horizontal members.

TOP PLATE (also plate, wall plate): The horizontal member to which the rafters are fastened, which is nailed to the top of the wall studding.



JOIST (A) AND RIBBAND (B)



BOX SILL

STRUCTURAL REPAIR UNDER AN OLD FLOOR

Finding the Problem and Fixing It

TEXT & PHOTOS BY PETER BORGEMEISTER

OLD HOUSES WERE USUALLY well put-together, but not always well engineered. The main beams may be larger than necessary to carry the load, while the joists connecting to them are too small to support the floor without sag. Structural elements were not always given adequate support: A heavy, plastered wall may be carried by one undersized joist, causing it to sag and producing cracks in the wall that reappear despite frequent patching.

Then, time itself can make even a once-adequate structure inadequate. Wood posts rot, allowing the structure above to settle. And there's the human element — structural remuddling, as when a plumber or heating contractor notches (or cuts through!) a joist to avoid reroutes. I faced all of these typical problems and more in a recent structural repair to a c. 1865 farmhouse in Cornish, Maine.

My work consisted of jacking (lifting) in two areas, reinforcing inadequate joists and beams, and replacing and adding wood columns (structural posts). I also removed and reconstructed the floor in the dining room, because it had been cut and patched so many times that rebuilding it made more sense than repair.

This article will cover the jacking

The small photo (center) is the dining-room floor before repairs. We removed it and worked on the substructure from above, as shown in the large photo.



and structural repairs. (I'll leave the finish flooring for another time.) Everything described is within the abilities of a skilled carpenter or general contractor, or an experienced homeowner who knows when to get advice.

PHASE ONE: DECIDE WHAT TO DO

CARPENTRY — AND MOST ENGINEERING — is common sense. You look at it until you figure it out. But systematic analysis makes it easier and inspires confidence. This analysis — what's going on and what should you do — is the most important step. If you don't fully understand the problem, you may waste time and money on unnecessary work, or you may make inadequate repairs that you'll have to go back to, or (heaven forbid) you may actually succeed in making the problem a good deal worse.

Let's start with the floor. All wood floors "give" to some extent when you walk on them, but there's a point when that becomes unacceptable. You know that point instinctively. Hop or sharply flex your knees while standing in the middle of the problem floor. An adequate floor will yield yet feel firm. An inadequate floor will bounce up and down. Technically speaking, a

floor that supports a plaster or wall-board ceiling (below it) is considered adequate if its "live-load deflection" (its sag under the weight of people and furniture) is $1/360$ of its span or less, or about $3/8$ inch in 12 feet. You can verify this by stretching a string across the room and measuring the actual deflection. But that kind of precision is rarely necessary. You should be able to tell with the "jump test" or by examining the ceiling below. In the case I was studying, not only did the floor bounce, but the windows rattled, too — in two rooms — indicating that joist repairs would be necessary.

The wall between dining room and front parlor showed signs of trouble, too. Plaster cracks measured slightly over $1/16$ in. in width. Of more concern that the width was that they were expanding at a worrisome rate, as evidenced by the wrinkling of the wallpaper over the crack. These cracks were diagonal, known as "shear cracks," indicating that one part was moving vertically in relation to another part. Our conclusion was that the center portion of the wall was dropping relative to its better-supported ends, and that the center needed to be raised, then provided with enough support so that it wouldn't drop again. Fixing it would also correct the objectionably crooked doorframes and ensure that the doors, once refitted, would close and not need planing every few years.

With the symptoms well understood, we went to the basement, where

the real repairs would take place. We found, under the dining room, that the joists were both undersized to begin with, and had been cut so many times that in places they were no longer structurally functional. The subfloor and finish flooring were doing the work of the joists — not uncommon in old houses.

In many or most cases, this kind of work would be done from the basement side. But we decided to work from above, both because the furnace and ductwork blocked access and because we had to take up the flooring anyway. Originally we'd planned to install new joists alongside the old (just reinforcing the old wouldn't be enough to correct a two-inch sag at the center of the floor). But when we removed the dining-room subflooring, it became obvious that the simplest solution would be to remove the old joists entirely and install new ones.

The troubled wall was resting on a single 2x7 joist spanning more than 14 feet. Clearly, it hadn't been anticipated that the rigid plaster wall would have to resist the progressive sag of the floors above, and thus go from its original non-bearing function to becoming part of the support system — what is known as a shear wall that resists movement by its rigidity. Thus the shear cracks. No new wooden beam of manageable size would be sufficient to provide support over a 14-foot span, so we would reinforce the existing joist, making it a beam, and reduce its long span to three easier spans of 4-1/2 feet by installing two new columns. I describe this in detail because it's a common old- (and new-) house problem: non-bearing walls that become bearing as a house sags or as it's remodelled. (The condition is common around stairwells and under added bathrooms.)

PHASE TWO: DO THE WORK

THE STRUCTURAL REPAIRS WERE handled in three steps: preparing the beam; jacking, or lifting; installing the posts.

PREPARING THE BEAM — First we added the new pieces. We chose native rough-sawn hemlock: it was cheaper, measured the full nominal dimensions for strength, and matched the old timbers in thickness and appearance. Moreover, the native timbers could be purchased green (unseasoned), making it easier to bend the pieces to conform to the initial sagged profile of the floor. ("Green lumber?!" you exclaim. See the box on p. 38.)

Cutting the new pieces to length, we deducted 1/4-in. from the measured length to allow for unsquare end conditions and to provide clearance for inserting them in place. (It's almost impossible to cut long pieces for an existing space to the exact length; you end up damaging the piece forcing it into place. Better to allow space at the ends. This of course is *not* true for studs and posts that have to take compressive forces. Every effort should be made to measure them accurately and cut them, if possible, a bit long for a tight fit.)

Next they were stacked and predrilled for threaded rods. (Predrilling isn't necessary when there's enough working space to permit the use of a drill and long bit.) Instead of bolts we used 3/8-in. zinc-plated threaded rod cut about 1 in. longer than total timber thickness and provided with a nut and washer at each end. Threaded rod is cheaper and more versatile than bolts. The use of hot-dipped galvanized or stainless steel was not necessary here, although it would be advisable in damp areas like porches. The holes were 1/16-in. larger than the diameter of the rod, placed about 18 in. apart and staggered top and bottom for strength.

With the persuasion of a sledgehammer and post, we placed the first piece alongside the old joist. Then we drilled through the old joist, using the predrilled holes as a template to ensure that holes in all three would line up without the need for a long bit. The second piece was put in place in the



New reinforcement timbers were stacked and predrilled for the threaded rods that would hold them to the inadequate original joist.



We drilled through the old joist, using the predrilled holes as a template to ensure that the rod holes would line up without the need of a long bit.

same manner, and the precut rods run through all three and tightened. (When bolting timber, always use washers and tighten the nuts until the washers visibly crush the wood. The timbers will remain tightly together even as the wood shrinks.) To prevent the beam from twisting under the pressure of the jacks, we installed side blocking between the new beam and the parallel joists at each jack location. Without such restraint, the beam might rotate or buckle under

the intense forces created by the jacks, causing the jacks to let go suddenly. For safety's sake, all pieces in the jacking "chain" must be firmly supported in all directions.

JACKING — How much? First you have to decide whether you want simply to straighten the floor (remove the sag, but leave the corners where they are), or level it (remove the sag and raise the low corner[s] until they are level). Sometimes you compromise, say, re-

moving the sag and raising the low corner part of the way between its present position and true level, to avoid placing excessive stress on the structure. Here we chose only to straighten, but not level, the floor. Note that you have to jack about 1/8 to 1/4 in. more than your measurements indicate, to account for the inevitable settlement of beams, columns, and footings when load is

Green Lumber: When to Break the Rules

WHY DON'T WE ORDINARILY USE GREEN (UNSEASONED) LUMBER for structural work? First, its drying can fill closed wall and ceiling cavities with enough moisture to promote decay. Second, its shrinkage in place may create splitting and settlement problems. Also, fasteners (especially wallboard fasteners) may pop and wallboard seams could be affected.

However, in the job described in this article, green lumber had advantages. Unseasoned hemlock was available in the exact size we needed, and its flexibility allowed it to bend to conform to the sagged profile of the old joist before jacking — an important consideration, because the companion pieces had to be installed before the jacks could be set up.

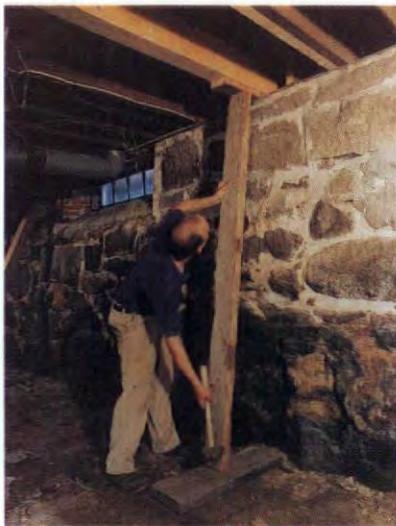
(Hemlock is an adequate structural wood if it's sound and free of shakes. Other suitable species include common structural softwoods: douglas fir, western hem-

lock, and eastern spruce. Hardwoods [oak, birch, etc.] are rarely used these days because they're expensive, harder to work, and tend to warp and shrink more than softwoods.)

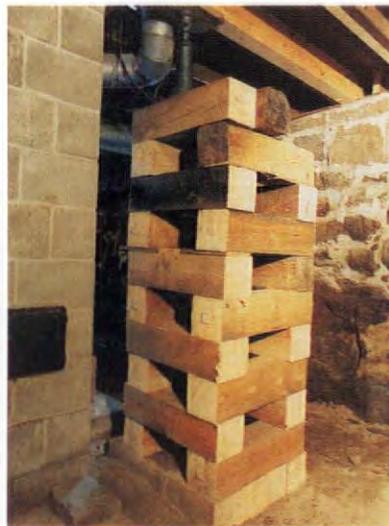
At the same time, the usual objections to green lumber were moot. The structure was open, so the timbers could readily dry without moisture buildup. There were no wallboard fasteners to pop or seams to shift.

Shrinkage *could* become a problem, especially at the bearing points where the tops of the new columns meet the beam. The nuts may also need tightening. So we advised the owners to check for these conditions after a year or so. They can drive metal shims into any gaps that start to develop above the columns, and they can tighten the nuts.

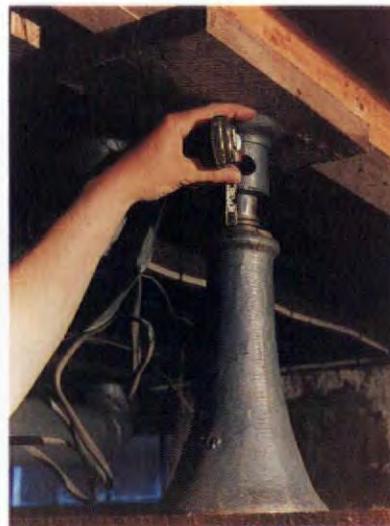
On the rest of this job, we did use seasoned or kiln-dried lumber. But it's okay to break the rules occasionally, as long as you're fully aware of the consequences and can still determine that they are outweighed by advantages.



With the persuasion of a sledgehammer, the new reinforcement pieces were placed alongside the old joist.



Because we were jacking three floors, we used 20-ton screw jacks and heavy timber cribbing to minimize risk.



How much to jack? Measure initial thread exposed plus the amount you want to raise the floor plus 1/4-in.

placed upon them.

Because we were lifting three floors of the house, we decided to use 20-ton screw jacks and timber cribbing to minimize risk. The jacks were rented locally and the cribbing (6x6 hemlock) bought at a nearby sawmill and cut to 2-foot lengths on site.

Jacks and cribbing must be placed close to the location of the future posts, yet with the cribbing at least a foot (18 in. is even better) away from the post center, to allow for excavating and pouring the footing (unless they've already been poured). We prepared the dirt floor by scraping away the high areas. (Avoid levelling with fill unless it can be well packed.) We then erected the cribbing log-cabin style to within about 18 in. (height of the jack plus height of the block) of the beam. To avoid damaging the beam, hardwood blocks were placed above the jacks. (Steel plates could also be used.) The jacks were then put in place and turned until stiff resistance was felt.

Jack slowly to reduce stresses on the house and minimize the chance of overloading the jacks. Remember, you are not just lifting the weight of the house but also overcoming the set that the structure and its finishes have taken

over many years. This can take up to several times as much force as would be needed simply to lift the weight. Experience suggests that when raising one or more storeys of finished house, 1/8 to 3/16 in. per day is reasonable. Lightweight single-storey structures such as porches can be raised a bit more per day. You'll know when you've reached the daily limit when a moderately strong person can no longer turn a three-foot bar in the jack.

INSTALLING THE POSTS — What type of posts? The two common materials in use today are wood (pressure-treated) and steel (generally 3 or 3-1/2-in. outside diameter, filled with concrete for fire resistance and provided with a steel plate at the top: the familiar Lally column). Screw-type adjustable steel posts are not suitable for structural use, but are adequate for light loads, such as supporting the center of a sagging floor. Four-by-fours (3-1/2 x 3-1/2 in.) are generally adequate for small loads such as a single-storey floor or roof; 6x6s (used in this job) are adequate for most two- and three-storey loads; 8x8 or heavier might be required if the posts have to be especially tall or support especially heavy loads. In such cases, seek the advice of an engineer. If you choose steel, the 3 or 3-1/2-in. col-

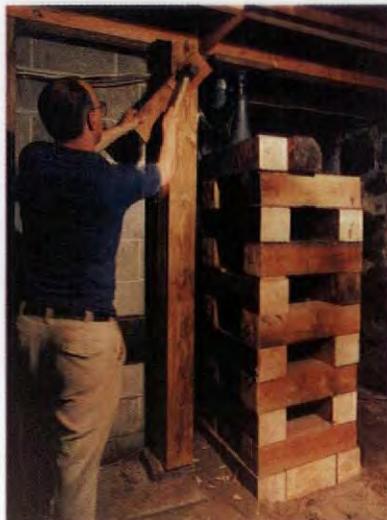
umn should be adequate for virtually any imaginable residential situation. We chose to use wood to blend in better with other wood posts in the basement. Steel would have been a lot easier.

Lightly loaded posts can be placed directly on a 4-in. concrete floorslab, but heavily loaded posts like these need footings large enough to spread the loads over enough soil area to prevent settling. Footings can be made from rubble masonry or even a large flat stone (common in the past), but poured concrete is the material of choice. Two feet by two feet by one foot thick should be adequate for all but the heaviest loads and softest soils (see an engineer in such cases). If you're using wood posts, plan the top of the footing (base) to raise the bottom of the posts 2 to 3 in. above the floorslab to reduce moisture absorption and possibility of rot or insect attack. (Even pressure-treated stock will rot over time if it's damp enough.) If you use steel columns, it's much simpler: Typically, they're cut a couple of inches long, secured to the beam above, and the concrete poured around the bottom end.

To elevate the bottoms of our wood columns above floor level, we could have constructed a stepped form



Flashing of 16-oz. copper at post bottoms protects wood from moisture.



The permanent post should go in easy, with only moderate taps.

so that most of the footing would have been level with the dirt floor and the area under the columns 2 in. higher. Instead, we embedded small granite blocks (that we already had) with their tops projecting about 2 in. above the concrete, to form the column bases. Aside from making the formwork easier, this made our new posts match better the existing posts and stone bases.

If wood posts are used, footing work should start as soon as possible so that the concrete can cure at least a week (longer if loads are great) before the load is placed on it. The first step is to dig out the hole — hard work if the soil is compacted and access is poor. We used a small gasoline-powered tiller (with plenty of ventilation) to loosen the soil. Next, we made a simple box form from scrap lumber, levelled and braced.

The distance between the top of the footing and underside of the beam must be carefully measured and any out-of-level conditions at the top of the footing or underside of the beam noted. Posts must be cut to accommodate these angles if full bearing strength and minimum bending action in the post is to be achieved. We installed a 1/4-in. steel plate between the top of the post and the beam to distribute the load better and avoid crushing the beam fibers.

Where seismic or uplift (wind) forces are a concern, gusset plates or steel angles should be added top and bottom to make the assembly effective in resisting tension as well as compression.

If you are using steel posts, of course, this is greatly simplified; bolting the plate to the beam and embedding the base in an adequate depth of concrete will provide the needed structural continuity. Where seismic or uplift forces are a concern, seek engineering advice.

The post should go in easy, requiring only moderate taps with a light sledgehammer to set. If the post seems to be going in hard, remove it, re-measure and re-cut: You don't need to pre-load the post with bending stresses before the house weight is placed on it. Check posts for plumb in both directions with a level or plumb bob. We chose to pack a rich (lots of Portland cement) mortar mix into any spaces between the copper flashing and the irregular granite to further ensure good bearing and reduce bending stresses in the post.

Now it was time to lower the jacks (it should take more than a full turn or so before the weight is fully transferred to the new posts), remove the jacks, disassemble the cribbing, and clean up the basement. 

Dealing With Crooked Floors: The Other Options

THERE ARE OTHER WAYS to deal with sagging, crooked floors. You could add jack posts and girder(s) below to raise the low area(s), for example — a common, expedient remedy used when the space below is an unfinished basement. We couldn't do it under the dining room because the furnace and ductwork interfered. We also wanted to avoid the clutter of additional posts, and the suggestion to future homebuyers that the house had structural problems.

A second method is to install shims and lay a new floor over the existing one. It can be done in small areas (like a bathroom), but in larger rooms it has disadvantages. It's labor-intensive. It adds weight to what is probably already a critical situation. It also raises the level of the finish floor, necessitating changes to thresholds, doors, and baseboard moulding. We didn't use this method because new flooring was out of the question.

The third method is to remove the finish flooring and sub-floor, add shims to the top of the existing joists (or new members alongside the joists to create a level surface), then relay the floor. This method works well when you want to reuse the flooring. We did in fact use a variation of this method in the dining room. In the front parlor, it would have been overkill: The owners didn't mind the remaining floor sag once the bounciness had been removed.

HANDS - ON REPAIR OF HOUSE SILLS

(*Diagnosing problems and setting up for work*)



Reclapboarding an Adam house exposed a damaged sill and a whole new project.

TEXT & PHOTOS BY JOHN LEEKE

STRUCTURAL REPAIRS ARE ALWAYS SERIOUS, but they do not always have to be large-scale projects that break the bank. As is common in old-house work, there is usually more than one way to do these kinds of jobs. Decayed sills, for instance, can be repaired by complete replacement with full-size solid timbers, by replacement with built-up lumber, or with structural epoxy conservation. This project describes techniques for preparing for sill work, and the steps for a localized repair with the built-up lumber method.



Fungal decay in wood typically produces a chunky, cubic texture. The lower half of this joist has crumbled away, leaving the resin-heavy knot.

Carpenters were replacing the clapboards on the front of a 1791 timber-frame house. When they removed old clapboards near the bottom of one corner, they found the sheathing too decayed to hold clapboard nails. Underneath the sheathing, the front sill and corner post end were just as punky. At this point, the straightforward residing project mushroomed into a structural repair. The post and sill had been fixed once before, about 40 years ago, but decay had begun again when water entered through the joint where the clapboards and cornerboard meet. The original builders of the house knew this joint was a trouble spot and had flashed behind it with overlapping slips of wood $\frac{1}{8}$ " thick and 3" wide. This flashing wasn't replaced when the sill was repaired. Over the years water seeped in and the new sill decayed.

EXPOSING & ASSESSING THE DAMAGE

THE CLAPBOARD SIDING WAS due for replacement, so it was simply ripped off. However, the 1"-thick sheathing would be reused and was carefully removed by cutting off each board at a stud and prying it out with a crowbar. Timber-frame houses are built with studs 3" to 4" wide. You find these studs by locating the exposed heads of nails that hold the sheathing to the frame. Sheathing re-

moval starts with the lowest board, and for the cut in this first board you usually pull the old nails so you don't hit them with the saw. To cut, set the depth of a portable circular saw equal to the thickness of the sheathing and make a vertical cut. On the rest of the boards, leave the old nails in place and make the cut between them and the edge of the stud, leaving at least an inch of stud for nailing on the new sheathing later. A balloon-frame or platform-frame building will have studs only 2" wide, so it's best to remove the nails for every cut. If it is in good condition, pull the nails first and then carefully remove the board for reuse. Continue to remove sheathing until all the damage is exposed and you are back to sound wood.

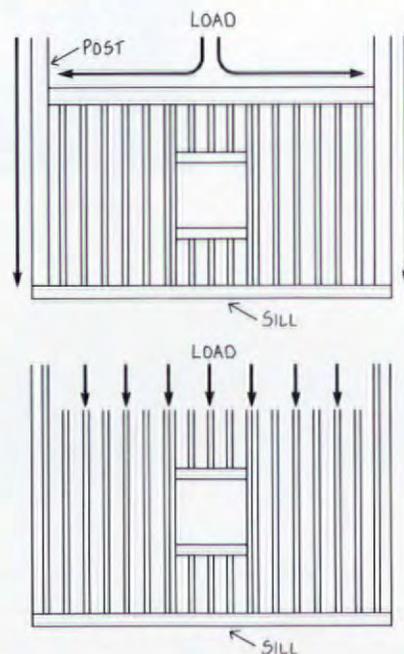
In wood, continuous high-moisture levels lead to fungal decay which weakens the member. To check for decay, take an awl or icepick, stab it in at an angle, and pry up a small piece of wood. Sound wood will break out in long fibrous splinters, but decayed wood will come up in short chunks. You can also try pushing the pick straight into the wood: If it can be forced in more than $\frac{1}{4}$ ", suspect decay. Sometimes a thin layer of solid wood at the surface hides extensive decay. Check for this condition by rapping the surface with the icepick handle. A dry, hollow sound may indicate decay just under the surface. A lower-pitched sound may indicate decay deep within. Solid wood in sound condition gives a sub-

In timber-frame houses (top), loads are concentrated at the posts. In balloon- and platform-frame houses (right), all studs share the load.

stantial "thunk."

The final test for decay is to drill a hole and examine the wood chips. A $\frac{1}{2}$ " to $\frac{3}{4}$ " auger bit will produce chips of unbroken wood which are large enough for you to easily determine their condition. Feel for dampness in the chips. (Sometimes they're so wet you can wring out water!) If the chips seem dry, try touching them to your lips which are particularly sensitive to moisture. Even if the chips really are dry, a dark brown, black, or gray color indicates that there has been high moisture in the past — and probable decay. When you find decay, continue drilling holes along the structural member toward sound wood until it disappears. Be careful not to weaken the member.

You determine where and how much decay has occurred by locating the source of moisture and the opportunities for drying. In this house, the source was exterior: Decay was limited to about two feet of the front half of the sill and didn't even extend to the back side. If the moisture source had been a damp cellar or crawl space, the interior side of the sill might have decayed while leaving the exterior side sound. Sill decay commonly extends into adjacent members, so check in the cellar to see if





The sill in this damp crawl space has decayed where it joins a girder and is spongy enough to be punctured by a finger.

a joist or girder joins the sill in the decayed area. Check the foundation, too — moisture is notorious for damaging masonry as well as wood. If the wood is split or broken, check for excessive or shifting loads that would cause movement in the structure or the foundation.

SUPPORTING THE STRUCTURE

IN ORDER TO REPLACE A SILL IN A wood-frame building, the structural load must be supported during the work. This is a serious procedure that requires care and proper safety precautions. Visualize how the building loads are transferred through the structure, and seek the advice of a structural engineer if you are unsure about how to proceed. Then work slowly and carefully, always keeping an eye on the structure and using common sense.

In timber-frame construction, loads from above are transferred across the girt and down the posts. Studs between the major posts only carry the weight of that section of wall. The concentrated loads are at the major posts and must be taken into consideration when constructing temporary supports. In contrast, balloon-frame or platform-frame construction has all the studs along the wall carrying loads from above and distributing it evenly along the sill. These buildings require temporary support all along the wall.

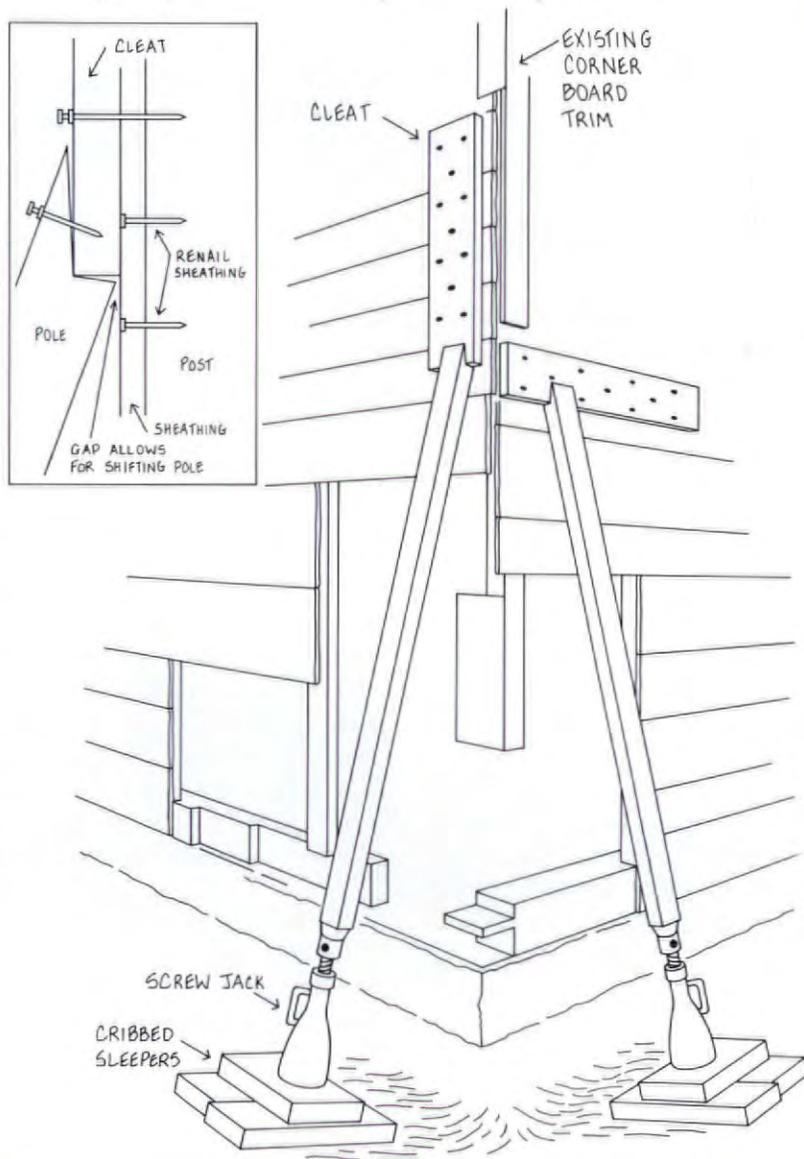
Lodgepoles and screwjacks set on an inclined bed of sleepers were used to relieve the cornerpost and sill. Lodgepole tops (inset) are cut to mate with the cleat and accommodate the pole as its changes angle slightly.

On this project, Bill Noon supported the load concentrated at the corner post of this timber-frame structure with a temporary system of screwjacks, lodge poles, and cleats. He nailed 2x6 planks onto the sheathing over the post as cleats, and then set up the 4x4 poles and screwjacks.

For shoring such as this, it is important to select 4x4s that are free of defects such as large knots, cross grain, or bowing. The poles are cut at the top

to fit the angles formed by the vertical wall and the bottom edge of the cleat and cut off square at the bottom. If the bottoms are not square, the jacks could kick out as the support system takes the load. Use mild steel duplex nails in the temporary support system. These “double headed” nails will be easier to remove than common nails. Don't use drywall screws — they aren't rated for heavy shear loads.

The pole tops are nailed to the post to hold them in place until the jacks are positioned. The accuracy of the cut at the top of the pole is what holds it in place; don't depend on the nails to do this job. The screwjacks are set on sleepers made of 2x10 lumber,





Built-up plank sill repair: After removing the decay (above), Bill squared-up the end of the existing sill with a hammer and chisel. The cleaned-up sill is cut back in steps (below) so that the new lumber is spliced in for maximum integrity.



Each plank of pressure-treated lumber is fitted in and around neighboring frame parts (above). The first, second, and third planks were fastened with galvanized drywall screws (below); outer longer planks were nailed on.



which spread out the load evenly over the soil. To set the sleepers, first excavate a depression in the soil, which angles the surface of the sleeper perpendicular to the centerline of the pole. This is fairly easy to judge because the ends of the lodge poles hang down near the sleeper. If the topsoil is loose, dig down to subsoil and firmer footing. If the soil is unstable, use wider planks or cribbing to spread out the load over a wider area.

Next, set the jacks in place under the poles and snug them up just enough to make the whole assembly rigid. Overtightening will cause the pole-and-jack combination to buckle and fail. The jacks are the least stable link in the system, so be careful not to bump them during work. If this is likely to happen, add braces from the bottom of the pole to the building.

Over a day or two, gently crank up the jacks a little at a time to allow for compaction of the soil. Continue cranking until the load shifts over to the pole. Stop cranking when the post begins to

move up — you don't want to actually raise the building. A light tap on the pole with a hammer will make a ringing sound that rises in pitch as the load increases. Monitor subtle changes in the structure, foundation, and soil during the shoring process. Listen for creaks and groans from the framing and watch for movement in foundation stones. Note the shape of the soil surface before beginning and compare it with conditions as you apply the jacks. The soil under the sleepers could pack more under continuous loading and rain could wash the earth out or change its load-bearing ability. Adjust the jacks as needed to account for these changing conditions.

REMOVING THE DAMAGE AND REPLACING THE SILL

FOR THIS PROJECT, BILL USED A RECIPROCATING saw (such as a Sawzall brand) with a 12" wood-cutting blade to remove most of the decayed wood, followed by a sharp chis-

el and mallet to form a stepped cavity. First he cut off the decayed 20" section of the whole 7"x 7" sill. Then he cut steps back into sound wood, to the depth of the planks that would fit into the cavity. After sawing, the steps were trued up with a sharp chisel and mallet. The earlier post repair was also removed.

Sill repair with built-up planks, a non-traditional but cost-effective approach for small repairs, requires building up the new sill with layers of pressure-treated lumber, 1-1/2" to 2" thick. Untreated lumber is not suitable for this type of sill repair because the multiple wide joints of the laminations allow moisture to enter the timber and trap it there, promoting decay. Pressure-treated lumber won't keep the moisture out, but it is decay-resistant if moisture gets in. Each plank of pressure-treated lumber is cut to fit in and around the neighboring frame parts (see photo series, page 44). Here, the first, second, and third planks were fastened with galvanized drywall screws

because there was nothing behind them to serve as a ground for nailing. The outer planks, which were longer, were nailed to these initial boards.

If the old sheathing boards have been saved for reuse, they should fit right back into their original places. Use corrosion-resistant common nails such as galvanized steel or tempered aluminum. Don't reuse the old nail holes; drive your nails into fresh wood instead. You may have to drill a pilot hole near the end of dry, brittle wood.

New replacement sheathing lumber should be the same thickness and type of wood as the old sheathing. Getting the exact same species of wood is not particularly important, but you wouldn't want to substitute hardwood for softwood just because that was all that was available in the correct thickness. Plywood makes poor replacement sheathing for a repair like this one because it acts as a vapor retarder when applied to the exterior side of a wall. Early buildings seldom have an effective vapor retarder at the interior side of the wall, so the plywood may trap whatever moisture enters the wall during the cold winter months and thereby promote decay. The larger the area covered by ply-

wood, the more likely this is to happen.

As part of this reclapboarding job, the carpenters covered the sheathing with an air barrier. This material reduces air infiltration by keeping the wind from blowing into the wall. In the past, rosin-impregnated building paper was used. Now spun-bonded olefin products such as Tyvek (tm) and Tytar (tm) are favored. Both types block air infiltration yet allow moisture to escape from the wall. Asphalt-impregnated roofing felt (tar paper) is not moisture-permeable enough to substitute for this type of air barrier. If you have opened up only a small area for a sill repair, it's safest to match the air barrier used in the original construction. If rosin paper was used, choose that as a replacement. If no air barrier was used, don't use anything. The carpenters also worked a narrow strip of aluminum flashing underneath the joint between

Bill brushes a fungicide preservative on the existing sill surface to discourage future growths.

the new clapboards and the existing corner board.

It took only a day for one carpenter to cut out the decayed sill and post and piece in pressure-treated 2x10 lumber. This was a time-and-materials job, so naturally the homeowners were very concerned about the added cost of doing the structural repair. Bill used the built-up sill method because it was quick, simple, and it held costs to a minimum. Full-size solid timbers — the ideal replacement material — are also difficult to obtain dry and in the right dimensions on short notice. Using

materials readily available at the local building supply house not only fit the budget, but allowed him to stay on schedule. 🏠

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LOCATING PROBLEMS

YOU CAN'T ALWAYS PREDICT WHAT YOU'LL FIND when you open up part of an old house. A preliminary investigation, though, can help you anticipate many conditions and allow you to make informed decisions about what to do.

1) **Check the overall alignment of the house.** Stand back and sight down each of its sides. Look for an overall concave or convex shape across the face of the house and for smaller bulges or dips. The windows or rooftops of nearby buildings often make useful vantage points. Viewing the house reversed in a mirror can also provide a fresh perspective and help you notice irregularities.

Another method is to carefully cut an accurate rectangle in a piece of cardboard. Stand way back from the house, hold the cardboard at arm's length, and view it through this "window." Compare the lines of the house with the square angles and straight sides of the rectangle and note any differences.

2) **Check for sill damage** by probing under the edge of the siding with a long-bladed icepick. Inspecting areas you suspect are damaged may require a little destructive investigation. Remove interior finish or exterior siding and trim in limited areas to reveal the structure. Be sure to repair your damage at least temporarily so the house is weatherproof.

3) **Look for tell-tale signs of sill problems:**

- Poor overall alignment — indicates sill movement or settlement
- Buckled or cracked plaster and clapboards — indicates settlement of posts or studs
- Evidence of frass (tiny piles of sawdust) from carpenter ants — indicates moisture problems (these pests only work in damp wood)
- Evidence of mud shelter tubes built by termites — indicates an infestation; these insects usually start their damage at sill level
- Lack of effective gutters and drainage — contributes to splash-back and moisture problems at sill level.



*Beautifully figured cypress trim
and the deep rose of heartpine floors
set off the 1910 Clifford Taylor
House in Eustis Florida.*

CEDAR · PINE · CYPRESS

SOUTHERN SOFTWOODS



BY DIANA JARVIS GODWIN

TO THE UNINITIATED, A HISTORIC WOODEN HOUSE IS "just wood," but once you delve into restoration work, you soon find that certain woods were traditionally used in very specific ways and sometimes came from unusual locations.

The climate in the southern United States runs the gamut from temperate to tropical, and supports an equally diverse array of plant life. It produced a wealth of timber sheltered in vast expanses of forests that included the softwoods yellow pine, cedar, and cypress. There were also many varieties of hardwoods which grew in luxuriant mixed stands, among them oak, basswood, beech, hickory, magnolia, maple, sycamore and sweetgum. All of these woods were used by the southern pioneers to fashion their furniture, tools, ships, and houses. However, only a small number were desirable as construction timber and were plentiful enough to be sold as a commodity on the world market. Cypress, cedar, and yellow pine — these beautiful and amazingly durable woods were logged in ancient virgin forests and became widely available to builders in North America and abroad from 1870 to 1915. If you own a house which was

built during this period, there is a high probability that at least a portion of its lumber comes from the forests of the deep South.

In the 19th century, the southern lumber industry was well-established in the states of Georgia, Alabama, and Florida, which held seemingly endless expanses of prime forests. By 1857, the town of Pensacola, Florida, was producing lumber for its own use and export to New Orleans, Mexico, and the Caribbean islands. Within a few years, though, the Civil War and the federal blockade of southern ports brought the lumber-shipping industry to a dead halt. Sawmills lay rusted and in disrepair for the duration of the war.

By the war's end, the depletion of forests in the Northeast and other regions could no longer be ignored. Soon the demands of industry and a burgeoning population turned to the southern forests. The lumber was noted for its superior quality and became a major export, valued at over 16 million dollars by 1869. Many northern lumber entrepreneurs came south to buy vast expanses of southern forests cheaply, and invested in mills employing



The virgin Southern forests harvested in the late 1800s yielded timber renowned for its durability and beauty.

experienced men from the Northwest and Scandinavia. Mill-towns sprung up all over the South, creating fortunes for the lumber barons. The lumbering and sawmilling technologies that had made the industry so efficient in other areas were brought in, and sawmills became voracious dynamos capable of devouring the virgin forests. Improved railroads and ships moved the lumber from the sawmills to both foreign and domestic ports.

In the 1870s it was estimated that it would take 25 years to complete the first cutting of the forests of North Florida. However, the machinery that made timber harvesting incredibly efficient also cleared the frontier forests so completely that by 1910 virtually every stand of pine barren worth cutting had been removed from the sandy Florida soil.

BEFORE LOOKING CLOSER AT THE three major southern softwoods, it is helpful to understand a little about the characteristics that make one tree different from another, and the terms used to describe these differences.

All trees are divided into two broad classes: hardwoods and softwoods. The distinction is not based on the hardness of the wood; in fact, not all hardwoods are harder than all softwoods. Hardwoods are broadleaved trees that enclose their seeds in a case and produce fruits and flowers. The wood is characterized by the presences of vessels (cells which extend longitudinally in the stem) in the growth rings. Hardwood cells are shorter, thicker-walled, and less flexible than softwood cells and are not arranged in the orderly, radial rows found in softwoods. Softwoods are cone-bearing trees with scale- or needle-like leaves and are characterized by the absence of vessels. Softwoods have ducts which are usually full of sticky resins released from the cells lining the opening or duct. Softwood does not split as easily as hardwood does.

When viewed in cross section, the trunk of a tree shows two basic areas: the sapwood and the heartwood. Sapwood is made up of the outermost growth rings of the tree and is used for storage and passage of nutrients and water. Sapwood is present in all trees and is lighter in color than heartwood and less resistant to decay. Heartwood is the wood from the center of the tree to the sapwood. The heartwood is largely dead tissue which supports the tree, and is typically darker than the sapwood, but not always well defined. Heartwood is also denser and may contain substances (largely phenols) that repel fungus and insects, acting as natural preservatives. Heartwood is preferred for use under conditions

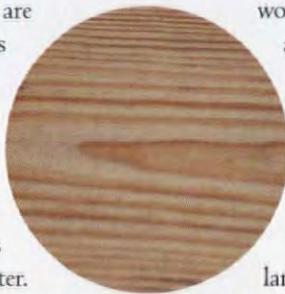
which favor decay because sapwood is attacked more easily.

Forests or stands of trees are often referred to as being either old-growth or second-growth. Old-growth or virgin forests are original, mature, naturally established stands, often hundreds of years old. The trees from these forests have had to compete among themselves for water and sunlight, and the lumber produced is typically very straight and free of knots. Second-growth forests are those established after a previous forest has been removed by wind, fire, or by cutting. Generally, second-growth wood has a higher proportion of sapwood than virgin timber has because it comes from faster-growing varieties; as a result, it is more vulnerable to decay.



I. YELLOW PINE

THE SOUTHERN OR YELLOW PINES — CHIEF AMONG them, loblolly, shortleaf, and longleaf — were the major lumber producers of the South and fueled the great lumber boom of the 19th century. The southern-pine timber species were known as “hard” softwoods, with woods such as longleaf being about as hard as the average hardwood. The creamy-pink or -yellow sapwood is narrow and contrasts with a usually reddish-brown heartwood which can vary in color from a light rose to a dark burgundy. It has a wide growth ring, particularly in fast-grown timber, and a coarse, resinous texture. Yellow pine dries well but tends to have a fairly large amount of shrinkage. It is a stable, stiff wood when it is seasoned correctly, with a high bending and crushing strength. The wood is easily worked with both hand and machine tools but the resin can cause clogging. First-growth heartpine is extremely durable; second-growth



Above: Nineteenth century lumbering in a yellow pine barren. Lack of undergrowth was typical of these virgin stands. Inset photo: Flatsawn second-growth longleaf pine.

Right: A mature red cedar tree near Sarasota City, Florida. Inset photo: Red cedar has narrow, uniform growth rings, a fine texture, and characteristically pungent aroma.

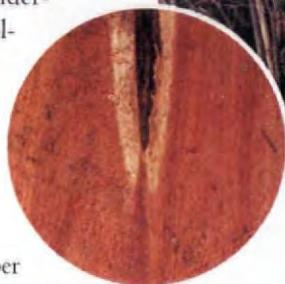
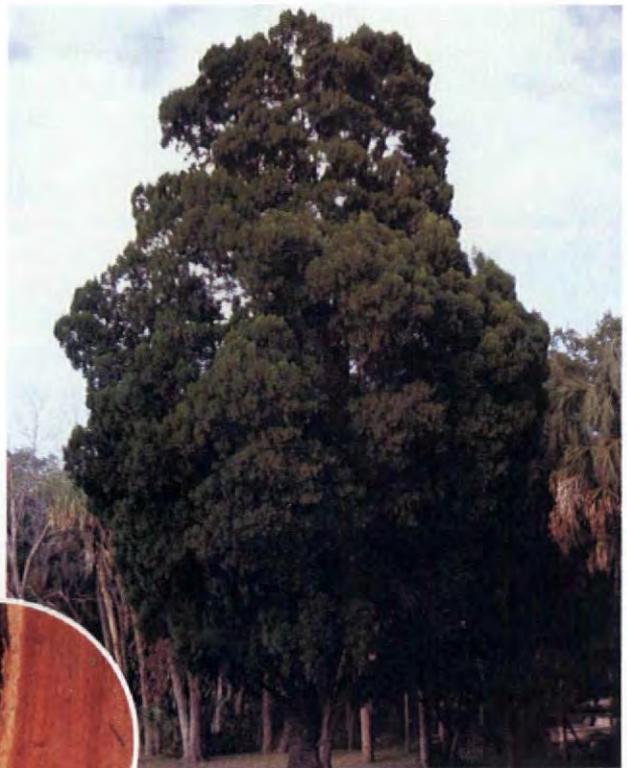
lumber is moderately durable.

The yellow pine grows straight and tall, with old-growth trees reaching a height of up to 100 feet and a girth of three feet. The virgin pine forests provided timber with a great quantity of heartwood and branches concentrated near the top of the tree, which left fewer knots and made for easy sawing and high-quality lumber. The sheer immensity of the South's 19th-century pinewoods was described by the early-20th-century geographer, V. Emerson:

A drive through the virgin longleaf pine forest will long be remembered. The stately trunks rise 40 to 60 feet and then spread out their dense foliage, which joins above like the arches of a cathedral. There is little or no undergrowth, and the view fades into a maze of the column-like trunks.

The virgin stands of pine were open because southern pine, particularly longleaf, is tolerant of fire. Forest fires would actually benefit pine stands by removing a fungus which attacks the tree and eliminating competition from grass and underbrush. The pine timber would endure for 150 years before the trees began to perish of heart rot. Hardwoods were excluded from pine regions unless they were of considerable age and size. Loblolly, the least desirable of the three main southern pines, was found near streams and wetlands where it grew quickly with a long cylindrical trunk. It is less resinous than longleaf (which is a source of turpentine).

When the supply of high-grade northern white pine began to dwindle, lumbermen turned their attention to yellow pine, which was used for nearly any building purpose when it was plentiful. Yellow pine historically supplied half of the total annual cut, and much of that was longleaf pine. Pine lumber sawn to thin proportions (2"-4" thick by 9"-11" wide) was called "deal" in early-19th-century terminology. It was widely used as framing lumber and siding as well as millwork. The heartwood is particularly durable and is most often found in flooring (which many homeowners have difficulty nailing). The highest, densest grades of heartpine were used for heavy construction work such as bridges, docks, warehouses, and decking. Lesser grades were utilized for domestic construction and general building.



II. CEDAR

ALONG WITH THE CYPRESSES, CEDARS ARE THE MOST DECAY resistant of the southern woods. Once plentiful, the demand for these insect- and fungus-resistant woods has greatly diminished their availability. In addition to their durability, these unusual softwoods are all exceptionally beautiful.

Atlantic white cedar is widely known in the South as "juniper". It grows exclusively along the Coastal Plain and is most common from North Carolina to Florida and along the Gulf Coast. It has been an important timber tree since the early

development of the Atlantic Seaboard. Cedar shingles were found in Philadelphia and Baltimore as early as 1800. The wood is light, close-grained, and soft, and dries with little shrinkage. The sapwood is a beige-white and the heartwood is light brown and highly resistant to decay. It is fragrant (though not as pungently aromatic as red cedar) and ages to a silvery grey which can be dressed to bring back the original color. It is no longer widely available commercially

but can be purchased in the regions where it grows. It was used for exterior siding, porches, and piers as it is durable when exposed to constant moisture. It takes paint well al-



This cedar log butt highlights the division between sapwood (the light-colored outer ring) and heartwood (the inner, reddish bulk of the trunk).

though it was often left unpainted to weather to a natural creamy grey, especially in the South. Those familiar with Atlantic white cedar advise leaving it unsanded for exterior use and cleaning it every three years, using a dilute chlorine solution to remove fungus, mildew, and insects.

Red cedar, often called pencil cedar or Southern red cedar, reaches 100 feet in height with a trunk diameter of up to four feet. It is actually a variety of juniper and a close relative of the common northern red cedar. It has a reddish-brown to purplish-red heartwood which contrasts with a light tan sapwood. Only the heartwood contains the aroma-producing oils which repel moths and other insects. It should be dried slowly to avoid end splitting and checking. It

has medium bending and crushing strength with low stiffness and shock resistance. Straight-grained cedar lumber is worked easily with hand and machine tools but younger, knottier stock requires more care. It should be pre-bored for nailing, can be given a fine finish, and glues well. Red cedar heartwood is extremely durable and resistant to preservatives; the sapwood is less durable and resistant. Cedar has a tendency to swell and deform slightly; it is wise to allow some space between neighboring boards to allow for this expansion, particularly with tongue-and-groove lumber. Red cedar is resistant to termite and wormwood infestations. Both red and white cedar were considered suitable for many uses including posts, pilings, shutters, decorative trim, and shingles.



III. BALDCYPRESS

MANY VARIETIES OF CYPRESS ARE RECOGNIZED IN THE Southeastern United States, including tidewater red cypress, swamp cypress, pond cypress, and baldcypress. Of these, the baldcypress is the most important as a commercial timber, although all variants may be milled and sold interchangeably because the woods are fairly similar in quality, if not in color.

Baldcypress, a softwood, was given its name because of its deciduous (seasonally shed) foliage, and is often further divided into red, white, and yellow varieties. The southern baldcypresses, which are found along river bottoms and coastal swamps, are a close relative of the California redwoods. This strange and beautiful tree has a unique root system which grows sinkers for anchorage and a network of shallow roots from which it produces cone-like cypress knees. The trees grow to a maximum height of 150 feet with a trunk diameter of three to six feet. The heaviest stands occur in the swamps of the lower Mississippi River Valley and Florida. It is a moderately heavy, hard, and strong wood, noted for high

durability under conditions favorable to decay. Because it contains a lot of moisture, it requires time and care in drying. It can be either kiln- or air-dried with little shrinkage and is considered fairly stable. It is a luxuriant wood with a beautiful variation in grain and color. The sapwood is usually a pale yellow-brown that blends to a dark-brown heartwood, sometimes with a reddish tint. Its wood is light, soft, and easily worked. It takes paint well but was often left in its natural state. "Pecky" cypress is cypress heartwood which has been attacked by a fungus that produces pockets in the wood, leaving a beautiful mottling. The pattern produced ranges from coarse to marginal to a fine peck, and is often used in interior wainscoting and trim.

Cypress is called for when decay resistance is important, as in beams, posts, crosssties, and other support members.

Above: These cypress floors at the Destrehan Plantation in Louisiana have survived over 200 years without noticeable deterioration.

Inset photo: The unique grain of cypress.



The natural preservative oil present in the wood is called Cypressene and it provides resistance to both insects and organic decay. Cypress was also commonly used for flooring, sash, shingles, doors, shutters, trim, wainscoting, and millwork. In the South it was often the primary construction material for verandahs and porches. Many of the late-18th-century River Road plantations in Louisiana were built completely of cypress which has endured the humid, insect-ridden climate for 200 years with minimal decay. First-growth cypress is even durable in contact with soil.

SOUTHERN SOFTWOODS TODAY

SINCE THE DEMISE OF THE PRE-1915 LUMBER BOOM, THE incredibly durable and beautiful first-growth southern softwoods have been difficult to obtain. Few cedar glades have survived the 19th century and species such as cypress are not commercially farmed. The scarcity of once-plentiful heartwoods of pine, cypress, and cedar has also coincided with a renewed interest in our legacy of historic wooden houses.



The Lake Cascade cypress swamp near Tallahassee.

The quest for suitable substitutes makes the recycling of old lumber more important than ever. Antique wood salvaged from demolished buildings is frequently the best match for decorative surfaces such as panelling or flooring (though historic preservationists sometimes feel that this encourages demolition). Heartpine is regularly remilled from the massive beams used to construct warehouses and industrial buildings in the last century. An important source of cedar today is timber retrieved from rivers and swamps, which remains sound despite having been submerged for decades.

If we are, indeed, recycling one of the most expensive modern commodities — the historic wooden house — perhaps we can justify using a moderate amount of increasingly scarce high-quality lumber to return a building to active use. In the South, cypress, yellow pine, and cedar can all still be purchased directly from sawmills in rural areas. Some specialty lumber suppliers are also sources for these woods and are alternatives to the usual building material outlets or salvage merchandisers. Knowing more about historic woods and taking a conservative approach to their replacement will help us appreciate their unique characteristics which account for the continued survival of many old houses. 



A cypress-sided creole cottage along the River Road near New Orleans.

S U P P L I E R S



ALBANY WOODWORKS
P.O. Box 729, Dept. OHJ
Albany, LA 70711
504-567-1155
heartpine, heart cypress

BARBER LUMBER SALES
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Alachua, FL 32615
904-462-3772
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VINTAGE PINE
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GOODWIN HEART PINE CO.
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NORTH FIELDS RESTORATIONS
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& SALVAGE**
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Aspers, PA 17304
717-334-0249
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SYLVAN BRANDT
651 E Main Street, Dept. OHJ
Litiz, PA 17543
717-626-4520
antique heartpine

CARLISLE RESTORATION LUMBER
HCR 32, Box 679, Dept. OHJ
Stoddard, NH 03464
603-446-3937
yellow pine



A Painter's Story

Old-House Living from a Craftsman's Point of View



I MAKE THE BETTER PART OF MY LIVING as a restoration painter, a rare birthright I didn't discover until I was 34 years old. Since then, I have worked myself half to death, experienced enormous amounts of satisfaction, and even managed to make a little money! A number of times I have been asked why I do this kind of work, because even the most casual observer has some idea of the time and labor involved. The spectacle of an entire house being stripped and sanded like a piece of gigantic furniture is an unusual sight anywhere. Simply describing the advantages of the process of restoration painting may explain why it should be done, but it doesn't explain why I do it.

My temperament affects my work. I am critical of myself and all that is around me. Although this has not been a strong factor in arriving at my calling, it at least has allowed me to succeed in it. I can immerse myself in a tedious job that requires patience and foresight, yet I am "past oriented." To me, old is good. However, temperament alone would not have allowed me to endure the challenges of restoration painting. At some point, I had to acquire the right kind of work ethic: the idea that a person's work is something to be done to the best of their ability and that the job, once started, must be finished.

In the summer of 1982, I accepted a friend's offer to help paint a house. From that job, I acquired some money and, more



Above: Telltale holes in leather gloves, and the results of hours of hand prep work; Opposite: The author works on a house in Chesterton, Indiana.

importantly, a taste for independence. So I launched into the adventure of house hunting for restoration-painting jobs. Soon, the owner of a large old house hired me and signed a contract. I thought I was on top of the world!

MY FIRST JOB: A FAILURE

IN THOSE EARLY DAYS BEFORE I LEARNED about the hazards of grinding paint, my plan was to "wheel" down the surface as preparation before repainting. I was in trouble from the start. As soon as the sandpaper disc on the circular sander touched the paint, heat from the friction melted it, loading the disc and rendering it useless in seconds. But instead of stopping there and avoiding a lengthy nightmare, I continued. While the family vacationed in Alaska, I completed only a fraction of the overall job. Later, when

the homeowner would not alter the contract to meet the huge increases in labor, I left the job and was paid a fraction of the total contract. This put \$150 in my hand over a ten-week period — or about 38 cents an hour. What an education!

I gladly left the painting profession for what I thought would be forever. However, the following March, I was approached by another friend who owned a 50-year-old house covered with peeling paint. A little light came on! By offering to strip and sand the entire structure at a cheap hourly rate, I didn't make much by the job's end, but it was a fortune compared to the disaster of the previous summer. Also, I felt

Text & Photos by Frank Terry

good about the house's new look and the durability that I knew the job guaranteed. I would reflect upon this comfort again in the future.

The novel sight of that entire house showing its like-new wood helped me decide that this kind of work was sorely needed by an entire generation of fine old homes. Unfortunately, many homeowners confuse the paint's condition with the state of the carpentry underneath it. Ninety-five percent of the wood that I have painted is as fresh and alive as the day it was nailed up. Removing virtually all of the old paint before recoating a house is a clear advantage and, for many, an absolute necessity.

Later restoration projects presented a constant series of obstacles to overcome and challenges to meet. Security at

deterioration of old paint could be contrasted with restored wood from the same area. Each picture tells what was accomplished in great detail, speaking volumes and, consequently, saving me a thousand words.

During one house-hunting day in April of 1989, I was drawn to a giant Queen Anne. The house was big and dark, like a looming



A house in Valparaiso in three stages of preparation: strip, sand, and prime.

three-dimensional shadow on the street. At the interview for the job, I was able to share the photos of my past work and look the place over more closely. Beautiful! Much of the old paint was a mass of chips and chunks, but experience had given me the X-ray vision to see the "new house" underneath. With charcoal grey as the body color and a blue-grey as a trim color, the sight made me think of storm clouds. Eventually, I nicknamed this house "Stormy."

The great amount of detail and vast size of the house made it impossible to arrive at a set price with any confidence, so I gave a "ball-park" figure and offered to work by the hour.

Soon after this meeting I secured a verbal agreement to go ahead with the job and excitedly began work in June of 1989.

Preparing the customer for the psychological wear of the job is as important as estimating its cost. It is a considerable breach of privacy to have the same worker climbing over your house and bobbing around windows and doors for months on end.

Usually, I like to begin work at the top of a house, but rainy weather forced me to start on the first-storey wall under the porch roof. Having never seen the sun, the paint here was the thickest and toughest on the house. However, long ribbons of paint, resembling oversized corn chips, soon began falling to the deck. By the end of July, most of the first and second storey around the porch roof had been completed. Motorists began to drive by, slowly admiring the house, and strollers gave complimentary remarks. But something happened to end any enjoyment I felt.

At this point, the homeowners started to get apprehensive about the time and cost of the job. In spite of my



The dangerous, uppermost gable of the "Stormy," partially stripped and sanded to reveal like-new wood.

great heights is achieved by a good sense of balance, prehensile legs, and resourcefulness. Acrophobia must give way to the "acrobat" in us. Added to these obstacles are the problems common to other outdoor professions, such as weather extremes, an undeclared war with the insect kingdom, and the limitations of physical endurance.

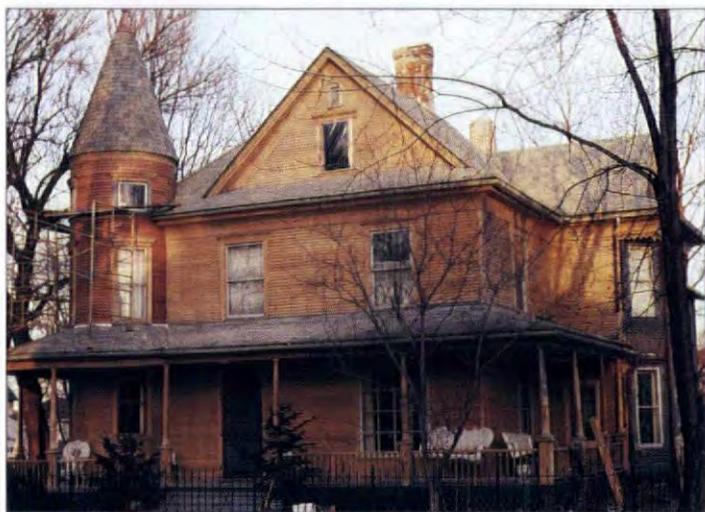
WILLPOWER & VULNERABILITY

TO MAINTAIN HIGH STANDARDS OF WORKMANSHIP, job after job requires a considerable will. Having my heart in my work sometimes leaves me a little vulnerable. Does the customer know the physical stress I am going through in order to give this cherished home cosmetic perfection and durability? How can a person who out of necessity drives a 23-year-old car be "taking them for a ride?" There are easier ways to make a fast buck or obtain job security.

After a few years in my specialty, I decided that I needed a more graphic way to explain it. Having been involved in photography since I was 16, it was natural for me to eventually think of photo-documenting my work: before, during, and after. I had a few prints taken at a distance from my first jobs, but I found closeups were better. The



Peeling trim on a tower window, and "chunk" buildup on clapboards.



Top: My "before" photograph of the "Stormy," a dark, grey shadow of a Queen Anne. Above: Stripped and sanded, with a newly resided upper tower, the "Stormy" displays its excellent carpentry.

offer to reduce my hourly rate, the verbal agreement upon which the job rested was terminated. Yet leaving the house in its unfinished condition was unthinkable for me. I felt bound to offer a contract based upon the original ballpark figure. It didn't amount to financial suicide, but I would have to submit to a time of "slim pickins" if I was to see the Stormy finished. By the time I returned, two good working months were lost.

As my work progressed, I never lost a sense of awe for the Stormy's size. While inspecting the bay which hung over the lower roof of a recent addition, I discovered another small gable facing east. The "storm" kept growing! By mid-July of 1990, the stripping and sanding of the Stormy's entire surface was almost finished. The only section left was a precariously situated gable which I dreaded. At one point I had made up my mind not to do it, but knowing an incomplete job would haunt me forever, I proceeded. Once this gable was cleaned, a

the persistence needed to complete the task and the vision to "see" what this fine house could once again be remained with me.

To complete this enormous job, I did a considerable amount of free work. Fortunately, success can be measured more than one way. Finishing Stormy was more than just a financial matter; it was also a personal one. I couldn't live with being beaten by such a challenging job.

Often, because of the pressures of such physical work, I decide to leave the restoration-painting field. But come springtime, my feet again take me up and down the streets of Valparaiso, Indiana, in search of another old house with alligatored paint and in need of my special attention. 🏠

feeling of relief and accomplishment welled up inside of me. This exceptional house now stood essentially as new as when it was built in 1882. Nearly all of its wood exterior was as fresh as when it was first fitted by skillful hands.

PERSONAL BEST:
FOR ME AND THE HOUSE

THE COLORS FOR THE HOUSE WOULD BE ESSENTIALLY the same as the ones removed. First, the trim colors went on across the overhang and down the corners, followed by the window frames, sashes, and trim. The body color went on last. This strategy allowed me to give the inboard side of the trim its own color, a much more sophisticated look than the reverse. As I finished the colors on the first large wall area, the homeowner and her daughter both responded with the word "smooth." With no paint chunks or gritty surface to ripple the line I cut between colors, the outcome was predictable. Although it was a joy to watch Stormy's porous wood soak up the oil-base primer, that phase of the job gave me mixed feelings. All that fine wood was like a trophy representing a great sacrifice of time and effort and I almost hated to see it go.

Finishing the balustrades ended the original job, but then I was contracted to do the porch deck, which I completed just in time for use on Halloween night 1990! From the time I had first touched this house till job's end, over 15 months had passed. Of course, some of the intervening time went toward bad weather and changing contract terms. But

*Freshly-painted
woodwork earns a
"perfect" from the
owners.*



Amid the welter of nostalgic styles that kept architects busy recreating the past in the early-20th century, it was inevitable that some people would be itching to get on with the present — and, even better, the future. Two architectural trends came out of the renewed interest in looking ahead rather than backward: the Art Deco or Moderne Style and the International Style. ¶ In part, both styles were European developments that took on new dimensions when they crossed the Atlantic. Neither style could challenge the entrenched claims of the Colonial Revival on the affections of American homebuilders, however, and so their immediate effect on housing was limited. The less important of the two styles, Art Deco, began to peter out around 1940, although buildings with Moderne features continued to be built into the early 1950s. The International Style (so called because it had roots in several European countries, particularly Germany, Austria, and Holland) merged into the postwar modern movement that is still developing.

ART DECO AND INTERNATIONAL STYLES



Miami Beach's famous Art Deco Historic District (left) flaunts Deco and Streamline characteristics: stucco, rounded corners, window bands, vertical accents. Frank Lloyd Wright's residential masterpiece Fallingwater (opposite) combines elements of the Prairie School with the International Style. (Bear Run, Penn., 1937)

by James C. Massey and Shirley Maxwell



IN THE CASE OF ART DECO, THE CRITICAL THRUST CAME FROM the Exhibition des Arts Decoratifs et Industriels Modernes in Paris in 1925. Of course, Art Deco design had been around for a number of years before that, but nobody knew what to call it. The exhibition settled that. There were two phases of the Art Deco style: Zigzag and Streamlined.



A Moderne block that catalogs window treatments of the style: bow and corner windows, steel casements, and glass block. (Washington, D.C.)

Zigzag (what most of us think of as “real” Art Deco) was largely a system of low-relief, angular ornament applied to smooth building surfaces. Zigzag was popular from around the time of the First World War until about 1930. Then it was overtaken by Streamlined (sometimes also called Moderne), which abandoned ornament almost entirely in order to focus on streamlined forms such as smooth walls, rounded edges, and circular windows.

Zigzag Art Deco pulled its motifs from various sources, including American Indian culture. The repertoire included chevrons, circles, and stepped-back lines with strong vertical accents. Art Deco motifs could be applied as handily to furniture, jewelry, clothing, even hairstyles (remember the Flapper with her geometric shingle-cut?) as to buildings.

In architecture, the flashy Zigzag style was a way putting a modern spin on a more-or-less traditionally designed building. It flourished mostly in big cities (particularly New York), where Deco skyscrapers added zest to the urban skyline. In low-rise models, Zigzag Deco appeared in the warmer coastal areas of California and Florida, where hotels and apartment buildings, as well as commercial and public buildings, were less likely to be tied to stuffy design approaches. Although very few, if any, single-family houses in full

Zigzag style were constructed, Zigzag decorative elements sometimes made their way onto house facades of the 1920s and 1930s. Features such as flat roofs, stuccoed walls, extensive use of glass blocks, and strips of steel casement windows established the Deco style credentials.

In the 1930s, Streamlined Deco was especially well suited to industrial design, from automobiles and airplanes to toasters and coffeepots. In fact, it was designers like Kem Weber and Raymond Loewy rather than architects who dominated this phase of the Art Deco movement. Sleek Streamlined designs implied speed and efficiency, so perhaps it was not surprising that transportation became its special theme: Airports and bus stations, as well as airplanes and busses, were built to its specifications. (The old Greyhound Bus depot, once the soul of modernity, is now often the only Art Deco component in many an urban and small-town preservation plan.) The Streamlined approach also had a persuasive logic viewed from the perspective of Depression-era economics. Whereas Zigzag Deco's success depended largely on fine materials, artistically wrought and skillfully applied (i.e., expensive), the stripped-down Streamlined forms were ideal for mass production. In fact, its forms, typified in architecture by horizontal bands of windows and rounded corners, often *were* its ornament. In Streamlined buildings, the emphasis was unflinchingly horizontal, an effect reinforced by bands of steel windows, incised string courses, and flat roofs. Streamlined walls usually ended in curves rather than in angles.

WHILE ART DECO HAS NOW REGAINED A LOT OF ITS rather quirky appeal, the International Style is still by far the more important architecturally, and professional architects had it firmly in hand from its very beginnings. It started in Europe (although key developments such as the skyscraper and the Prairie School house took place in America as well), both as a response to the opportunities supplied by modern technology and as a rebellion against what modernists saw as the very messy eclecticism of the late-19th and early-20th centuries. Just as Gothic Revival had been promoted as the “only proper style” in the mid-19th century, so

Residential Art Deco by virtue of its applied details. The door (hidden) is decorated with chevrons. (Pensacola, Fla.)



the International Style seemed especially well suited to the Machine Age. It was clean-lined, easy to reproduce (at least in theory), completely functional, and potentially inexpensive once a prototype had been built. Here was one style, its proponents believed, that could be used for any building in any price range at any level of architectural sophistication. This one was right for all buildings — from churches to banks to factories to mansions to workingmen's houses. Like the Arts and Crafts Movement, the International Style was actually a crusade that carried social and philosophical meanings about morality and the pursuit of human happiness as well as about architecture.

Not everybody was crazy about the idea. In fact, most American homeowners found the new building style ugly, and preferred to stick with traditional forms and Beaux Arts ideals.



Schindler's Lovell Beach House is supported by concrete frames and stilts. (Newport Beach, Calif., 1926)

Still, American architects such as Irving J. Gill had been experimenting for many years with adapting pared-down architectural forms based on Pueblo and Spanish Mission designs in buildings constructed of modern concrete and steel. Despite his expressed distaste for the International Style, Frank Lloyd Wright himself produced several houses in a modified, woody International style.

Furthermore, there were other archi-

tects working in America who had been exposed to modern architecture through their European schooling: the Viennese Rudolph Schindler and Richard Neutra, for example, who by 1926 were practicing architecture together in southern California, a region which proved to be unusually receptive to the new architecture.

It was just before World War II that things really took off for the International Style in the United States. Walter Gropius, a German refugee from Nazism, is the best known contributor to the movement. Gropius had organized the Bauhaus, a German academy for avant-garde artists, architects, and designers, which flourished briefly under the Weimar regime. His Hungarian colleague at the Bauhaus, Marcel Breuer, left in 1937. Both men wound up on the faculty of the School of Architecture at Harvard. Gropius' successor as director of the Bauhaus, Mies van der Rohe, became director of the architecture department at the Illinois Institute of Technology in 1938. With these influential thinkers established



Irving Gill's Dodge house (demolished), an early example of International in the American idiom. (Los Angeles, 1916)

around the nation, a generation of American architects began to move out of the realm of the Beaux Arts and into the modern design arena.

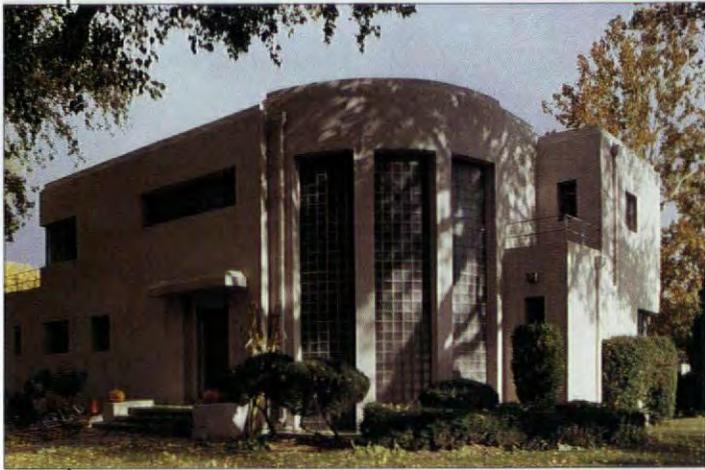
GROPIUS' DESIGN FOR HIS HOME IN LINCOLN, MASSACHUSETTS, tells much about the International Style as it developed in the United States. There are the characteristically flat walls, flat roofs, bands of windows, and a total lack of ornament. And even though the house looks deceptively like a simple rectangle, there are the projecting and receding walls and roofs that "express" the spaces within. Instead of the outer walls dictating where rooms can be placed, the spaces inside the house determine where the outer walls will go. Every part of the design has a function. Should it bring a lovely view within reach of those who live in the house? Should it shelter them from a hot summer sun without depriving them of solar heat in the winter? Gropius' house is a picture of the architect as problem-solver.

Most of the ideas behind International Style designs assumed that the buildings would use the most up-to-date technology and modern materials — steel, concrete, plastic, and glass panes of almost infinite size. Such materials were not



Despite its modernity, Walter Gropius' own house has a simple angular design that fits the New England tradition. (Lincoln, Mass., 1938)

cheap, and neither was the technology required to build with them. Consequently, many houses in the International Style are based on a wood-framing system with stucco, or on concrete-block or hollow-tile construction. Gropius' house, for instance, is of wood with vertical wood siding. Although smooth stucco



It's Streamlined Moderne, but the rounded stucco walls blend easily with the Pueblo-influenced architecture of the Southwest. (Albuquerque)

or concrete walls were generally preferred by International Style designers, George Howe chose local fieldstone and red brick for the otherwise rigorously International Style design, "Square Shadows," in Whitmarsh, Pennsylvania (1934).

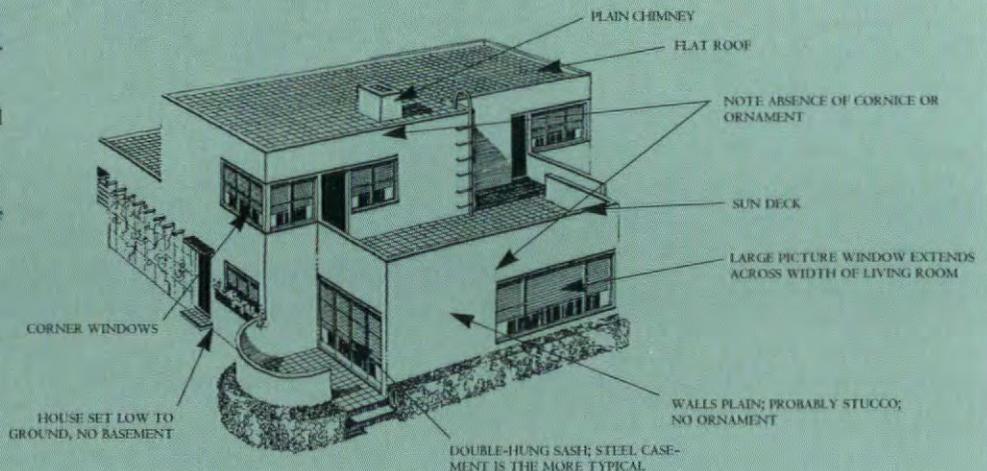
The roofline of International Style houses is virtually always flat, although some architects, such as Gregory Ain, an American associate of Neutra, used hipped roofs on occasion. There is a lot of glass in these houses. The windows are usually large and always rectangular. Clerestory windows, located just below the ceiling line, are common, and large wraparound corner windows and sliding glass doors are standard.

The floor plans of International Style houses acknowledged that life was changing as the 20th century wore on. There was less formality, and there was certainly a lot less household help. So there are fewer maids' rooms and isolated work areas such as kitchens and laundries. Home air-conditioning came into limited use in the 1930s, if only for the lucky few who could afford it — and International Style architects' clients were often among the lucky few. On a more democratic note, compact oil furnaces made it possible for these once bulky and dirty mechanical servants to be moved out of the basement and onto the first floor. The basement was not generally a part of the International Style scheme. Neither was the attic. With no attic to hold goods and no basement in which to hide mechanical equipment (not to mention the laundry, now done by machines), obviously either the house had to spread out or some things had to go. The expansive lot size was a problem in tight urban areas. But one of the philosophical premises of the International Style was that the good life depended on having easy access to the great outdoors. That part of International Style thinking, at least, fit right in with America's well-established love affair with automobiles and suburban living. It did mean, however, that there are not a lot of International Style rowhouses. (William Lescaze's house in New York is among the notable exceptions.)

Ironically, the Depression and World War that had helped to bring the modern styles to America's shores also played a role in stifling their development. The Art Deco Style was already fading when the war began. The International Style also lost some of its energy at a critical moment in its development. When postwar building resumed, new techniques and materials had come to the forefront. Modern architecture was pulled into a design stream that was significantly different from, and much less rigid than, the one envisioned by the International Style crusaders of the 1920s and '30s.

READING THE OLD HOUSE: INTERNATIONAL STYLE

Composition is based on geometric rectangular forms, in projecting and receding planes, with a single curved wall to dining terrace for counterpoint. Windows generally grouped frequently at corners. Some large glass area for emphasis, as for the living room. The functions and rooms dictate the design of the house — the opposite of much earlier design.



Source: Design by Werner Walter Johnson, Architect in *Architectural Forum*, April 1938.

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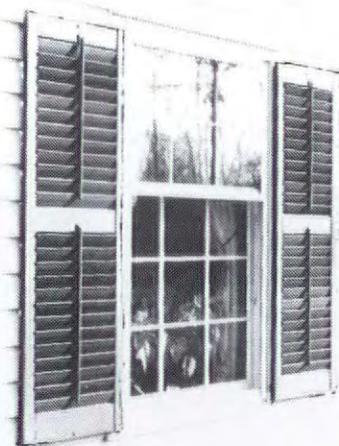
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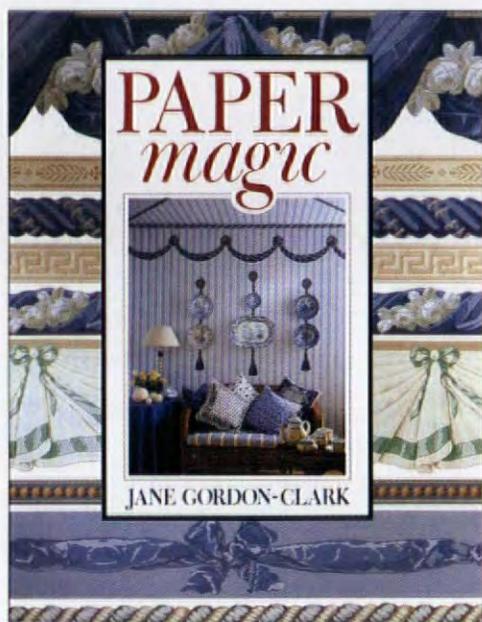


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GOOD BOOKS



PAPER MAGIC

by Jane Gordon-Clark

Pub: Pantheon Books, distributed by Random House, Inc., 400 Hahn Rd., Westminster, MD 21157; (800) 733-3000; 1991, 191 pages (most in color). \$42, hardcover.

PAPER MAGIC completes a trilogy of books on decoration from the English publisher Frances Lincoln Limited, which began with *Paint Magic* and *Fabric Magic*. Combining many stunning color photos with an aim to change "existing ideas about the role paper has to play in interior decoration," *Paper Magic* works as both an idea book and a sourcebook for papering period rooms.

Gordon-Clark wisely starts by describing the historic trends in wallpaper use. She surveys the roots of designs in sections on textiles (in an intriguing look at flock and moire), fabric (including many toile de Jouy and drapery papers), and architectural elements (columns, mouldings, and plasterwork depicted in paper). She brings a real understanding of the difference between machine, screen, and block printing to the book. Her reporting on the work of

Mauny, Perry, and other block printers should help bring these lovely materials to a wider audience.

Though successful overall as an idea book, the quality of the roomset paperhanging shown is, at times, uneven. In addition, the book promises to reveal the trade secrets of professionals, but there are few to be found beyond some custom decorative effects. On the sourcebook side, readers should be aware that many of the papers referred to can be found only in designer showrooms in larger cities (unless you happen to visit England). In fact, of the

44 firms mentioned in the book, just five are North American and three of them import heavily. The only mass-market suppliers included are Schumacher and Laura Ashley.

Despite these minor shortcomings, the book does a real service in presenting designer papers without the designers. Ideas are free even if the wallpaper can be costly — and this book is loaded with examples of creative paperhanging.

ROBERT M. KELLY

Wallpaper Reproduction News

♦ ♦ ♦

INTERIOR AFFAIRS

The Decorative Arts in Paintwork

by Alex Davidson

Pub: Ward Lock, distributed by Sterling Publishing Co., Inc., 387 Park Avenue South, New York, NY 10016-8810; (212) 532-7160; 1991, 128 pages (53 color photos and 40 black-&-white illustrations). \$16.95, softcover.

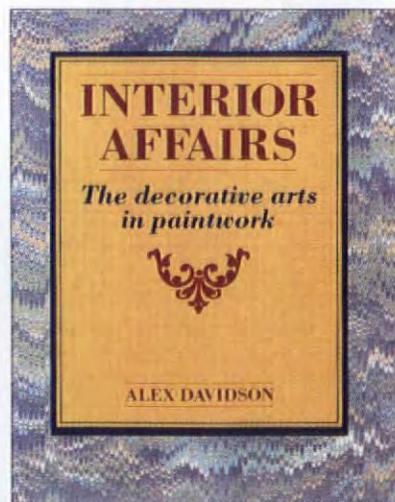
DECORATIVE PAINTING, which can be traced back to the simple cave drawings of prehistoric man, has long been a popular way to add new life to

old furniture and plain walls. From preparing surfaces to mixing paint recipes, this how-to book covers much of the practical information needed to create spectacular decorative effects. Many of the techniques described were perfected as early as the 18th century and are appropriate for historic houses. Written for beginners, Alex Davidson's creative ideas and alternative uses for decorative painting are sure to suggest many possibilities to imaginative readers.

Techniques for applying enduring favorites — ragging, marbleizing, and stencilling among them — are well presented with step-by-step instructions and problem-solving tips. A handy reference is the list of necessary materials and tools clearly presented at the start of each new topic. Davidson also offers custom formulas including a homemade glaze recipe and suggestions for effective color mixing.

Although the book doesn't cover all decorative painting techniques (a regrettable omission is graining), it does provide the novice with a solid understanding of many methods. Davidson's straightforward explanations make even more ambitious projects like trompe l'oeil, verre eglomise, and gesso cracklure seem as easy as painting on a cave wall.

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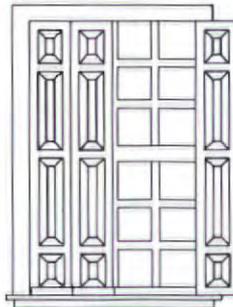


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OLD-HOUSE MECHANIC

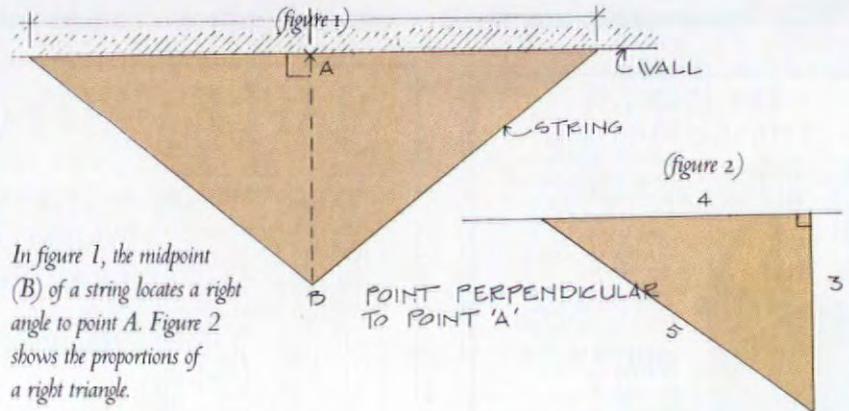
Carpenter's Geometry

by Jeff Wilkinson

EVERY OLD-HOUSE RESTORER can benefit from knowing a few tricks of carpenter's geometry, the principles of plane geometry applied to building construction. Although carpenter's geometry can be as complex as designing winding staircases or coffered ceilings for domes, here we will look at only a few basics that are useful for everyday work. The tools required — a framing square and a yardstick — are simple, and the raw materials — triangles, diagonals, and a little math — are very affordable.

TRIANGLES

TO ERECT A PERPENDICULAR — SAY, when building a wall at right angles to another wall — measure off



In figure 1, the midpoint (B) of a string locates a right angle to point A. Figure 2 shows the proportions of a right triangle.

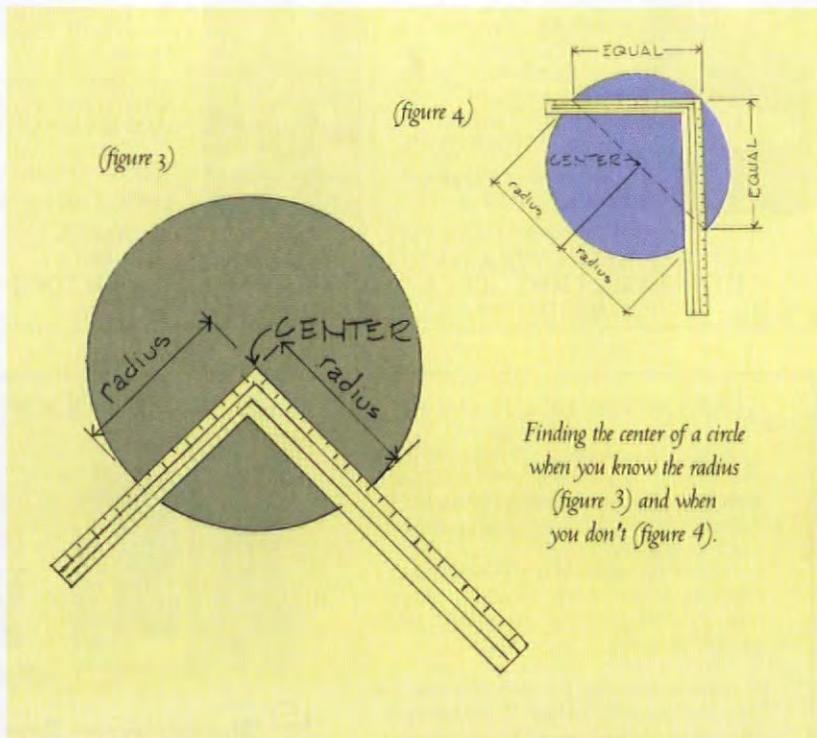
equal distances in both directions from where the perpendicular is to start. Then take a string divided into equal parts and anchor it to these measurements. When the middle of the string is drawn out (figure 1), it will create two right triangles and lo-

cate a point perpendicular to the starting point.

Another way to construct a large right triangle and a perpendicular is to remember the Pythagorean theorem: The square of the length of the hypotenuse is equal to the sum of the squared lengths of the two sides. Or, any triangle with sides measuring in proportions of 3 and 4 and a hypotenuse of 5 is a right triangle (figure 2).

TRYING TO FIND THE CENTER OF A CIRCLE?

IF YOU HAVE NEVER GOTTEN LUCKY with a compass, use a framing square. When you know the radius, just position both sides of the square on the circumference at this dimension and the corner will locate the center (figure 3). If you don't know the radius, just position the corner of the square at any point on the circumference. Then swing the square until the two legs are equal (figure 4). A line drawn between these two points will be the diameter, and the midpoint of the diameter is the center.



Finding the center of a circle when you know the radius (figure 3) and when you don't (figure 4).

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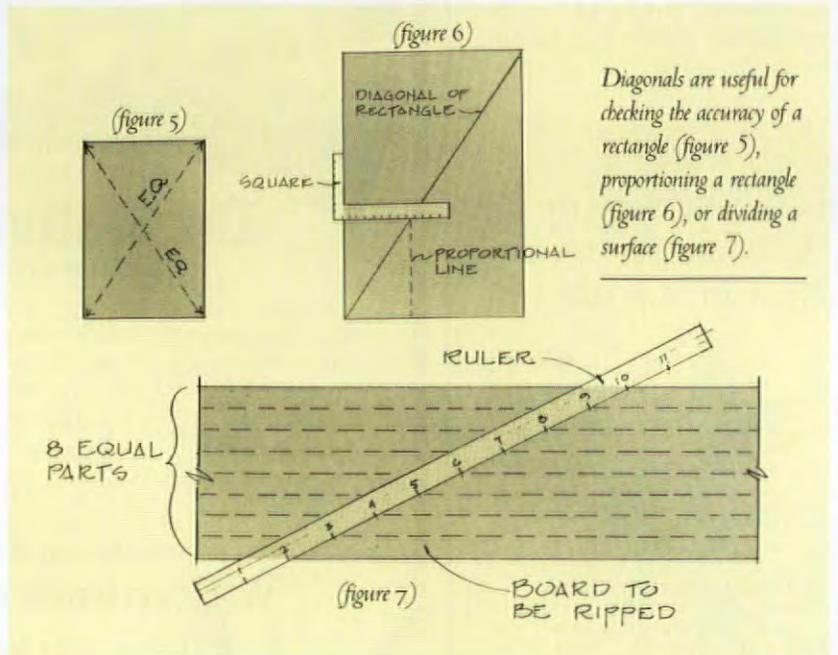
OLD-HOUSE MECHANIC

DIAGONALS

TO CHECK THE ACCURACY OF A square or rectangle, just compare the diagonals (figure 5). If they both measure the same, then all the angles are 90 degrees and the parallel sides are equal.

Diagonals are also useful for calculating proportionate rectangles, such as when scaling down the dimensions of a beam or a window. First, lay out the height of the new rectangle (the proportional line) against the diagonal (figure 6). The distance at a right angle to this point will be the height.

To divide a board or any surface into several equal parts, just measure off the number of divisions diagonally using any scale (figure 7). Then extend the divisions into parallel lines for cutting.



Diagonals are useful for checking the accuracy of a rectangle (figure 5), proportioning a rectangle (figure 6), or dividing a surface (figure 7).

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The Mule Ear high chair is made of maple, hickory, and oak.

Some of their popular pieces reflect the Shaker tradition, like the one-drawer table with Colonial red finish. Antique and distressed finishes (shown on cupboard) are a specialty. The one-drawer table costs \$325. For information, contact Black Horse Cabinetry, Main Street, Dept. OHJ, Kent, CT 06757; (203) 927-3155.

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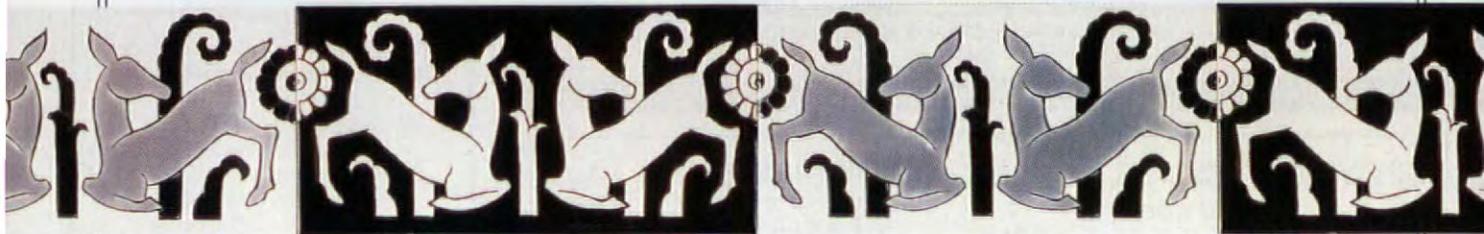
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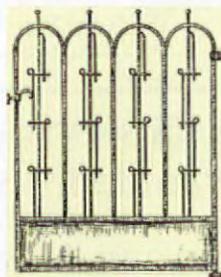
The patterns for some of these Art Nouveau tiles were influenced by Mackintosh.

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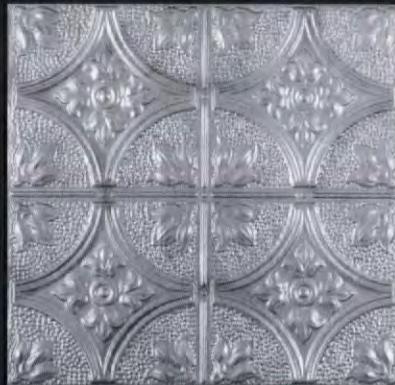
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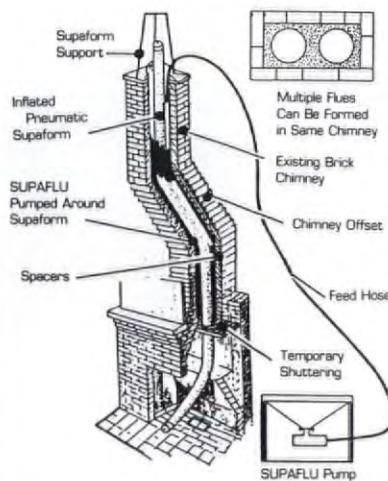
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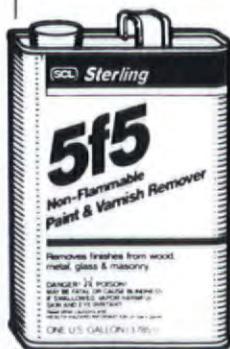
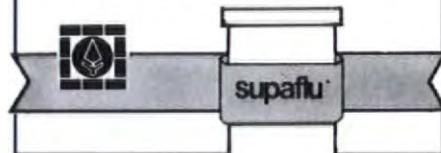
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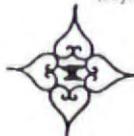
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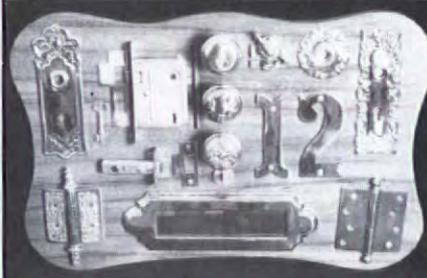
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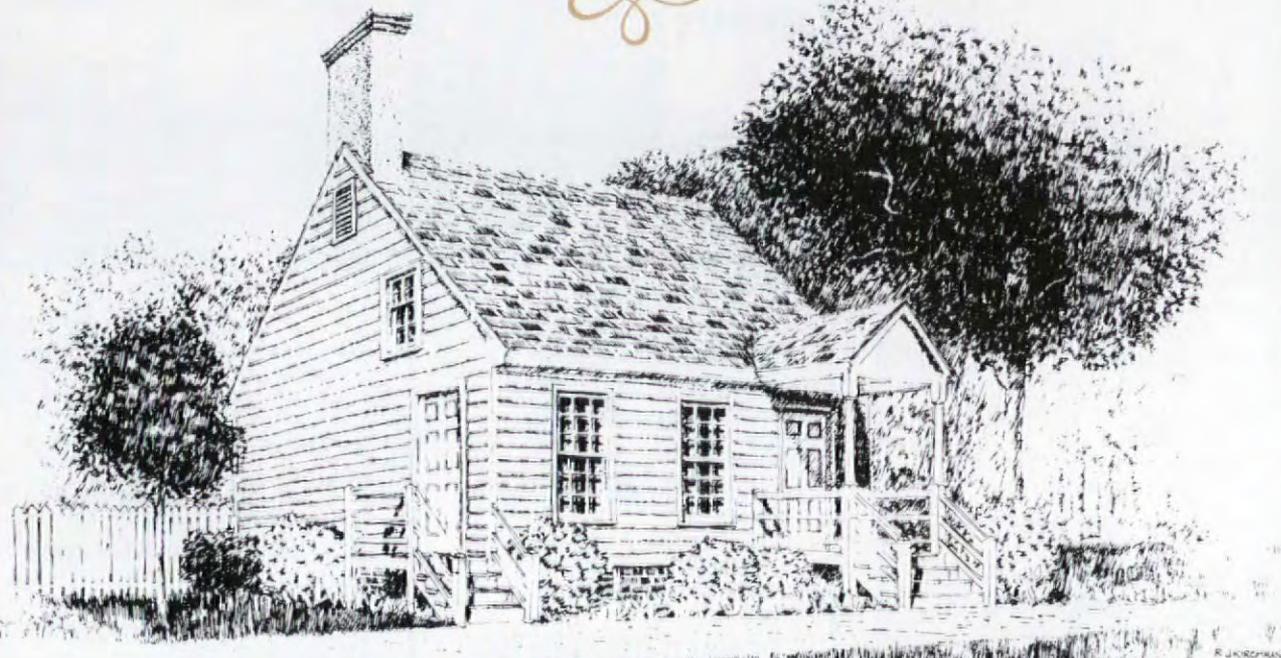
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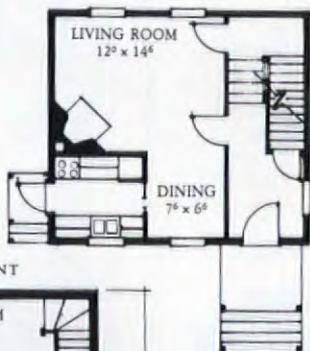
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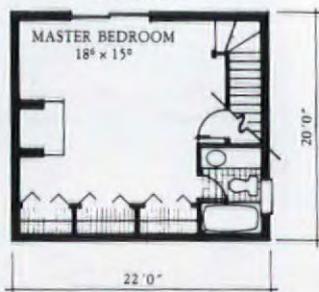
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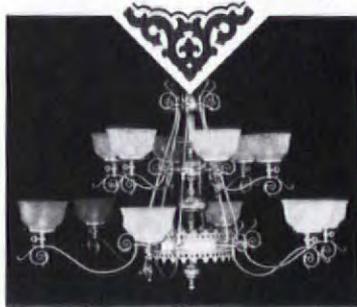
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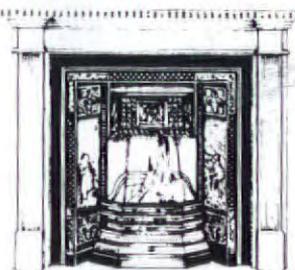
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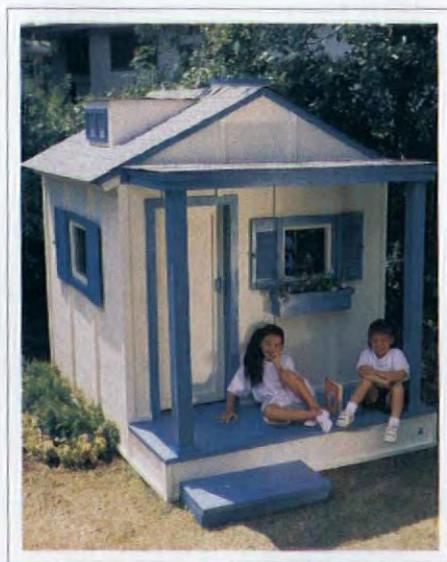
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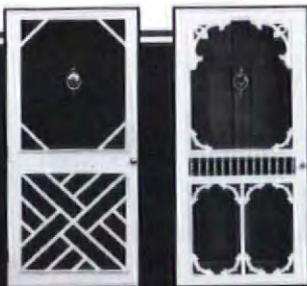


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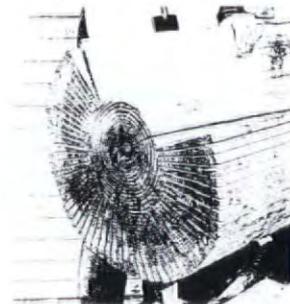
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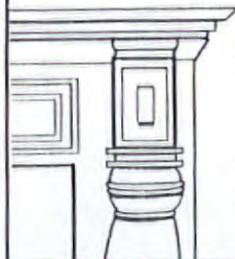
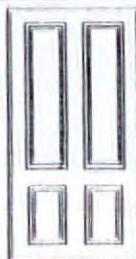
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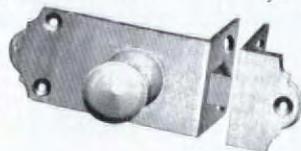
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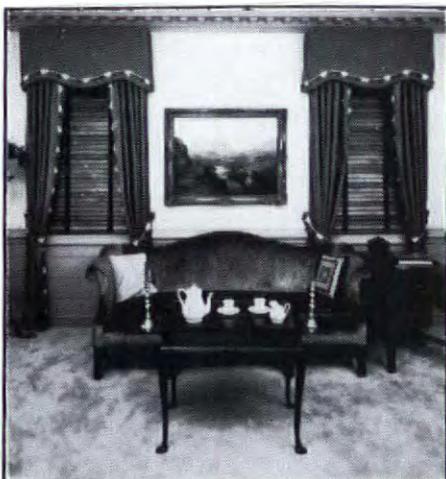
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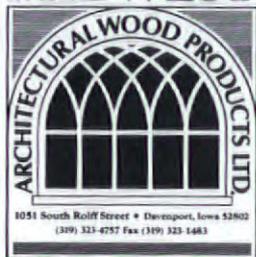
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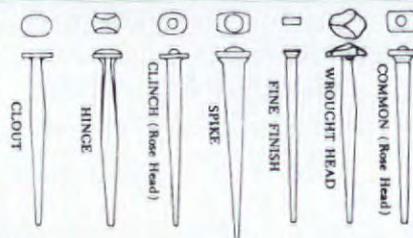
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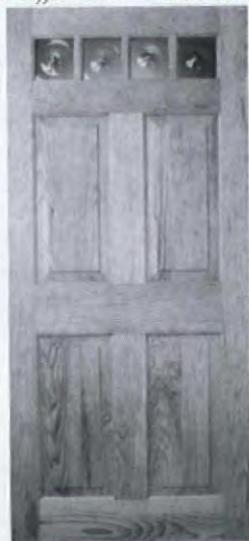


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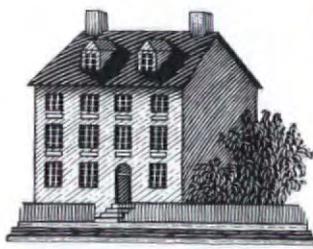


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EMPORIUM

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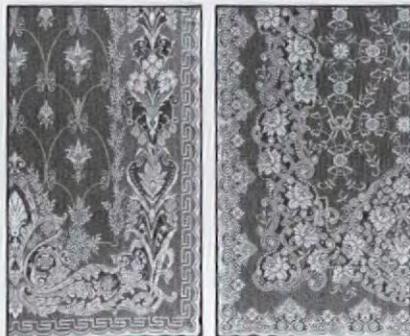
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SERVANT'S CALL BOX — Wooden box with numbers or dials that indicated which room was ringing for a servant. Contact B. Pappentus, 1128 Laurel, St. Paul, MN 55104, (612) 224-1573.

NATIONAL BUILDER MAGAZINE — Published from about the 1880s to the 1920s. Original copies or reprints. Any info is appreciated. Contact Dick Dewater, 930 2nd Ave., Evansdale, IA 50707, (319) 232-2294.

GIRL & BOY SCOUT INSIGNIA — Scouting historian searching for unusual old scout badges, pins, medals, old official literature, and other unusual items. Contact Cal Holden, 257E Church, Doylestown, OH 44230, (216) 658-2793.

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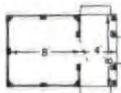
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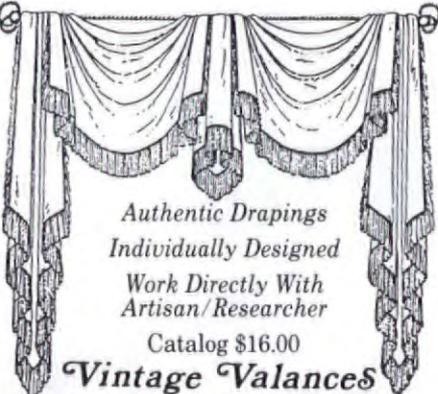
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COPIES OF BUNGALOW MAGAZINE — 1908 to 1910 by Henry Wilson; later published by Jud Yoho 1912 to 1918. Also Kieth's Magazines on Home Building 1901 to 1926 (especially the April Bungalow issue). Hilda Hilpert, 409 Wright, Schertz, TX 78154.

CATALOGS, original or photocopy, of Ann Arbor furniture manufacturers: Come-Pact, Michigan, Peninsular. Also Ann Arbor Organ (later Piano) Company, Economy Baler, Hoover Ball Bearing, Arborphone or Kadette Radio, etc. Wvstan Stevens, Town Historian, 113 Ingalls, Ann Arbor, MI 48104, (313) 662-5438.

Events

PHILADELPHIA OPEN HOUSE — April 29-May 17. House and Garden Tours of private homes, gardens, and special sites. Call (215) 928-1188.

HISTORIC BUILDING RESTORATION SERIES — Waukegan, IL. March 11, 18, 25. Seminars conducted by restoration specialists. For class schedule, call Haines Museum (708) 336-1859.

BUNGALOW HEAVEN — 3rd annual home tour, April 12 in Pasadena, CA. The 8 homes open feature designs and appointments distinctive to the Arts and Crafts era. Call (818) 791-8617.

HISTORIC QUARTERS/HOMES TOUR — March 28 in Fort Leavenworth, KS. Included are homes from the 1840s through the turn of the century and the Memorial Chapel built in 1878. Call (913) 684-3191.

PHILADELPHIA ANTIQUES SHOW — Featuring the finest of Americana, English furniture and accessories, and objects of Asian art. April 4-8, Philadelphia, PA. Call (215) 662-3941.

AIA CONFERENCE — March 27-28. "Quality Communications and Interrelationships in the Successful Project Process", Washington, DC. Contact Marc Gravalles (202) 626-7539.

AHRENS MASONRY SCHOOL — A 6-day course designed to teach basic masonry skills with an emphasis on chimney and fireplace repair/restoration. March 23-28 and April 27-May 2 in Sioux Falls, SD. Call Ahrens Chimney Technique Inc. at (800) 843-4417.

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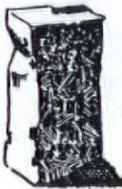
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REMUDDLING

[opinion]



Blinded

NOTE THE LARGE BANNER ON the house pictured above, which proclaims its status as a historic building. That detail needs to be put in writing, because you certainly don't see much that's historic when you look at this house (unless you count its high standing in the history of OHJ's "Remuddling" pages). In happier times, it probably bore a close resemblance to its Foursquare neighbor (right). Today these two houses in Ten-

nessee's East Nashville historic district look like they hail from different planets rather than from the same street. The great horizontal swath of woven-metal framing attached to the remuddled house cancels out the windows, as

though the house were blindfolded and awaiting a firing squad. Adding insult to this injury are two vertical, shutterlike clumps of blinds, which descend from behind their horizontal brothers. They seem to guarantee that the house remains uninviting to people as well as to light. 🏠



Seen by itself, the house is a victim of remuddling; but when it's viewed alongside its handsomely maintained neighbor, it also becomes a victimizer, disrupting the entire streetscape.

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UHW



9B



2UDS



SCR



2F

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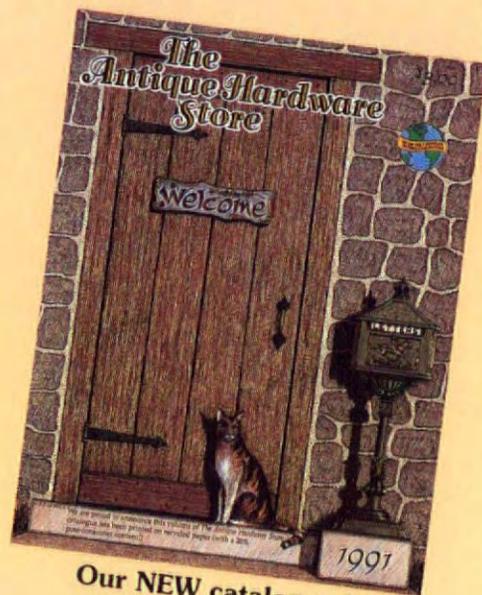
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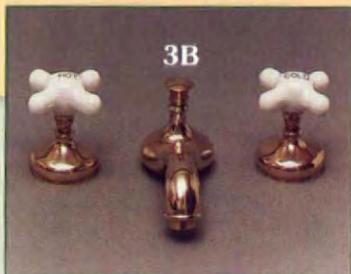
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This circa 1874 Maxwellton house is the only extant piano-box Victorian in Memphis.

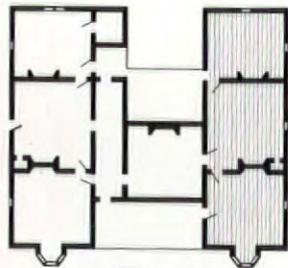
Vernacular Houses

Piano-Box Victorian Houses

IN MID-19TH-CENTURY PARLORS, THE CENTER OF ATTENTION WAS a square grand piano, a rectangular instrument with a central keyboard flanked by two large legs. The folk term "piano-box Victorian" reflects the similarities people in Tennessee saw between this piano and the house's form.

True to the organic nature of its construction, most piano-box Victorians evolved from a smaller, L-shaped floor plan. The later addition of a second wing created an H-shaped form. In both wings,

Instead of constructing a second storey, Piano Box Victorians expanded by adding an identical side wing (shaded area).

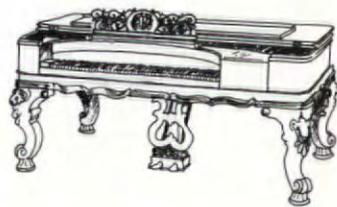


□ c. 1855
■ c. 1880

there was a succession of rooms because newer additions occurred toward the rear. Originally, a fireplace or flue was located in each room to provide heat. The additions were probably constructed in this manner because it was more economical.

Both exterior and interior details reflect the stylistic era of the house's original pre-1860 construction. Later turn-of-the-century additions contain trim or windows nearly identical to those found in the original rooms. However, a close examination of the details will reveal subtle variations that indicate the different construction dates. Some of the exterior decorative elements usually include sawn-wood attic vents, bargeboards, and turned or chamfered porch columns.

These buildings appear to be limited to Tennessee; at this time, there are only six to eight piano-box Victorians left in the central-state area.



The rectangular case and legs of this square grand piano is imitated by the piano-box Victorian.

— ANN K. BENNETT
Louisville, Tennessee

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