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You Ought to Be in Pictures

If you haven't heard the story before, the name camera is derived from the Latin for room or chamber. It was suggested by the large box that formed the bodies of early equipment, a darkened enclosure inside of which the magic of capturing an image took place. It's a bit of figurative language that also sums up nicely the affinity between photography and restoration.

Photography has been common since the 1830s (truly widespread since the 1880s), and old photos make some of the best evidence for establishing how a house looked in the past. Always keep an eye open for past photos of your old house. They could be anywhere—in historical society collections, old newspapers, postcards, albums of neighbors or former owners, or in the house itself behind walls, mirrors, or mantels. Try to keep all old photos (or copies) showing your house, no matter how unrevealing they may seem. Even if another building dominates the shot, for instance, many a streetscape taken when trees were young shows details on the houses nearby.

No less important are new photos, ones that offer documentation of a different kind—your tenancy in the house. Though they will be a valuable record of the house's history to those who come later, they can be helpful to you right now. Even before you get out the tools, get out the camera. Document what your old house looks like from the day you sign the purchase papers. It doesn't matter if things aren't exactly photogenic (holes in the walls of empty rooms; unkempt grounds and failing exterior paint), remember that it takes a while to understand an old house and appreciate the significance of subtle details. The reason for that odd, empty shelf or the ghost mark on the wall may not be clear now, but logged in a photograph they will be there to study when you are armed with more pieces of your old-house puzzle.

Never resist the urge to take photographs either. Much like family pictures of growing children, you can't go back and get that shot you wish you'd taken when the ceiling was down or before the doors were hung. If you have a hard time remembering to get out the camera periodically, take advantage of some routine. For example, set aside 15 minutes for pictures before the day's work starts, when there's daylight, you're clean, and the decks are clear from the last session. Just keeping the camera in a safe but handy spot can be a big incentive. Color film may be necessary if there are fancy finishes worth recording, but black-and-white film can be just as lucid for day-to-day documenting. In addition, it's more permanent, more forgiving about light sources (even a trouble light will give good results), and economical.

Historical research aside, taking photographs of an old-house project from "day one" has tremendous inspirational value. It provides benchmarks to gauge progress by, and can be an important lift when the mess starts to add up or the work stalls. Memory is subjective, and it's not always easy to see how far you've come. A pile of prints can restore a lot of hindsight.

---

Dr. L. Mason Clarke next to his door in Dorset, Vermont, 1935.

(Below) A "before" shot in Selma, Alabama, 1981.
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Letters

A Heating Debate

Dear OHJ,

Concerning “staple-up” underfloor heating in the November/December 1993 issue, I am amazed that OHJ would condone the practice described in the article. Drilling hundreds of 1 1/4" holes in the floor joists of an old house is destructive and irreversible.

— Jack P. Goosman
Pickering, Ontario

In the “Neat Ways to Heat” article, the installer drilled through joists to install under-floor radiant heating tubes. In my timber-framed structure, some of the “joists” are split logs up to 14" thick. Also, the network of girts and summers will interfere with the installation. Must I drill through these to install the tubing or can I drape the tubing below and around these members?

— John C. Bittence
Hiram, Ohio

The author responds:

“Staple-up” radiant heat does call for drilling a series of holes in a straight line through the center of the joists, but not “hundreds” of holes. You need only enough holes to be able to “lace” the tubing under the area you’re heating. You can thread four hoses through a 1 3/4" hole (you’d never drill a larger hole), and those four hoses (actually two 200’ lengths coming and going) represent 400 linear feet of hose, which, when installed on 8” centers under the floor, will usually be enough to warm 240 square feet.

Tubing manufacturers are extremely clear in their directions as to where and how to drill holes through the joists of any home, old or new. They caution against placing them near the top or bottom of the joists, and they show how to route the tubing to minimize holes. I’ve heard of no structural damage as a result of these installations.

As for 14" joists, good question! The goal in placing the tubing in the joint bays is to keep the water from freezing. By drilling holes through the joist material, you’re ensuring the entire length of hose will be within the insulated space and reasonably safe from low ambient temperatures. However, if you’re installing the hose in the underside of a first floor with a heated (or partially warmed) basement you can dip the hose under the joists and not have to worry about freeze-

— Dan Holohan
Bethpage, New York

No Place Like Home

We were excited to find our c.1930 house pictured in John Crosby Freeman’s article in the May/June 1993 issue on page 58. As you can see, the house is exactly the same except for the scalloped siding at the top.

This is a wonderful house, one that was not changed or remodeled much in 60 years. We have found
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original curtain rods, kitchen cupboard doors, and bath fixtures. But so much was left alone, such as the oak woodwork, light fixtures, and the purple and yellow bath fixtures in the two bathrooms, that it was a real find. It is a house that feels like a home, and we feel lucky.

— Elisabeth Dyer
Dayton, Ohio

The twin of The Dyer's home was featured in a 1928 advertisement for "Double-Dipped" stained roof shingles from the C.A. Mauk Lumber Co. in Toledo, Ohio. We've since found their home gracing other period pages as well — it's a planbook design called "The Crestwood," offered by the Home Builders Catalog Co. in the late-1920s.

— The Editors

Survival Guide for a Sorority House

The twentieth anniversary issue (September/October 1993) was the first I received as a new subscriber to OHJ. My boyfriend and I are only in our early twenties, so we are still a few years away from looking for our ideal farmhouse to restore. However, we didn't think it was too early to begin subscribing to the magazine that will help us when the time comes. What a wise choice a subscription turned out to be!

We were drafted to lead the restoration and remodeling efforts of my college sorority's early-20th-century chapter house. Your "Survival Guide" was a crash course for us. I pounced on the "So, Where Do I Start?" section, and read your paint-stripping techniques in anticipation of my next project.

What was meant to be a long-term investment has already begun to pay off. I can assure you, I'll still be on your mailing list for your Fiftieth Anniversary!

— Kristena Halvorsen
Newark, Delaware

Radford Review

Your article about William Radford ["Who They Were," September/October 1993 OHJ] caught my attention. We recently found a 16-page newsletter dated October 15, 1898, edited by Radford and Benjamin Cobb. It was called The Red Radford Review and was written for "the interests of lumber yards, building, and the home circle." It also advertised
Repair, replace, or re-create interiors of the 18th, 19th, and 20th century with the five-volume Interior Design Collection For Historic Buildings. Published by the National Trust for Historic Preservation, each book is full of details for historic interiors, suppliers to help you find the resources you need, restoration advice and techniques, and standard preservation guidelines.

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Walls & Moldings: How to Care for Old and Historic Wood and Plaster
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Learn to expertly care for, repair and revive wood and plaster walls and moldings. You'll find hundreds of answers to rehabilitation problems, 300 photographs and drawings, a glossary of terms, and standard preservation guidelines. Publisher’s Price: $16.95

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for The Radford Ideal Homes. Published in Chicago, Illinois, it cost 5 cents per copy or 50 cents per year. A clever journalist, Mr. Radford devoted an entire page to a section called “The Woman’s Corner,” which was next to an ongoing romance story.

Fortunately, the newsletter is in very good condition, and remains about the oldest item left in our c. 1805 three-storey log home. Keep up the good articles. I’ve found many to be useful in our log home restoration.

—Sam Lyon
Brandywine, Maryland

Pre-Chaos Plans
The “creative chaos” remuddling in your September/October 1993 issue is one of the houses built from plans and materials from the Chicago House Wrecking Company (later Harris Brothers). It appears the 1908 design was immediately copied by Sears, Roebuck and Co. in 1909 and offered as their Design No. 167.

Chicago House Wrecking claimed it was “the most popular design ever placed on the market,” and that it was “purchased by customers from all sections of the U.S.” — reminding us how very popular catalog houses were, even from companies less well-known than Sears.

—Daniel D. Reiff
Architectural Historian
S.U.N.Y. College at Fredonia
Fredonia, New York

U.S. Castle Search
I am the owner of a small castle and am researching and locating other castles throughout the United States. Large or small, new or old, I am interested in them all. Any OHJ reader who has a castle in their area, please send information to: Box 1000, Oxford, WI 53952.

—Paul F. Born

Correction: The address for Rejuvenation Lamp & Fixture Company, listed as a supplier in “Lights For A New Century” on page 31 of the November/December 1993 issue of Old-House Journal, was published incorrectly. The correct address and phone number is Rejuvenation Lamp and Fixture Company, 1100 SE Grand Avenue, Portland, OR 97214; (503) 231-1900. We regret the error.

—The Editors
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Kerosene Clarified

A friend of mine has an old Vermont hunting cabin and two kerosene lamps, which she calls "Rochester Lamps." They have mantles like a Coleman camp lantern and very good light. I've often thought they would be excellent emergency lighting, and I'd like to know more about them. (After the Loma Prieta earthquake I found that candles are very difficult to read by — whatever my forebears in New England may have done!)

The Rochester style kerosene lamp.

— Herbert H. Beckwith
San Francisco, Calif.

Soon after the first oil well in 1859, kerosene became the standard fuel of the home lighting industry. It burned brighter than lard oil, cheaper than whale oil, and safer than explosion-prone camphene. Over the next three decades, kerosene's advantages and availability generated more than 1600 patents for lamps and burners, including one granted in 1888 for the Royal Rochester Burner.

Henry E. Schaffer, of the Rochester (New York) Burner Co., improved on the traditional flat wick with his successful central draught burner, using a circular wick and a round diffuser for better kerosene and air flow. The Rochester Burner became part of a distinctive new lamp style that was safe, portable, and affordable — fueling the burning American desire to have a lamp in every room.

The Mantle Lamp Co. took the design a step further in 1909 by adding incandescent mantles. Their Aladdin lamps, which are still in production, were an instant success in rural areas and remained a primary light source through World War II. Even after the introduction of gas and electric lighting, reliable kerosene lamps were kept handy for power outages. One lamp source is the Van Dyke Supply Co., P.O. Box 278, Dept. OHJ, Woonsocket, SD, 57385, (605) 796-4425.

A Match Made in Metal

The prior owners of our house removed the galvanized steel roof and replaced it with an asphalt roof. My wife and I would like to put the metal roof back on, but have not been able to locate a company that sells the kind our house used to have.

— James K. Boudreau
Marietta, Georgia

AT THE TURN OF THE CENTURY YOU could have shopped for your metal Spanish roof tiles among a dozen or more manufacturers. The tiles were lightweight, easy-to-install, copper or galvanized steel imitations of the Mediterranean-style clay tiles that were quite in vogue during the 'teens and '20s. It's possible that your tiles were made by the Edwards Manufacturing Co., of Cincinnati, Ohio. Metal tile production nearly disappeared during

Stamping-metal Spanish roof tiles were an affordable alternative to true clay tile. Both types added a solid Latin touch to otherwise modest stucco houses of the pre-Depression years.
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World War II, but many roofs have survived. One manufacturer still making metal tiles is the W.F. Norman Co. (P.O. Box 323 Dept. ohj, Nevada, MO 64772; 800-641-4038). In addition to their original roofing designs, they have also custom duplicated many other styles.

Railing About Railings
- Please tell me the average height of 1920s porch railings! I have noticed so many homes with railings that were obviously not proportioned with the porch. Perhaps my eyes deceive me, but I do believe the railings are wrong for many of the beautiful new homes being built today.

— Marilyn S. Daniels
Mentor, Ohio

Due to safety regulations, new porch handrails may be as much as 12" higher than the 24" to 30" heights common in the 1920s. According to BOCA (Building Officials and Code Administrators International, Inc.), an association that develops model construction codes, 1920s porch railings were only regulated through broad guidelines regarding unsafe conditions. In the late 1970s, BOCA wrote specific provisions for open-sided floor areas at raised levels (indoor and outdoor balconies, landings, and the like) to ensure adequate protection from falls.

Although not targeted specifically, porches are affected by these codes. BOCA recommends a minimum guard height of 36" for most floor surfaces 30" or more above ground level. These higher railings may look wrong on a porch, but not when seen through the eyes of a safety inspector.

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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Who They Were

ANDREA PALLADIO

by Gordon Bock

Who was the Palladio behind all things palladian? The facts that have come our way sketch a man who might fit a 19th century novel as neatly as the 16th century Renaissance.

The Italy of 1508 was home to an unmatched growth in the arts and interest in the antique when Andrea di Pietro della Gondola was born in Padua, Republic of Venice. At the age of thirteen he was apprenticed to a stone carver, and he continued to move up and around in the trade until he was working for some of the top carvers in Verona by thirty. He might have remained a stone carver if there hadn’t been a job on the additions to the villa of Count Giangorgio Trissino in Vicenza, outside of town.

Trissino was a real Renaissance man — noted writer, poet, dramatist, scholar, mathematician, and amateur architect — and generous with this wealth of knowledge. He took into his household several young nobles as students, and to this elite group he decided to add the older and far less educated mason. The name Palladio had been adapted by Trissino from Pallas Athene, the goddess of wisdom, while he was writing an epic poem, and it soon stuck to his new protege. Trissino also gave him a background in engineering, music, mathematics, and architecture — notably Vitruvius, the architect under Caesar whose treatise (then newly published) was a breakthrough window on the past for Renaissance minds.

In 1538, Trissino moved to Padua for three years, and it was here Palladio may have encountered more of the region’s most stimulating thinkers. Alvise Comaro was a noble-cum-architect like Trissino, but a vigorous originator interested in fresh ideas and the practical needs of a building (how best to center a door, for instance) rather than reproducing details from antiquity. His common sense theories undoubtedly agreed with the down-to-earth Palladio. Sebastiano Serlio was an architect producing a series of books on ancient and modern Roman buildings. While it is unclear if Palladio actually met the author, his books — the first kind emphasizing illustrations — made a lasting impression.

Book learning and gentle talk was fine, but to become an expert in ancient architecture, Palladio had to see Rome. He made the trip with Trissino in 1541 and spent two years sketching and measuring any building not buried by the centuries. Though he had been designing all along, up to this point his work had been uneven and somewhat styleless. Once back in Vincenza, however, he won a competition to redesign the Palazzo della Ragione around 1549, and in a stroke his career was made. From then till his death in 1580, Palladio was busy with a succession of over 40 villas, palaces, and churches, as well as his own book, Quattro libri dell’architettura.

A charming tale, but what’s the tie to old houses in North America? In the early 1600s, Inigo Jones absorbed Palladio’s writings and his serene, individual command of the classical architectural vocabulary and brought them to England where they lent many concepts to the Georgian style. Thomas Jefferson is said to be the first American to own Four Books of Architecture (reprinted by Dover Publications, New York), and the Venetian’s rational, effortless use of symmetry shows in Monticello and any Classical Revival building. Ideas such as temple-fronts, three-part windows, and columned porches, as well as a treatise on how to build with them, we inherit from the most influential architect in history.
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OUR LITTLE HOUSE WAS BUILT in 1910 and appears to have late Victorian features. The front porch has lost the original (classical?) columns, and we wonder if the flat-top roof is original. Is our house a Sears Catalog model? Is the style Colonial Revival? Or is it something else?

— KATHY NIXON
Walla Walla, Washington

THIS HOUSE DEMONSTRATES THE survival of a particularly persistent type of one-storey, pyramidal (or hipped-roof) cottage with a projecting, pedimented front bay. Built in towns and villages across the continent at the end of the 19th century and the beginning of the 20th century, houses of similar design often appear in architectural pattern books and ready-cut house catalogs of the time. This one certainly has the look of a ready-cut or pattern-book house, and we'd guess it is more likely from a pattern book. For instance, there are several similar designs in Hodgson's Low Cost American Houses (1904). Plans such as these sold for as little as $5, and served a market for houses that could be built for under $1,000 by "the carpenter remote from the city." However, it is not among the Sears designs listed in Houses by Mail: A Guide to Houses from Sears, Roebuck & Company (by Katherine Cole Stevenson and H. Ward Jandl, The Preservation Press, 1986). Even if a nearly-identical design did turn up in one of the period's many catalogs or pattern books, it would be hard to establish the house's provenance without other supporting documentation. (Sears houses left especially clear paper trails, since the company financed many of their buyers after 1911.)

By the time this house was built, Craftsman bungalows and colonial-inspired homes had already edged out such "old-fashioned" designs among the more style-conscious buyers and builders. Specific features that mark this house as more Victorian than Colonial Revival or Craftsman are the use of contrasting building materials, the large-paned windows, and the projecting bay.

The owner notes that the existing, rather-too-skimpy wooden porch columns replaced modern wrought-
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JANUARY • FEBRUARY 1994
iron supports. Sturdier square posts would have been closer to the original. Round columns would also have been appropriate and would have increased the Colonial Revival feeling of the house.

Indoors, columned screens, such as the one between the front rooms of this house, are more common in the 20th century. They are frequently featured not only in pattern books and ready-cut catalogs, but also in the many millwork catalogs of the period, including Sears.

The 5' x 10' flat-top roof is almost certainly original. Houses of this type had either pyramidal roofs ending in a single point or hipped roofs that terminated in ridges or tiny decks, like this one. The narrow board siding, simple window trim, and one-over-one-light sash are all typical of the construction period. So too is the pedimented front gable with fishscale shingles, although the use of contrasting materials (wood siding and shingles) fell from favor in the Colonial Revival period.

**Pediment:** In classical architecture a feature formed over a cornice by continuing all or part of the moulding up the gable ends of a roof to form a triangle. Other forms have been widely used in later centuries above windows and doors, and might be straight-sided or curved. In broken-apex pediments the sloping sides do not meet; in broken-bed pediments the horizontal base is not continuous.
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Bracing for Floor Repairs

Repairs to squeaky or loose floors turn out better if the boards are pressed firmly to the subfloor or joist before fastening. I use a T-brace made with a broad top board, a small floor wedge, and a vertical member cut so the brace is slightly longer than the ceiling height. I jam the brace in place over the area of repair, being careful not to exert too much pressure on the ceiling. With the floorboards pushed down, each nail or screw will hold the floor down tight. For severely warped boards, I squirt construction adhesive underneath before fastening and leave the T-brace in place until the adhesive sets. Where it is not practical to take boards up, a large hypodermic syringe can apply wood glue through needle-sized holes.

— Anthony Novshek
Eitzen, Minn.

More Pipe Repair Tips

Your article on copper pipe repair [July/August 1993] was fine, but an old plumber taught me another tip. No matter how hard you try to clear the line for a repair, sometimes water remains in the pipe. To keep it from running, poke some bread into the pipe with a pencil. That will stop the flow long enough to solder the copper. When the water is turned on, the bread will turn to mush and run out.

— W.S. McClelland
Altoona, Florida

A padded T-brace holds loose or warped floorboards in place for strong repairs.

Not only can a stop-and-waste valve replace split pipe, it can also prevent another leak.

When a pipe splits from freezing, instead of using a coupling for a repair, consider using a stop-and-waste valve. Since the split is most likely at a low point in the system, the bleeder in this valve can be used as a drain and left open. In addition, the valve usually spans the gap created by removing the section of split pipe, eliminating the need for another joint. When soldering, remember to remove the knurled cap and the valve stem before heating, or the gaskets will need to be replaced.

— Richard Pipp
Columbus, Ohio

Carpet Odor Eater

In our old house, disgruntled former tenants had locked their cats indoors without a litter box, leaving the worst odor in a carpeted bedroom. My solution was activated charcoal, an odor-absorber available at pet and department stores. I sprinkled about a pound of it all over the carpet, closed the door, and waited. After a month I noticed a definite improvement, and eventually the odor vanished completely. I have since used loose charcoal in shallow pans for the other persistent odors that come with kids and pets.

— Julia Cass-Liepmann
Highland, New York

Wallpaper Strip Tip

Rather than use a steamer or sprayer for wallpaper removal, I've found a regular paint roller works great to wet the walls. Mix one quart of hot tap water with your favorite chemical wallpaper stripper. Pour half into a paint tray and soak a clean or V/4" rollernap with as much solution as it will hold. If you start at the top of the wall, most of the liquid will end up on the floor. Instead, start your roller at the bottom of the wall and roll upwards. This pushes a bead of water in front of the roller, ensuring even coverage. Let it soak in and repeat as needed until the paper scrapes off easily.

— Diane Crudden
Providence, Rhode Island

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~ CHRISTOPHER DRESSER, 19th-century English designer

ENJOYING THE MAGICAL QUALITIES OF COLOR and light that beam from stained glass windows is one of the special pleasures of being an old-house owner. Stained glass is an architectural element—artwork to many—that reached a zenith in popularity in the decades around 1900, and many restorers have small or large amounts of stained glass in their homes. A century ago, new forms in architecture and a boom in homebuilding created a vast market for these windows, hitherto primarily associated with religious structures. Though it’s easy to appreciate the decoration and mellow light this stained glass still provides, it’s harder to know what to do when it shows signs of age or wear, or how to protect it from future harm.

One serious threat to stained glass may come as a surprise. Inappropriate or shoddy repair work by well-meaning, but inexperienced, craftspeople—or worse, insensitive “restorers”—can do more harm than good to historic stained glass. Perhaps the best advice for owners of stained glass windows in need of restoration is four-fold: 1) understand what you have; 2) get the right people to do repairs; 3) know what questions to ask of them; 4) demand appropriate and professional results. Here, we’ll explain why these questions are so important, and offer some help in finding the answers.

Decorative Leaded Glass in Houses

LEADED GLASS WINDOWS WERE USED IN NORTH America as early as the colonial era. Glass was a luxury material so casement windows were glazed with small square or diamond-shaped panes called quarrels (or quarries) held in a wood frame with strips of lead. Inserting pictorial stained glass medallions in a field of clear quarrel panes made these windows decorative.

Leaded glass use in windows decreased sharply in the 18th century, partly due to changing architectural tastes. The Georgian and Adamesque styles favored ornamentation at window and door frames, and leaded glass was limited to sidelights and transom windows, with glass that was generally clear. Another factor was the preference for sash windows.

In the early 19th century, however, serious archaeological interest in English medieval churches led to the rediscovery of stained glass. At the same time, proponents of the Gothic style of architecture advocated a return to medieval building craft traditions and techniques, including stained glass.

When the Gothic Revival style came to America in the 1830s, it started a decorative leaded glass revival. An early example was the English stained glass incorporated in the 1823 Saint Stephen’s Episcopal Church, Philadelphia, a few years later. Stained glass continued to be imported from Europe throughout the century, but beginning in the 1830s it was also manufactured here. In 1850 the U.S. census recorded 28 “glass Stainers” in New York State; by 1900, 108 “glass, cutting, staining and ornamenting” establishments were counted.

This allegorical La Farge window from the Vanderbilt house (1881) is a feast of late-19th-century glass types and techniques, including chunk glass, confetti glass, opalescent glass, and surface painting.
Adapted, at first, to religious structures, the Gothic Revival style was soon promoted for houses. For instance, A. J. Downing commented that the bay window in the library of one house “should be filled with rich stained glass, which would produce a mellow tone of light in this apartment, in admirable keeping with its character.” Glass in the medieval style was adopted for residences, but overt religious symbolism was often toned down to prevent it from being too “churchy”. Heraldic motifs, floral designs, fleur-de-lis and the like replaced religious emblems, and lighter colors made the windows more translucent.

Stained glass remained popular for the eclectic revival styles of the second half of the 19th century. Queen Anne residences featured top sashes that could be either fully glazed with leaded glass, or divided with small panes of colored glass forming a frame around a central clear glass pane — the Queen Anne window. Leaded casement sash with quarrel glazing lent a medieval air to Tudor Revival homes; geometric and organic designs complemented the earthy simplicity of the Bungalow and Craftsman styles. Art Nouveau windows used exaggerated patterns to express the forces of nature.

Residential stained glass windows contributed a pattern of colored decoration in the manner of wallpaper or mural paintings, and certain subjects went with specific areas of the house. For example, heraldic shields or literary motifs were usually reserved for the study or library. In the dining room, fruits and vegetables were popular subjects. A famous example is the “Eggplants” window designed by Louis Comfort Tiffany in 1897 for his own apartment in New York City. Floral motifs and geometric patterns were suitable for hallways, stairways, and bathrooms where decorative leaded glass windows were frequently found.

Stained glass use in houses dropped off in the 20th century. Home design stressed simplicity, reserving art glass for a decorative accent, along a stairway, in the dining room, or near the main entrance.

Maintaining Stained Glass Windows

AN IMPORTANT FIRST TASK AS STEWARD OF YOUR OLD-HOUSE stained glass is to document it. Take color photographs of the windows, both for insurance purposes and to record their “before” condition in the event they are sent out for restoration. Supplement photos with the name of the maker or

Floral panels such as this one (attributed to John La Farge, c. 1900) might appear in dining rooms.

The Stained Glass Industry

DECORATIVE LEADED AND STAINED GLASS WINDOWS CAME from two principal sources: studios and catalogues. Studios, the traditional source, produced custom windows to each client’s specifications. There were hundreds of studios by the late 19th century, among them the familiar names of Tiffany Studios and John La Farge (New York), and the Charles Con­nick Studio (Boston). A few architects — notably Frank Lloyd Wright — designed leaded glass windows for their buildings. Windows could also be ordered by the square foot through mail-order catalogues distributed by studios and building materials supply companies.

Stained glass window manufacture in the 19th century was much the same process as in the 12th century, employing techniques still used today. First, a small sketch by an artist establishes the design. Then this design is transferred to a full-sized drawing called a cartoon. Using the cartoon as a guide, glass is chosen, cut, then joined in a panel with metal cames (usually lead but sometimes zinc or bronze). The process relies completely on skilled hand craftsmanship. To keep up with the demand at the turn of the century, windows were mass-produced by reusing designs, leading to the typical art glass catalogues with a limited range of patterns.

In addition to designing for individual clients, studios made residential windows for sale to local lumber companies. The Henry Keck Stained Glass Studio of Syracuse was typical, producing as many as 100 windows per week for the Chapman Lumber Company and Wilson and Green Lumber companies in the same city. This bread-and-butter work kept the studio busy between less steady, but more specialized, jobs like fabricating church windows.

A stained glass skylight from Frank Lloyd Wright's home and studio in Oak Park, Illinois. Designed by the architect, it clearly shows his trademark use of thick and thin cames.

Floral panels such as this one (attributed to John La Farge, c. 1900) might appear in dining rooms.
studio, if known, and a general description of the design of the window. (For more on documenting, see The Census of Stained Glass in America, page 31.) Clean stained glass with a soft cloth or feather duster. Stubborn dirt can usually be removed by gentle washing with distilled or soft water and a soft cloth. Do not use cleansing powder, steel wool, or chemical cleaners containing ammonia or lye. Most important, do not clean stained glass if painted surfaces are flaking, or the panes are in serious disrepair. Test all methods in a hidden spot first in case the surface is painted or easily harmed by cleaning.

How can you locate good stained glass restorers? Ask for referrals from local art museums, historic preservation organizations, or restoration architects. Follow these guidelines when making a choice:

♦ Get references for three or more recent projects that are similar to your type of work. Check these references.
♦ Visit the studios you are considering, if possible, to see firsthand their day-to-day operations.
♦ Ask for the name of the individual assigned to work on your stained glass, and inquire about their qualifications. Remember that experience in making new stained glass is not the same as restoration experience.
♦ Get competitive bids that include a written description of the extent and nature of the work to be done. The least expensive bid is not always the best; if a bid is drastically lower or higher than others, there's probably something amiss.

Small sections of missing or broken glass can be replaced without removing the stained glass from its frame or sash, but for most repairs the stained glass will need to go to the shop. Homeowners can save some expenses by removing and transporting the windows themselves. Stained glass should be moved and stored in a vertical position. Protect the panels during transport by cushioning them with foam or batt insulation between a plywood sandwich. If tape is used, be sure it does not touch the glass.

Some of the common and appropriate restoration procedures that qualified craftsmen perform are:

Flattening bulges — Not as easy as it sounds. The window is laid on a flat surface, the putty is carefully picked out of the lead, and the panel is very slowly flattened using a combination of weights, hand pressure, dry heat, or warm water.

Repairing cracked glass — Preferable to replacing it. Pieces can be reassembled by edge-gluing with two-part, conservation-grade epoxy, or by the copper-foil method where the edges are wrapped in foil and soldered together. Although copper-foil repairs are more traditional, edge-gluing, if done competently, is almost invisible.

Replacing missing glass — Replacement glass should match the color, texture, thickness, and transparency of the original to the extent possible. Many types of glass used historically for commercially produced stained glass are still available today. A restoration studio that says your kind of glass isn’t being made anymore may not be looking hard enough.

Reputting lead came — Ask the restoration studio what kind of putty they will use. The composition should be primarily boiled linseed oil, whiting, and coloring agent, all thinned with turpentine. Putties containing silicon, Portland cement, excessive amounts of driers, or more than 10% plaster of Paris are not appropriate.

Releading — Overall relading — that is, systematic replacement of all the lead cames — is usually not necessary unless the cames have become brittle or cracked. Old lead still has vitality if the flanges can be lifted and flattened without cracking or powdering. If panels are reladed, new leads should match the size and profile of the originals, and resoldered joints should be neatly finished. Some restorers artificially "age" new cames or solder joints with chemical patinas, but this is not necessary; chemical patinas may damage the glass.

Paint restoration — Definitely a job for a professional. Historically, vitreous paints were used to add details in a stained-glass design — faces, hands, shadows, clothing nuances, flowers, trees — that could not be achieved with stained glass alone. Unfortunately, over time these finishes, which were usually fired on, may begin to deteriorate or flake off. Experienced restorers can consolidate (reattach) flaking paint, or recapture the combination of weights, hand pressure, dry heat, or warm water.

This art-glass window in upstate New York might well be design # 1293 from Thomas C. Edmonds and Co., one of the many catalog suppliers of garden-variety panels.

The weight of this window has defied the vertical reinforcing bars and caused a serious buckle.
lost details by painting them on a plate of glass that is mechanically attached to the back of the original. Repainted glass should not be refired, a practice some “restorers” advocate.

**Repairing reinforcing bars** — Sometimes the connections between the reinforcing bars (also known as saddle bars) and the stained-glass came are broken. These should be reattached with the original method — either by soldering or, more commonly, with copper wire ties.

These reinforcing bars were added to a buckled panel as part of its restoration, following the original lead lines so as to be invisible from indoors.

**Reinstalling Stained Glass**

STAINED GLASS PANELS should be reinstalled using the same methods as before, and this is a job within the skills of adept old-house restorers. There are two methods:

1) **Set into a recessed rabbet.** Like window glass, the panel is held in place with small nails or tacks, and covered with either glazing putty or thin retaining moldings. Before setting the stained glass panel in the sash, remember to prime the surfaces of the rabbet with linseed oil and lay down a backbead of putty. If your window frames are masonry, give the surfaces of the rabbet a coat of shellac first. This will help the backbead putty adhere to the frame. Next, secure the glass with small, non-ferrous nails pushed into the rabbet. Place these nails only where an internal lead line meets the perimeter lead of the panel. Nails at the middle of border glass can cause it to break. Finally, apply a top bead of putty (a modern flexible caulk is also acceptable) or reinstall the original retaining moldings.

2) **Set into a plough.** If the stained glass was set with this method, you will note that the groove is deeper on one side of the frame than the other. Carefully slide the stained-glass panel all the way into this deeper channel, then slide it back into the rebate on the opposite side — similar to replacing sliding cabinet doors. In both cases there should be a minimum ⅛" gap between the stained glass panel and all inside edges of the frame or sash to allow for expansion and contraction of the panel.

**Angled weep holes in protective glazing keep out rain.**

* These reinforcing bars were added to a buckled panel as part of its restoration, following the original lead lines so as to be invisible from indoors.

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**Protecting Stained Glass**

LARGE STAINED-Glass WINDOWS IN CHURCHES OR PUBLIC BUILDINGS are often shielded outside with large sheets of clear plastic or glass, primarily to protect them from vandalism. Unless there is a similar threat to old-house stained glass, there may not be a compelling reason to install protective glazing.

A disadvantage is that moisture and heat can be trapped in the dead-air space. This can contribute to accelerated deterioration of lead came, wooden sash, or painted features of the stained glass itself. An average-sized residential stained glass window will need two or three ¾" holes (drilled at a slightly upward angle to prevent rain entry) at both the top and bottom of the plastic panel. If your stained glass requires protective glazing consider these options:

- **Traditional wood-sash storm windows** — These will look the best, and be most historically accurate on an old house.
- **Standard aluminum or vinyl storm windows** — Order a baked enamel finish in a color appropriate for your old house.
- **Custom-made acrylic or polycarbonate panels** — Very strong, but can discolor, cloud, or become scratched over time. Acrylics can suffer from ultraviolet ray deterioration; polycarbonates (Lexan is one brand) resist this part of sunlight. If the sheets are screwed directly to window frames or sash, the screw holes in the plastic should be large enough to allow for movement.

Where vandalism is not a concern, don’t overlook tempered or laminated glass, which does not cloud, scratch or buckle, but is stronger than ordinary glass. For all types of protective glazing, take pains to design the divisions between the protective panels. This way they will align with the divisions of the stained glass window and be a nearly invisible addition to the source of magical light.

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**Stained Glass Glossary**

- **ARMATURE:** An iron or bronze support framework (uncommon on residential panels).
- **STOP MOULDING:** Alternative to glazing putty for holding panel in frame.
- **IN-PAINTING:** Careful replication of missing sections of painted surfaces directly on the stained glass, using reversible acrylic or oil paints. Sometimes missing painted sections are restored by plating (see below).
- **CAME:** The metal strip that holds the pieces of stained glass to form a panel. Came usually have an H-shaped profile.
- **TIE WIRES:** Copper wires or strips twisted around saddle bars and soldered on to cames to support the panel.
- **REINFORCING BARS (also saddle bars):** Round or flat iron bars that add support to panels of stained glass. The bars are set into the sides of the window frames, then soldered and tied to the stained glass window using copper wires.
- **PLATING:** Layering two or more pieces of glass to achieve a desired artistic effect. Plates are attached mechanically with lead came or copper foil. The technique is prevalent in Tiffany-style windows, but can also be used to restore broken glass or missing painted effects.
- **PUTTY:** Paste forced under the flanges of lead came to make the stained glass waterproof and to stiffen the panel.
- **VITREOUS PAINT:** Paint composed of finely ground glass, metallic oxides, and liquid mixing agents used for painting on glass. Vitreous paints are usually fired on for permanency.
- **ANTIQUE GLASS:** Mouth-blown glass produced by traditional methods. The term is also loosely applied to glass that resembles medieval-style stained glass.
- **ART GLASS:** Mass-produced, commercially designed stained glass windows, such as those most often found in homes. Also broadly, the ornamental glass used to make them.
- **CATHEDRAL GLASS:** Though uniform in thickness and color, this material is often given a surface texture by imprinting with patterned metal rollers while the glass is soft. Many textures were produced by this method, ranging from subtle ripples to bold, raised, cross-hatching.
- **DRAPE GLASS:** Textured glass that is formed into fold-like ridges while the material is still malleable. Drapery glass was used to realistically depict folds in the drapery of robed figures or suggest surfaces such as bird's wings and flower petals.
- **OPALESCENT GLASS:** An American invention of the late 19th century, this glass is characterized by streaks of color in a milky white base with an overall iridescent appearance.

**RESOURCES**

**CONSERVATION AND RESTORATION OF STAINED GLASS: A NATION'S GUIDE**
The Census of Stained Glass Windows in America
Box 1531
Raleigh, NC 27602
(919) 266-2493
This is an excellent 40-page booklet on maintenance and repair available for $3.75 postpaid. CSGA also organizes systematic surveys of stained glass in cities across the country.

**STAINED GLASS**
4050 Broadway, Suite 219
Kansas City, MO 64111
(800) 888-SGAA

**PROFESSIONAL STAINED GLASS**
PO Box 69
Brewster, NY 10509
(914) 279-7399
These two periodicals are primarily for the trade, but owners of old stained glass will find many useful articles and resources.

**THE PRESERVATION AND REPAIR OF STAINED AND LEADED GLASS**
by Rolf Achilles & Neal A. Vogel
Preservation Brief 33
(Stock # 024-0051122-6)
Super. of Documents,
Government Printing Office
Washington, D.C. 20402-9325
This latest brief from the National Park Service, covers the history, preservation, and repair of stained glass in all types of buildings ($1.95).

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by Rolf Achilles & Neal A. Vogel
Inspired Partnerships
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Fifth in a series of technical guides for religious properties, this thorough booklet contains information also useful for homeowners.
Patterned floors seem to be a regular part of the interior architectural work that makes up our restoration business. Over the years we have worked on many different floors in the New York City area dating from the 1830s on, and we have learned many things that you won't find in the standard literature on new floors. I'd like to go over some of the problems that patterned floors suffer — squeaks, loose boards, missing boards, broken shoulders, faulty subfloors — and then, without getting too technical, share some of our methods and ideas for dealing with them. If you know what to expect, and what is possible when faced with restoring a complicated floor, you — or whoever is doing the work — will have better luck with results.

Matching Materials

An important point to bear in mind — one we often forget — is that wood floors are made from a natural material. Oak, in particular, was very popular for flooring during the late-19th century, and was often sold in a grade called rift-and-quartered that essentially does not exist today. Most modern flooring is flat-sawn, a cut where the lumber is sawed roughly tangent to the growth rings. This produces the familiar flame-like pattern on the top surface — beautiful in individual pieces but less common in turn-of-the-century flooring.

In contrast, quartersawn flooring is sawed so that the width of the lumber is roughly perpendicular to the growth rings. (See above.) This method is time-consuming, wasteful, and expensive. However, quarter-sawn flooring is coveted because it is 30% to 50% more stable than flat-sawn wood in terms of warp.

Left: This very common, mid-1880s "log cabin" pattern uses oak and cherry around the field. A poor match in repair woods would be obvious and destroy the effect. Above: Quartersawing methods c. 1922; riftsawing is a toe.
ing, contracting, and expanding. It also has a very uniform surface density that wears well, making for a very tough floor. The cut is also desirable because it produces a visual effect called "fleck," which is the ray cells viewed in cross-section.

Rift-sawn flooring is defined a variety of ways, but it's generally considered to be lumber sawed so its width is almost perfectly perpendicular to the growth rings. It, too, has a very distinct appearance. Rift-sawn flooring doesn't show the fleck, but it does have an even grain pattern that makes a very elegant floor. Rift-and-quartered flooring is graded to have a mix of these two cuts.

We have had difficulty finding rift-and-quartered grade material that is similar to the flooring used at the turn of the century. Recycled boards are increasingly available (especially in softwoods), but the remilling usually leaves them thinner than normal and often difficult to incorporate into repairs. Otherwise, machine-made tongue-and-groove flooring hasn't changed much in over a century. Today, many boards are relieved with a hollow or scratch back (see drawing, below). Microbevels are sometimes used to eliminate the need for sanding the slight irregularities of a newly laid floor.

Some boards have no tongues, only grooves, and fit together with loose splines. In floors with short boards or complicated parquetry patterns, grooves on the board end help in laying a floor and keeping it flat. Bundles of splines can be purchased from flooring suppliers.

Custom sawing is an option. In one case we were unable to find a supplier of rift-and-quartered material. Since picking through a load of random-cut material for what we needed would have required a large over-order, we realized it would be less expensive to find a mill in Pennsylvania, select the logs, and have the flooring sawed and kiln-dried to our specifications. Newly milled wood needs to be completely seasoned. Air drying floors of less than 1" in thickness takes about a year — certainly never less than six or eight months.

**Moisture and Protection**

NEW OR OLD, ANY FLOORING MATERIAL THAT COMES TO YOUR site has to acclimate to its environment. It should be be stacked

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Photographs as well as drawings are essential for documenting this complex pattern (possibly a catalog design) before any restoration work.

Above: Good stickering gives new flooring plenty of support and air circulation for acclimating. At left: Typical tongue-and-groove flooring features.
in the same room, or in an adjacent room, with the same climatic conditions. This does not mean storing the flooring in an outbuilding or basement, then moving it in when you’re ready to lay the floor.

If time is an issue, it pays to sticker the boards. Sticking is time-consuming. We try to get the wood as early as possible and stack it with spacer sticks every five or six boards. These spacers should be placed close to each other to support the flooring and prevent sags. We allow vertical space between the boards so air can circulate, and space between the pile and any walls. Depending upon conditions in the room, four to six weeks time will allow the boards to fully acclimate to the environment where they may spend the next 100 years or more. A fan — not an open window — will speed up the process.

The moist months of the year are the worst for laying floors, especially mid-summer. First, the boards expand as they acclimate to the high humidity level; later in the heating season, the boards dry out and shrink, leaving gaps. The ideal times for laying new floors are the moderate seasons of spring and fall. The tightest year-round floors are laid in winter, but allowances must be made for some expansion or you may subsequently find the boards buckling or suffering compression set.

There seems to be two schools of thought regarding when floor work should be scheduled in a project: first and last. Certainly the building must be fully weather-tight with no water entering. In addition, floor work should not coincide with wall plastering or concrete pouring as they both introduce a lot of moisture into the air.

There’s a lot to be said for doing floor work early on, perhaps taking it through the sanding stage, and then doing the final finishing after the bulk of the work is complete. This way cabinets can be set and baseboards scribed to the floor (though sometimes the floorboards are scribed to the baseboard). Doing the floor restoration in the beginning often yields better results because there tends to be more time, patience, and money to do a careful job.

Whatever type of floor you have, protect it while other work is going on. The most basic insurance is a carefully laid layer of building paper. We generally put down a layer of Upsom board (available at most lumber yards as E-Z Curve) and tape all the joints with duct tape. Upsom board is approximately the thickness of three pieces of shirt cardboard, and is lighter and easier to cut than Masonite. It offers very good protection. If demolition, scaffolding, and other major work is planned, the floor should be covered with plywood. Always be sure to sweep the floor clean first. Generally, it is a good idea to use paper as the first layer, no matter what goes on top.

**Picking Up a Floor**

Sometimes, sadly, there are situations where the floor is fine, it’s what’s underneath that’s the problem. With patterned floors, planning and a lot of careful work is required to take up the floor and lay it back down properly before you begin work.

Good photographs may suffice for simple jobs and will be valuable in any case. In the event that a whole floor needs to be replaced, it must be accurately drawn so the patterns can fit precisely within the walls. We use a photocopy of a photo or drawing as a map to label the boards. It’s important to devise a labeling system, then mark the drawing and each floorboard. If the floor is not tongue-and-groove, both

*Under this apartment floor were sleepers (timbers on concrete) so badly notched they had to be sistered with new lumber.*
the location and alignment of each board must be recorded. Chalk is a quick and easy method.

Once the boards are up, the chalk numbering is not good enough. The boards always end up getting moved a few times. We have often opened floors for work by other trades with the plan to close it back up the next day, yet this rarely happens, and days turn to weeks. You should either engrave the number on the back or use an oil marker. Masking tape and a little pencil mark just doesn’t work. Keep the boards stacked and bundled neatly.

It is also critical to determine and record the exact space between each board. One good method is with shims. Before the boards are lifted, slip a piece of copper sheet, metal shim stock, or whatever you have between them (popsicle sticks could work for big gaps). The goal is to find a material which is not compressible and slips snugly between each board. Select one thickness by testing several areas or, if there is great variation, use two different thicknesses. When you relay the boards place the shim between the shoulders of the boards, pry the boards tight, nail them home, and slip the shim out. It can seem contrary to carefully relay a floor with gaps between the boards, but the result is often an invisible repair.

Frequently, in order to lift a section of flooring you have to destroy a board or two. If you’re starting against a wall and are lucky, you may be able to pry the first board out with patience and no damage. After the first board is up it is basically a matter of prying one board out after another — it’s not difficult. A hack saw blade is a very helpful tool. You can slip it under a board and saw the nails flush to the floor. Adhesives and floor mastics were virtually never used on full-thickness older floors.

**Background on Subfloors**

When there is a problem above a patterned floor there is frequently a problem below, either with the subfloor or the structure that is supporting the subfloor.

Early plank floors were laid with the planks running perpendicular to the joists. As subfloors came into use they were laid the same way, and the finished floors were laid perpendicular to the subfloor, parallel to the joists. (This knowledge will often allow you to predict the joist locations.) Around 1850 or 1860 someone got the idea of laying the subfloor diagonal to the joists. This created a more stable base, as well as enabling new designs to be executed in almost any direction. By 1900 early plywoods were increasingly used as subfloor material. Today plywood and other manufactured wood sheet stock is used for the vast majority of new and restoration work.

It is very helpful to eliminate squeaks in the subfloor when you have access to it. Some people lay sheet subfloor with a slight gap of 1/16" between each panel. The theory is, inevitably the boards will move, and if they have nothing to rub against they cannot make noise. Others butt-and-glue the edges of the sheets. Some subflooring stock is sold with a tongue-and-groove milled into it (though I find this material awkward to use because of its unusual dimensions). Both methods seem to work with careful installation.

Gaining access to a subfloor requires a bit of luck. If the problem is in the basement you can usually open up the ceiling (a tin ceiling peels back nicely). If ceiling work is needed, it may create a place to get at the subfloor. Barring an easy avenue, one has to choose the least intrusive access for the particular problem. Many decisions in restoration are based on common sense guided by historical sensitivity.

When a floor or ceiling of an old house is opened up for any reason it is a good idea to think about other work that may be planned or necessary. I know of projects where an entire floor was ripped up, the subfloor repaired, and the floor relayed; a year and a half later they were trying to figure out how to run new wiring around the house. If an area is open, consider future needs for wiring, door bells, security systems, plumbing, insulation, and other services.

When utilities are run through a floor system, make sure the structural integrity is not compromised. It is common to find other trades notching joists for their work. The proper way to pass a wire or a pipe through a joist is to drill

*A dutchman repair using a patch of fireproof oak (cut first) to match the floor. Below: Typical broken shoulder damage—the price of oversanding.*
a hole in its center (see drawing previous page). The center of a beam is a point of zero load, which is to say that it is doing very little work. Several small holes are preferable to a larger hole.

**Common Repairs**

As for floor problems, squeaks are probably at the top of the list. Loose boards are often the cause of squeaks, and trim-head drywall screws are very effective for tightening these up. One method is to have a person, the heavier the better, walk randomly around the squeaky area. A second person watches carefully for board movement and marks the spots. Drill a small pilot hole for shank and a second for the head, so it does not damage the surface of the board, then drive in a screw. (Sometimes having the heavy person stand on a loose board is a help.) It is best not to get carried away with screws; however, if the problem is structural you will have to get underneath the floor to quiet the squeaks.

When there is damage that requires replacing one or more boards, it is important to stagger the joints. Floors were never laid with adjacent boards ending in a line (on the same joist). Not only does this stand out visually, it is an invitation to squeaks. At the same time you do want to retain as much historic material as possible. Choose a board length that is appropriate for the pattern of the room. When possible, you want to have both ends of the board end on a joist.

The section of board being removed is usually destroyed in the process. Draw a line at each end, drill three holes to get started, and chisel along the line. Then saw down the middle to split the board and remove the pieces anyway you can. If you only need one piece of floor material to complete the repair, you can sometimes steal it from under a cabinet or the back of a closet.

Old floors with numerous narrow loose or missing pieces along the edge of each board have probably been sanded a few too many times. These gaps (usually 1/8" wide) are broken shoulders. Every time a floor is sanded about 1/32" of wood is removed. As the shoulder gets thinner it starts to break. At that point the structure of the top floor starts to go. The boards begin to move more, nails start coming out, and it's a lot of work to repair. A severely over-sanded floor has to be replaced if it is to be functional. Think twice before you sand your floor.

Broken shoulders can be replaced with long strips or patched with a dutchman, which is a wood patch best made of the same species. Cut out the damaged area and glue the dutchman in place (yellow carpenter’s glue works well). Glue the patch down and to the damaged edge of the board—not to the adjacent board. Clamp the dutchman in place with a shim shingle slid between boards, and a few finish nails in pre-drilled holes. Do not drive the nails home. After the glue dries they can be pulled out, leaving two very small holes to be puttied.

There are no easy solutions to deep scratches and dents, especially those running across several boards. Sometimes they can be drawn out a bit with moist heat, as in lifting a dent on a piece of furniture. Careful work with a cabinet scraper can ease the appearance of a scratch or dent without affecting neighboring areas. It is not a good idea to sand a whole floor to remove a few marks. For the long run, make sure furniture is carried when moved or has castors, and there is protection under desk chairs. High heels are probably the chief troublemaker for floors.

Finishing is a subject unto itself, but suffice it to say that getting a few newly replaced boards to match the rest of the floor and touching up problem areas are critical aspects of wood repair. It is important to consider the whole floor and, say, foolish to match a repair to a dirty area that will be cleaned in a year. Get the old wood in the condition you want, then bring the repaired areas up to match the original beauty. It is an odd notion that some of the best restoration work is practically invisible, but that is what sets it apart from so much new-house work.

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Plumbing leaks and oversanding have left this floor stained and starting to break up.

The same floor put back using material that matches in width, look, and spacing.
WALL LINERS

The Great Cover-Up

What can you do to correct wall problems short of starting over from scratch? One cost-effective — and historically appropriate — answer is to hang wall liner. These materials are heavy-duty fabrics that give your walls a like-new surface for paint or paper. They also cover a multitude of cosmetic sins.

Fabric liners have a long history of providing a smooth surface covering for imperfect walls. The technique dates to the early-18th century, when delicate sheets of imported paper were pasted to sturdy strips of canvas before hanging. Earlier in this century, linings of canvas, burlap, or muslin were recommended as preparation on plaster for expensive decorative treatments.

Like historic liners, today's materials will mask patched plaster, bridge small cracks, cover wood paneling, and hide multiple layers of cracked or flaking paint. Liners can be also be used to encapsulate lead-based paint or bury sand-finish plaster. Because fabric liner has a high tensile strength (it's strong when pulled), it adds years to the life of the wall. Cracks won't reappear, and wall finishes look good longer.

Using a wall liner increases the project cost, but liners are more economical than the per/roll price would lead you to suspect. You don't have to match repeats, making wall liners easier and faster to hang than patterned wallpaper. Scraps can be used above doorways or windows. You use all but the few inches trimmed from the top and bottom of each sheet.

Choose the Right Product

Today, you can choose from three basic types of wall liners: canvas, polyester, or fiber glass. Deciding which fabric liner is best for your project depends on the condition of the walls and whether you intend to paper or paint. All liner materials are similar, but there are subtle distinctions between products.

Canvas — Wall-Tex is the material closest to traditional lining canvas made today. It is a lightweight, primed canvas made of 80% cotton and 20% polyester. Sanitas Lining, another close match, is a fabric-backed vinyl that looks something like primed artists' canvas. One side is smooth, with a barely visible weave; the other side has texture, with a weave that is more pronounced. Both can be painted or papered, and are hung with wallpaper paste.

The wall surface should be fairly smooth for a good canvas job. If you can repair damaged plaster or flaking paint, lining canvas will work well for you. Do not try to use canvas over paneling, masonry block, or a textured finish. Stippled plaster or sand-finish paint will show through.

Wall-Tex Lining Canvas used to come in a 27" width, but is now only available in 54" wide bolts. Sanitas Lining comes in 24" or 48" widths. Wider liners leave fewer seams, which looks better under a painted finish. However, wider liners are more difficult to hang.

Polyester — Polyester liner feels like a textile version of cotton candy. Made of cellulose and polyester, the fibers are randomly oriented and swirled rather than woven. Polyester comes in different thicknesses and is an excellent choice for many projects.
if the walls are uneven. It creates a smooth, paintable surface over sand finishes, cement block, and V-groove paneling. If the walls are really uneven, choose a heavy-duty polyester. You’ll need to knock down high spots, but the material will bridge ¼” cracks and holes.

Polyester seams should be butted factory edge to factory edge. Otherwise, loose fibers will unravel where the two pieces join, leaving a ragged seam. Watch for stray fibers; like fiber glass, these pieces join, leaving a ragged seam. Watch loose fibers will unravel where the two

PREPARE THE WALL

WALL LINERS MUST BE ATTACHED TO plaster or paint that is sound, not crumbling or flaking. Here’s a quick review of wall repair basics.

Remove old wallcoverings — Even if old wallpaper or canvas seems to be stuck tight to the wall, it’s not worth taking a chance. Moisture in the paste used to attach the new liner could loosen old layers underneath. Remove old wallpaper with a steamer or hot water and a large sponge. Score painted wallpaper with a utility knife or an inexpensive tool called a “tiger paw,” so water can get at the old adhesive. Use a wallpaper stripping tool to pry up loose edges. Change the thin blades frequently to keep a razor-sharp edge. As the wallpaper comes off, you may find it pulls layers of paint with it. Remove loose paint with the wallpaper scraper and be sure to work wet. Do not dry-sand old paint; lead-bearing particles may scatter through the air. Wash off all loose adhesive. If water alone does not dissolve it, try a product like DIF Wallpaper Stripper by Zinsser.

Patch and sand — For cracks, apply self-adhesive, fiber glass tape, then coat the tape and fill holes with either a quick-setting compound such as Durabond, or an all-purpose joint compound. Patches may require a light second coat to fill low spots. Quick-setting compounds build up quickly and are difficult to sand, so be careful not to apply them too thickly. While it is still workable, use a fine-
celled, damp sponge to smooth the patching material.

After they dry, lightly wet-sand the areas you have patched with wet/dry sandpaper. If you plan on using a gloss or semi-gloss paint, or wallpaper that has a sheen, check your work for smoothness by skimming a flashlight beam across the wall.

Prime and size — Spot-prime patched areas with a latex primer. (It dries quicker than alkyd primer.) However, do not use this primer over stains. Instead, seal any stains with a pigmented shellac-based sealer. The shellac traps the stain and provides a barrier so the wallpaper paste will not draw it to the surface.

Whether you’ve patched or not, all walls must be sized prior to hanging fabric liner. Sizing is to wall liner what primer is to paint. It provides “tooth” (a good bonding surface), and keeps the adhesive from being absorbed too quickly by the wall. Sizing also allows time to position, smooth, and double-cut the seams.

One kind of sizing is pigmented. Other sizing is clear. Use pigmented sizing if you’re covering purple paint, or something equally hard to hide. A paint pan and roller are the tools you’ll need. Size walls no more than 24 hours in advance. Once the sizing is dry (usually 1 to 2 hours), you’re ready to hang.

HANG THE LINER

INSTALLING CANVAS OR POLYESTER IS practically the easiest part of the job. However, the material is heavier than wallpaper, so you might appreciate having a helper nearby, especially if you’re hanging horizontally. (If you let an end drop on the ground, the liner may pick up bits of grime that keep it from hanging as smooth as it should.) Two people on the job makes it go faster, too. One person pastes, the other hangs, then the first washes. With paste/wash teamwork you get around the room in no time. A wallpaper table is also a big help, especially for pasting polyester.

If you intend to paint the liner, hang it vertically. If you’re going with a
erwise, you'll be balanced on the stepladder wondering if you're shy at the baseboard. Cut two or three pieces the same length as the first.

**Paste and hang** — For hanging canvas or polyester, almost any vinyl premix paste will do. Ready-mix pastes come in 5-gallon tubs. You can work right out of the tub, or scoop the paste into a drywall pan or paint tray. A clean, used paint roller makes a good applicator.

When hanging canvas, apply paste directly to the wall. Roll a section a couple of inches wider than the area you intend to hang. Use a paint brush or paste brush to catch the top and bottom of the wall. If you are hanging polyester, apply paste to the back of the material and "book" it (fold each end into the middle like a book jacket) for five minutes. This gives the wall liner time to absorb the paste. Fiber glass is not pasted or booked. It is hung directly into the vapor retarder paint. Roll a section of wall with the paint and, while the paint is still wet, apply the fiber glass.

**Smooth and trim** — Unfurl the liner starting at the top. It will fall of its own weight. (If you're hanging horizontally, you'll need another stepladder and a helper.) Smooth the canvas with your hands from the center of the panel to the outer edges. Cut around switches and receptacles.

Then work from top to bottom. Use a wallpaper brush, plastic straightedge, or spackle knife to slide air bubbles and wrinkles to the edges. If you can't work out a bubble, slice it with the knife and smooth. Don't apply too much pressure with the straightedge if the wall is uneven. You want the liner to bridge gaps, not fall into them. Use a large putty knife to work the liner tight against the ceiling and baseboards and trim off extra with a wallpaper knife.

**Double cut seams** — Apply paste to the wall next to the liner sheet you've just hung. For canvas, also brush a 2"-wide band of paste along the edge of the second piece. For fiber glass, paint over a 2" to 4" band at the edge of the first piece. Position the second sheet so it overlaps the first by 1" to 1 1/2". Smooth this sheet as before. (Skip this step if you're hanging polyester and instead be sure to butt the factory edges.)

Now you're ready to double cut. Use a long straightedge and knife. Hold the straightedge against the lapped seam and run the knife along it. Press hard enough to cut through both layers at once. Don't be tentative. Any straightedge will do (a 6' level works well), but shorter ones may work better on bumpy walls. An even better tool is the one professionals use — a long, stiff, metal blade with a wooden handle.

**Smooth canvas into place using your hands, then work bubbles out towards the edges.**

Wall covering, it's best to hang the liner horizontally. This way there is less chance wallpaper seams will align with the liner seams. The wider the liner, the less of a problem this becomes.

**Measure and plumb** — To position your first sheet correctly, you must determine the plumb line — the true vertical reference mark. Measure the width of the canvas and subtract 1/2". Start in a corner. Lay out this dimension along one wall (the extra 1/2" will bend around the corner). Make a vertical mark about waist high using a lead pencil; a pen or other marker will bleed through. With a 4' or 6' level, draw the plumb line. If you're hanging the paper horizontally, measure down from the ceiling and draw a level guideline across the wall.

Next, take measurements to determine the paper length. If you're hanging the paper vertically, measure from the top of the baseboard to the ceiling and add 4" to 6". Don't figure too closely. Otherwise, you'll be balanced on the stepladder wondering if you're shy at the baseboard. Cut two or three pieces the same length as the first.

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**Carefully cut around switches. Avoid shocks by shutting off power at the circuit breaker. (Above) Apply pressure at the ceiling perimeter with a putty knife, and trim excess with a sharp knife.**
When you finish running your knife the length of the seam, peel back the edge of the second sheet and remove the cut-off from the first. Both pieces will now lay flat. Smooth with a clean putty knife or wallpaper seam roller. Work gently so you don’t squeeze out the adhesive or wet paint.

**Clean up** — Wash excess paste off each sheet of canvas or polyester as you go. Use a large, damp sponge and clean water. Washing is critical even if you plan to hang paper, because the wallpaper paste might not be compatible with the liner paste. Also make sure you wash excess paste off the ceiling and baseboards, or new paint will flake off. You do not have to wash fiber glass. However, after applying two adjacent fiber glass sheets and double-cutting the seam, you must apply a second coat of paint to seal the mat. Allow wall liners to dry 48 hours before painting or papering.

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<td>Slight linen weave.</td>
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Caution: Some of the information may not be completely accurate or up-to-date.
Unwanted stains, both bad and good, are the bane of interior woodwork restoration. Floors and furniture get marred by spilled water or food; wainscots and trim suffer attacks with pens and markers or are finish-stained the wrong tone. Bleaching — that is, removing the offending color from the wood — is the method most often used to excise these evil stains. There are basically three chemicals that will do the job: chlorine, oxalic acid, and hydrogen peroxide. Knowing how and when to use them is what makes a bleach job a dramatic success or just a waste of time.

Not all wood stains respond to bleaching. Likewise, not all bleaches have the same effect, on the (more-often-than-not unidentified) marks that appear on old-house woodwork. Sometimes bleaches backfire, making the stain more pronounced or stubborn to remove. So, as ever, the first rule of bleaching is to test first in a spot where you can afford to make a mistake. Also, be prepared to sacrifice the mellowness of aging for like-new wood, or settle for lightening the stain instead of complete removal. Some other points to remember:

- Wood must be clean. This means not only free from paints and varnishes or their residue, but sanded or washed to remove dirt and impurities (denatured alcohol works well).
- Oil- and grease-bearing stains should be degreased before trying bleaches. Wash several times with mineral spirits, or move up to a poultice (trichloroethane in fine sawdust or shredded paper towels).
- Bleaches are invariably water-based solutions so they will raise the wood grain, which may mean sanding later.
- Sunlight enhances the effect of most bleaches.
- Metals react with bleaches and contact should be avoided.

Pool chlorine takes the color out of aniline dye finish.

**Chlorine**

The bleaches most familiar to us from home and laundry use are based on chlorine, and these will remove — or at least lighten — the bulk of garden-variety stains. Easiest to find is common laundry bleach sold under brand names such as Clorox and Purex. These liquids are weak (typically 3%) solutions of sodium hypochlorite that often work slowly on stubborn stains. More concentrated chlorine bleach is obtainable by using the swimming-pool chlorine sold at hardware stores (Super Shock It brand is sold in convenient 1-pound packages). The latter is either calcium hypochlorite or sodium hypochlorite in dry form (65% to 85%).

For mild bleaching, common laundry bleach can be used straight from the bottle. Be sure the bleach is fresh, and apply with a rag or old brush. Let sit 10 or more minutes, then repeat if necessary. If you choose dry pool chlorine, mix it with hot water in a glass or earthenware container to make a saturated solution — that is, one where some crystals remain undissolved because the water can't take any more. At this concentration chlorine bleaches do their work almost instantly, so if results aren't satisfactory in the first few minutes it's time to reapply. After bleaching, rinse the wood thoroughly with clean water and allow to dry at least 24 hours before refinishing.

Chlorine bleaches are everyday products, but not innocuous. Use with plenty of ventilation, rubber gloves, eye protection, and don't forget: mixing these chemicals with ammonia or ammonia-containing products can produce dangerous fumes. Try chlorine bleaches first for:

- **Aniline dyes** — These dyes, derived from coal tar, have been widely used in wood finishing since their invention in the mid-1800s. Where aniline dyes have to be removed or lightened to permit matching with other finishes, chlorine bleaches often work.

- **Ink stains** — Close cousins of wood, finishing dyes, ink often resists chlorine equally well.

**Oxalic Acid**

Some consider oxalic acid a mediocre bleach, but many woodworkers (myself included) favor it as the most all-around effective and user-friendly treatment for a variety of common discoloring problems. Oxalic acid is a compound that occurs naturally in some plants and is one of the strongest...
WOOD-STAIN BLEACHING TECHNIQUES

by Gordon Bock

organic acids. It is used in industry for photography, ink removal, and other bleaching processes — wood finishing among them. The most storable way to buy it is as a dry crystal for around $4 a pound at hardware stores or wood-finishing suppliers.

The trick to success with oxalic acid is using it warm and as concentrated as possible. In a glass or porcelain container, dissolve crystals in hot water until you get a saturated solution. Apply the solution with an old brush or rag, flooding the surface. (Spot bleaching only highlights the defect.) On some stains and woods, the effect is immediate and the acid can be washed off in about 10 minutes. Otherwise, the mix may take up to an hour to make an improvement. Agitating with a brush may help, and the solution can be left on until dry, then reapplied if necessary. Some refinishing daub the stain first with a weak alkaline mix (⅓ teaspoon of lye in 1 quart of water), letting it stand for a minute or so until dark, then follow with oxalic acid. After bleaching, the acid can be neutralized with a borax wash (3 oz. to a gallon of hot water), but thorough rinsing with clean water is usually just as good. Let all wood dry 24 hours or more before refinishing.

Oxalic acid is a poison and should be handled with care. Though it would take a hefty amount to do you in, it will smart in cuts and burn eyes and delicate tissues. Wear gloves and eye protection. Especially avoid inhaling the dust, which is easy to create while mixing. Oxalic acid is recommended for:

**Blue Stains** — Oxalic acid is the classic fix to try for that blue-black inky mess that appears on floors or furniture when water is allowed to stand on oak and other woods with a high tannin content.

**Iron Stains** — Oak gets another dark bruise-colored stain from iron, due to a reaction with the tannins in the wood. Oxalic acid does a good job of chemically converting this stain to a colorless compound. (It can be equally effective on rust stains in sinks and toilet bowls or ironstone china.)

**Lye Blackening** — Some hardwoods are darkened when stripped or washed with lye or TSP mixes. Oxalic acid will bring them close to the original appearance. It is also good for reversing darkening from age.

**Hydrogen Peroxide**

Cleansing wounds and bleaching hair are two uses for household peroxide, but this liquid is tame compared to the concentrated solution (as much as 30%) used for wood bleaching. Usually sold with a caustic solution (typically sodium hydroxide) as a two-part kit, peroxide is the strongest of the three common bleaches — so strong, in fact, that it is best used to completely blanch all color from the wood. Directions will vary with each manufacturer, but most involve dampening the wood first, then applying a mixture of both solutions to the entire surface for uniform results.

Peroxide bleaches have a limited shelf life and spoil easily, and so should be used fresh for maximum effect. Rubber gloves and eye protection are also important safety precautions. Reserve peroxide for:

**Blonding** — Lightening woods for a decorative effect.

**“Last Chance” stains** — Bleaching whole sections where the wood is so discolored, or unresponsive to other treatments, that the only alternative is complete replacement.

Water, not ink, put the blue puddle in this oak. Oxalic acid (top) started to bleach before the panel was completely wet (above).
EXOTIC REVIVALS FROM THE MIDDLE EAST

THE EGYPTIAN AND MOORISH INFLUENCES ON AMERICAN HOUSE STYLES

BY SHIRLEY MAXWELL AND JAMES C. MASSEY

IN THE LONG LIST OF AMERICAN HOUSE STYLES THERE are a few that most of us probably think we’ve seen more often than we actually have. Two 19th-century imports from the Middle East (by way of Europe) — the Egyptian Revival and the Moorish Revival style — come to mind. The sloping columns and thick, brooding wall of the Egyptian Revival, and the fat, onion-shaped domes and cusped arches of the Moorish, are so familiar and so seductive that they manage to evoke half-memories of houses we’re sure we’ve seen...somewhere.

Well, there are a few such houses on this continent, but only a few. In fact, we can think of just one surviving Egyptian Revival house in the whole country — and even that one is less house than jailhouse. (It’s part of the Dubuque, Iowa, jail designed by J.F. Rague and built in 1857-58.) Two houses (recently demolished) in Troy, New York, and a porch in New Haven, Connecticut, pretty much cover the residential field, unless you count a 20th-century Egyptian Revival bungalow court (also demolished) in Los Angeles. Moorish elements almost always patched onto houses that basically belong to other styles, are found slightly more often. Still, these few examples offer tantalizing reminders that, in addition to their more common public functions, the Egyptian and Moorish Revival styles are not private residences by any definition, but public edifices and structures: libraries, prisons, courthouses, city halls, railroad stations, bridges, cemetery gates, Masonic temples and fraternal lodges, even synagogues and churches.

Photography by James C. Massey
Some Ancient History

Although the idea of reconstructing Egyptian and Moorish structures had been kicking around on the European continent at least since the Renaissance, the Egyptian and Moorish Revival styles as we know them came out of the 18th and early-19th centuries. They caught the public interest here and abroad before 1800, first as part of a flurry of picturesque, mostly imaginary styles that were used to enliven gardens and architectural ensembles of that very formal age. Reaching their peak, such as it was, in the 1830s and 1840s, the Egyptian and Moorish styles began a slow fade in the 1850s, although they continued to be built into the 1870s. In the 19th-century “Battle of the Styles,” they represented no more than a brief and bloodless skirmish, although an undeniably romantic one. In the 1920s and 1930s, wrapped in the polychromatic splendor of the Art Deco era, they made a brilliant but minor comeback, again mostly for public buildings rather than residences.

In their earliest phases, before there was much archaeological awareness of the finer points of either style, Egyptian and Moorish details were usually blended to form a sort of Egyptian–Turkish–Indian hash. Throughout the 19th-century, in fact, these Middle Eastern building modes were referred to collectively as the “Oriental” style, while the term “Chinese” was used for styles derived from the Far East. Developments of the Napoleonic era made the distinctions between the Egyptian and Moorish styles much more

clear to the building and decorating public. With the explosion of knowledge about the East that followed the French conquest of the Nile Valley, Egypt joined Greece and Rome to complete the trio of sources influencing 18th- and 19th-century Romantic Classicism.

THE EGYPTIAN INFLUENCE

The architectural forms of Egypt captured the imagination of Europeans and Americans alike. Sphinxes, pyramids, obelisks, and temples hinted at age-old secrets suddenly accessible to a newly enlightened world. Egyptian-style cavetto mouldings, winged orbs above windows and doors and on cornices, papyrus and palm columns, pylons, obelisks, and hieroglyphic markings were all symbols that could bring the wisdom of the east to callow western society. New western buildings with "battered" walls, columns, and window and door architraves that sloped sharply inward as they rose bespoke stone foundations that supposedly carried the unimaginable weight of monumental walls.

It was most of all the massiveness, solidity, and seemingly immutable character of the pyramids, sphinxes, and temples of Egypt that inspired awe in their western imitators. With its unblinking stone structures, Egypt suggested something beyond mere durability — something akin to immortality. Egypt, after all, had been old when Greece and Rome were young. To a burgeoning republic in a vast and largely uncharted land, Egypt's timeless structures carried a heartening message about the United States' chances for survival and expansion. They whispered that we might last forever, too. Come to think of it, didn't we have our own version of the wondrous Nile to conquer? Right down the center of the country, new Mississippi River towns named Cairo, Thebes, Karnac, and Memphis added weight to an already potent symbolism.

In this country, the Egyptian Revival style was first used for monuments commemorating such notable events as Columbus' arrival in the New World and various Revolutionary War battles. In fact, "monumental" was probably the term most often used to describe Egyptian architecture, although "stupendous" must have run a close second. The obelisk — that tall, pointed shaft made familiar by the Washington Monument — appeared many times in the United States before it dominated the landscape of the nation's capital. Robert Mills, the designer of the Washington Monument, originally planned to surround the Egyptian shaft with a Greek Revival base in which thirty columns would represent the states belonging to the Union in 1845. However, time, trouble, and civil war intervened between the idea and its execution, and only the unadorned obelisk ever got built.

Rational to the core, 18th and early 19th-century intellectuals found the geometric discipline and hard edges of Egyptian building forms very appealing. In practice, though, these forms showed up mostly as decorative elements that were added to buildings designed in whatever

The city jail in Dubuque, Iowa (1837-38; J.F. Rague, architect). Although other Egyptian Revival jails were built, this is the only one that survives. It is of particular interest because the end section, which was the jailer's office and residence, offers the domestic appearance of a house. The jail itself is in the rear. Note the cavetto cornice.
Glossary

**Egyptian Style Terms**

Cavetto Moulding: large, outwardly arching, concave moulding used for building cornices and door and window entablatures.

Pyramid: a (generally) large structure with a square base and sloping sides that rise to a single point.

Pylon: one or a pair of truncated pyramidal towers flanking the gateway of a temple (often found in cemetery gates).

Winged orb (or solar disk or feroher): a decorative device with large, horizontal, birdlike wings flanking a central circular orb, or solar disk, and stylized serpent figures.

Battered walls, piers, or pilasters: gradually inward- or backward-sloping.

Papyrus columns: columns inspired by tightly banded bundles of reeds, often with lotus or palmate capitals.

**Moorish Style Terms**

Horseshoe arch: an arch in which the top curve, or intrados, is wider than the opening it surmounts — often looks like a horseshoe.

Ogee arch: a double-curved arch rising to a sharp point.

Onion or Turkish dome: a bulbous dome, round or polygonal in plan, in an ogee, or double-curved, shape with a pointed top.

Pennsylvania Fire Insurance Company, Philadelphia, Pennsylvania (1838; John Haviland, architect). Although built as offices, this small, narrow, four-storey, party-wall structure is more domestic than commercial in feeling. Note its many Egyptian-style details.

popular style prevailed at the time. A few battered columns or pylons attached to the face of a cubical or rectangular, often Italianate, building were enough to establish the desired relationship. Even in the more archeologically correct buildings, only the exterior appearance of the structure was affected. When it came to interiors, eastern architectural precedents were ignored — and why not? Why forego comfortable, relatively open floorplans for the sake of structural and functional considerations that no longer applied? The heavy stone foundations of authentic Egyptian buildings used up a lot of precious floor space, but most Egyptian-Revival buildings looked bulkier on the outside than they actually were on the inside. Furthermore, in Egyptian temples, access to the small, sacred inner spaces had been deliberately limited to the religious elite. Public buildings of the 19th century were intended to accommodate the largest possible number of people in large, light, often domed, interior areas.

And then there was the matter of windows. Egyptian buildings didn’t have them; there were hardly even any doors in those massive stone walls. What sane 19th-cen-
tury builder would settle for windowless rooms in the increasingly well-fenestrated world being created by the Industrial Revolution? Isis forbid!

The rationale for using Egyptian architectural forms in Christian churches, cemetery gates, and tombs seems to have sprung from the popular 18th- and 19th-century concepts of the "Sublime," the "Beautiful," and the "Picturesque." The "sublime" feelings evoked by Egyptian architecture included awe, dread, fear, and astonishment — all considered desirable Christian thinking about the certain proximity of the hereafter. The use of the style for jails is also easy to understand. Penitentiary designs of the day were meant to encourage criminals to reflect on their deplorable moral condition and to repent of wrongdoing — not hard to do when you're sitting behind the thick walls of a dim and solitary cell in an Egyptian Revival-style jail.

But what could possibly justify the use of such a gloomy style for houses? Ultimately, almost nothing — except, of course, fashion. As it happened, however, fashion could be served quite well (and much more cheaply and cheerfully) by the surprisingly light and elegant interior furnishings and objects inspired by the same Egyptian sources that lay behind the hopelessly glum buildings. No wonder most people were content just to buy a few Egyptian chairs and candlesticks and let the houses go!

**IN THE MOORISH MODE**

The Moorish-revival style, which also was eventually sorted out from the initial architectural hash, is only a little better represented than the Egyptian Revival in American houses. When it does appear, however, it is likely to be as exhilarating in its effect as the Egyptian is sobering. In the formative stages of the style (when it was still being called "Oriental"), it was likely to blend an assortment of Middle Eastern architectural elements with highly decorative forms picked up by the British during their long occupation of India. In England, the most powerful influence was in fact Indian, or at least Muslim (as opposed to Hindu). The Royal Pavilion in Brighton, designed by John Nash for the Prince Regent over a period of years beginning in 1815, is the ultimate example of the exotic revivals. Based loosely on a group of Indian-Moorish stables that had been built on the same site a few years earlier, it is by far the most famous, as well as the most extraordinary, of the surviving exotic revival buildings.

In the United States, much of what we think of as Moorish-Revival architecture evolved by way of Muslim influences on Spanish architecture during the Moorish occupation of that country from the 8th through the 15th centuries. Happily, there are two remarkable Moorish houses surviving here, both now historic house museums. The most picturesque
of all the American exotic-revival houses is Longwood (also known as Nutt's Folly) near Natchez, Mississippi. Longwood was designed by the Philadelphia architect Samuel Sloan for Dr. Haller Nutt, a well-educated "scientific" farmer. Begun in 1859, it was inspired by a design for an "Oriental Villa" that was published in Sloan's Model Architect (1852-53). The brick structure, which came to be known as Nutt's Folly because of its disastrous construction career, was never finished, partly because of the difficulties encountered in procuring materials as the Civil War drew ever nearer. When the war did erupt in 1861, the Yankee workmen fled for home, leaving behind piles of lumber, tools, and workmen's boxes that are still in place. The house was used as a residence after the war, but only the first floor was occupied. The exterior was recently restored to its 1861 appearance. Although its interior plan is fairly symmetrical, the exterior shape of Longwood is an irregular octagon — an Italianate villa rendered picturesque by the addition of Moorish-Revival ornament.

Olana, near Hudson, New York, was the much-loved 250-acre estate of the renowned Hudson River landscape painter Frederic E. Church. Unlike Longwood, Olana is no symmetrical Italian villa overlaid with bays and galleries, but a truly picturesque mansion. In collaboration with the architects Frederick Clarke Withers and Calvert Vaux, Church managed to achieve a much purer Moorish form — although one that even the happy owner described as "personal Persian" — using irregular massing and strong Moorish references such as arches and polychrome tiles.

No other major Moorish-Revival style houses from the 19th century exist. Although circus mogul P.T. Barnum built himself a Moorish mansion, Iranistan (1848; Leopold Eidlitz, architect), it is now demolished. Like the Egyptian Revival, the Moorish Revival style is far more often seen in details and ornament, such as tile work, arches, and domes, than in entire buildings.

A brief revival in the 1920s led to a spate of appealing whimsies, such as the Moorish core of Opa-locka, Florida, where the developer rejected his designer's suggestions for an old English village and insisted on his own vision of an "Arabian Nights fantasy." He managed to build a town hall, a railroad station, a commercial hotel complex, and at least one house before the big hurricane of 1926 ended that dream and a million others.

Widely used for synagogues, the Moorish-Revival style was later popular for such diverse structures as Masonic temples and amusement parks as well. Like the Egyptian Revival, it also enlivened some of the most spectacular movie palaces of the cinema-mad 1920s.
Pursuing Perfection, Aesthetically Speaking

by Joan Conley and Peter Hayes

In a way, over the past six years we've turned a sow's ear of an old house into our own version of a Victorian silk purse. We should point out, for the purists among you, that this is in no way a faithful restoration. Our house, a workingman's home, was built in 1902 by a carpenter. That means it was — and still is, to a great extent — an architecturally unpretentious and not particularly well-made example of turn-of-the-century housing in a semi-industrial area of Toronto, Canada. Our personal philosophy has helped immeasurably in carrying us through years of dusty chaos. As an artist and a writer respectively, we use our creative abilities to not only overcome problems, but to turn potentially negative impasses into architecturally positive solutions. We believe completely in creating our peculiar vision of a British Aesthetic-style interior. This means not letting tradespeople, salespeople, or suppliers talk us into anything less.

Because our tastes are very specialized, finding just the right elements for the rooms is sometimes frustrating. After all, this is our vision and only we can know how it is supposed to feel, room by room, when it is finally finished.

When we first saw the house, it looked pretty grim and smelled worse. Dog hair matted the main floor's no-color industrial carpet, and rodent droppings lined the kitchen cupboards. The house was smack up against a trio of c. 1878 row houses. At some point, the brick front had been covered over with a yellowish stucco that was now cracked and crumbling. The basement leaked regularly, and a major support beam had rotted through.

Counterbalancing these points were a few, less obvious features, such as pleasantly proportioned rooms with 8'-5/8 and 9' ceilings, and a price that, while it made our pulses race, did not quite bring them to a full stop. After much agonizing, we decided that the house had potential and that, with some attention to detail and lots of basic overhaul, it just might work.

The day we moved in, we rented a steam carpet cleaner and spent seven hours trying to rid the house of its overpowering smell: a compound of dogs, cigarette smoke, and ground-in dirt. When this didn't work, we decided to tear up the carpet, a serendipitous move that revealed a crude, original, wide-board, pine floor. After pouring paint stripper on a small area and scraping, we found a honey-colored wood that would be a warm, glowing backdrop for the room.

We know now that floors should not be the first step...
in a project like ours (they must take a beating in the later stages), but we naively decided to tackle this job first. On the recommendation of a friend, we hired a between-jobs carpenter who proceeded to turn our indescribably ugly floors into gleaming works of art.

A Very Promising Contractor

WITH THE FLOORS FINISHED, IT DIDN'T TAKE LONG FOR US to find our next project. It was so obvious that we kept bumping into it (and to each other when in it): the tiny 4' x 8' main bathroom.

After a great deal of hand-wringing, we sacrificed our drawing and painting studio for a well-proportioned bathroom, and made a useful closet out of the old one. But creating a "vintage" bathroom from scratch cannot be done overnight by amateurs. Instinctively, we knew it was time to take that frightening step into the unknown and hire a contractor. Unfortunately, our first experience with a contractor was like A Nightmare on Duncan Street, our address.

Joan met this individual at her job where she was convinced he had the requisite skills for our project and also shared our beliefs in good workmanship. The fact that he was not licensed seemed to be a minor cavil. We went to see a couple of jobs he had completed, which to our untrained eyes looked fine. Unfortunately, there never seemed to be an opportunity to speak to any of his clients.

Contractor X started work at the beginning of June, paving the way for his arrival with promises that the bath-
room and a number of other essential projects would be finished and the house liveable by the time Joan's mother came to visit in August. As you've probably guessed, our special guest ended up staying in a hotel for the duration of her visit because Contractor X didn't complete the work in time. You may also have guessed that by October, we were still being showered with promises, not water.

Every night in bed, we would agonize, argue, and weep about the whole mess. Then we'd write a pleading letter to Contractor X and leave it conspicuously in the middle of the wreckage the next day. Sometimes we'd leave hysteria-tinged messages on his answering machine. Just before falling asleep, we would join hands and make a fervent wish that he would at least show up for work the following day.

However, his attendance seemed to get worse as the house grew more uninhabitable. There was nothing we could do about it. Convinced that no other contractor could (or would) have taken over the job at that point, we were stuck. Even if a replacement had been willing to step in, we had already invested so much money in X that we simply couldn't afford to have him walk away.

At this time, several uncorrectable mistakes in the work showed up. For example, the 1910-style hexagonal ceramic tiles in the bathroom were improperly laid so that, instead of ending up with a precise geometric pattern, clumps of black tiles were scattered randomly like islands in a sea of white. Eventually we were able to salvage the appearance of the floor by chiselling out and replacing some of the tiles, but the original pattern was irretrievably lost. Also, drain and overflow outlets for the cast-iron tub were incorrectly centered. This caused an endless stream of problems and costly modifications to the plumbing.

In hindsight, it's easy to see that the impact of these particular disasters was so great simply because they were so visible. Thankfully, there were no problems with the more mundane mechanical work that was going on at the same time, such as upgrading the electrical service and the plumbing, repairing and installing drywall, and replacing the roof.

Hearth Realities

ALONG THE WAY, WE WERE SURPRISED TO REALIZE WE HAD adopted a philosophy that allowed us to compromise, but only when absolutely forced into it by impending bankruptcy. We were also trying to convert any setbacks into positive steps forward. The sitting room fireplace is a good example of this way of thinking. From the very beginning, we had had our hearts set on a real fireplace made of brick or stone as the focal point of the sitting room. We were also convinced that there was only one place this fireplace could possibly go in the room.

Once again, circumstance and budget invaded our fantasies, and we were forced to settle for a (gasp!) prefabricated metal, zero-clearance fireplace with a gleaming stainless steel chimney that ran up through the master bedroom and out onto the roof. For structural reasons, it also turned out to be impossible to locate the fireplace where we had originally wanted.
Dealing with each of these problems creatively, we decided to have the fireplace installed in a corner of the room where it was also visible from the dining room. Next, we disguised the metal box by mounting reproduction vintage tiles on it with heat-resistance silicone and surrounding it with a wooden mantel. Then our new contractor boxed in the bedroom chimney and added a ceiling "beam" to form a squared archway that divides the room into two distinct areas. The final step was building a traditional-looking chimney to surround the stainless steel eyesore on the roof.

**Step-By-Step Solutions**

We even managed to find a creative and relatively inexpensive solution for a problem we hadn't realized we had: the stairs to the second floor. The first hint came when a friend fell down them (no harm done, thank goodness) following a lengthy dinner party featuring an excellent — albeit boozy — English trifle as well as a variety of other high-octane comestibles. Because we loathed to spend money on anything that wasn't pretty, we were inclined to blame the tumble on the trifle, rather than the uneven treads and randomly spaced risers of the 80-year-old staircase. But soon afterward, Peter ended up in a heap at the bottom of the stairs (no harm done again) and we changed our minds. The stairs would have to go.

Peter suggested to the contractor that, instead of ripping out the stairs and rebuilding them, we could simply build a new set of stairs on top of the old stairs. Despite the contractor's initial skepticism, work proceeded with the end result being an extremely solid staircase. Now, we're not afraid to start a special dinner with a paté that's soaked in brandy and then finish up with sherryed everything!

The beam that straddled the stairway and second floor hallway was another instance in which a seemingly insoluble problem was transformed into a design asset. That square, unlovely beam, framing the bathroom's light-infused leaded glass door, had been part of the original back wall of the house. It was neither movable, nor removable. One solution would have made the already low ceiling lower by filling in the area with new drywall. Rather than try to hide the beam, we decided to transform it into something beautiful. Using two large sheets of brown kraft paper taped together, we began drawing a variety of arches, taking our cue from the gently curved shape of the original window openings, which could still be seen on the outside of the house.

When we finally settled on the appropriate shape, we gave the drawing to our contractor, who cut three pieces of drywall using the sketch as a template: one piece for each flat side, and one for the bottom curved part of the arch. One rainy day, he left the bottom piece of drywall outside. At the end of the day, he bent the soaked, pliable material into the exact shape needed, put it up, and let it dry out. After it was taped and touched up with plaster, we completed the transformation by installing plaster acanthus leaf corbels to support the ends of the arch.

The body of the arch was eventually finished with cornice moulding, embossed wallcovering, and a frieze. A four-color paint job pulled all of the elements together. The finished arch — looking as if it's always been there — not only frames the art glass of the bathroom door, but sets the landing apart. We later used the same method to form the small arch over the window seat in the sitting room.

From the beginning, we have been enormously rigid in our likes and dislikes. Because of this, we were always prepared to wait for perfection. And that, in all modesty, is pretty close to what we have ended up with.

In the long list of things we want to do over again in this life, neither of us includes renovating an old house. You see, we wanted to do that just once, and we wanted to do it to our standards. Well, last evening, for the first time since the oak-veneered mantel was transformed through the magic of paint finishes into Patrician marble, we had a roaring fire. And guess what? The four coats of wax we rubbed on to protect the finish didn't melt. Perfection.
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- Detailed floor plans showing dimensions for framing. Some may also have detailed layouts and show the location of electrical and plumbing components.
- Interior elevations are included in some plans, showing interior views of kitchen, bath, fireplace, built-ins, and cabinet designs.
- Building cross sections: cornice, fireplace, and cabinet sections when needed to help your builder understand major interior details.
- Framing diagrams that show layouts of framing pieces and their locations for roof, first and second floors.
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Plan EP-34-EA

- Cost: $170
- Set of 3: $230
- Set of 8: $270
- Bedrooms: 2
- Bathrooms: 1½
- Square Footage: 1,040
  - First floor: 750
  - Second floor: 290
- Ceiling Height
  - First floor: 7'6"
  - Second floor: 7'4"
- Overall Dimensions
  - Width: 35'
  - Depth: 35'

first floor

second floor
The Mission-style house is most easily recognized by its shaped parapets that resemble those on Spanish Colonial mission buildings. The style began in California, where architects were inspired by their state's Hispanic heritage, and spread eastward. This house is authentically detailed, including several patio areas created by the low, overhanging roof. The interior design is spacious and comfortable. The low massing and blend of indoor and outdoor living areas make this house ideal for warmer climates.

Plan HH-11-PV

Cost .................................. $200
Set of 5 .................................. $260
Set of 8 .................................. $300
Bedrooms ................................ 3
Bathrooms ................................ 2
Square Footage ......................... 1,636'
Ceiling Height 
First floor ................................ 8'
Overall Dimensions 
Width .................................. 42'
Depth .................................. 53'
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SOLON, ME — 1865 Colonial, 10 rooms with Center Hall. 2 Baths, laundry room, beamed living room ceiling, pumpkin pine floors, billiard room with wet bar, attached garage & barn. On Maine snowmobile trails, close to Sugarloaf and white water rafting. Ideal for B&B. $77,500. (207) 474-3303.

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ARM CLIMATES ARE KNOWN TO have an intoxicating effect, but balmy conditions of a different kind seem to be affecting the porch on this otherwise prosaic Queen Anne (left). Stephen Lowe, who sent in the photo from Stockton, California, calls it an example of “apartmentilization.” Indeed, not only is the two-storey concrete-block addition aesthetically apart from the rest of the building, the loggias have gone loco with each balustrade and trellis headed in a different design direction.

Back East, the case is one of stylistic schizophrenia (below). John Auwaerter of Bayport, New York, notes “It appears that in the 1950s or early ’60s someone stuck the facade of a typical tract house on this c. 1870s Italianate.” Likely so. The twin house next door faces the street with a full-width porch — probably what the visorlike ranch-house roof and red bungalow siding replaced. Or maybe the idea is you can walk out of one house style, and be standing in front of another — a sort of verandasimilitude?

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A crazy quilt of railing patterns (top) — from the floating Chippen-dale-like squares to the bob-nail star motif — creates a contrasting patchwork porch. And this converted, ranch-style verandah (above) definitely wasn’t tailored to suit the Italianate main house.
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Settlers building on the treeless expanse of the Great Plains turned to the most plentiful construction material in their world: the grass sod of the prairie lands. During the great westward expansion of the 19th century, and well into the 20th century, thousands of sod houses were built in North and South Dakota, Nebraska, Kansas, and parts of the surrounding states and Canada.

To build a sod house, these settlers first mowed the tall prairie grass, then turned the sod out of the ground with a special cutting plow to form strips about 4" thick and 18" wide. Next, these strips were cut into 2' to 3' lengths — jokingly called "Kansas brick" and "Nebraska marble." Last, the sods were stacked in layers much like brickwork, forming walls from 1-1/2' to 3' thick that were sometimes tapered from bottom to top. These thick walls provided a thermal mass that tempered the harsh prairie climate of windy, sub-zero winters and blazing summer heat.

Early houses were topped with sapling poles, brush, and a layer of sod to make gable roofs or a single-slope shed roof. Leaks were common, and sometimes the roof collapsed after long rain storms. Later, lumber and wood shingles were available for building more effective hipped roofs.

"Saddys" were usually small, typically 12' to 16' wide by 14' to 20' long and a single story with just one or two rooms. In larger houses, L- and T-shaped floor plans provided greater wall stability. Interiors and exteriors were often plastered with a mixture of sand, clay, straw, and sometimes manure. Though the average life of these buildings was only six or seven years, a few hundred are known to still stand in central Nebraska alone.

— John Leke
Lincoln, Nebraska and Sanford, Maine