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HOME AWARDS

Dept. OHJ • 1785 Massachusetts Avenue, N.W. • Washington, D.C. 20036.

old-House Journal Vol. XIX No. 4 July/August 1991









Stone Houses
by Gordon Bock

This perennial construction material is more versatile than you might think

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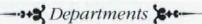
Spanish Revival and Mission Style houses of the early-20th century

A Real Old-House Journal 50 by Pamela J. Waterman

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EDITOR	Gordon	H.	Bock	k
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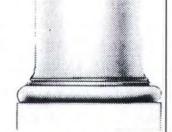
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EDITOR'S PAGE



contractor friend of mine told me he once asked a mason whose work he admired where another craftsman as

good as this fellow might be found. "The best masons come from countries without trees," was the reply.

I kept thinking about this little quip as we worked on this issue. What he meant, of course, is that in areas of the world where wood was too scarce or too valuable to be used as a primary construction material. building traditions concentrated on other means of erecting dwell-

I don't think he realized is that here, in a continent well endowed with timber, there is also a unique history of stone architecture.

ings - usually

stone masonry. What

Although stone houses make up only a small percentage of the buildings in North America, they encompass nearly all the variations in technique and raw materials possible with this kind of masonry. The diversity started in the colonial period when immigrant groups continued

their individual housebuilding practices in a new land, along the way adapting to new conditions and unfamiliar types of stone. It continued with the parade of architectural styles that, in most cases, took their cue from stone originals found in Europe and the ancient world, and were reinterpreted here, often in stone. What that mason might have seen if he had looked around him a little closer was that the best masons came to a continent of trees.

A recent reader letter brought to light again one of those old-house truisms we've all heard in many forms. It was from a couple who described how they had settled on owning an old stone house, in part because of the romantic quality of these homes, and in part because of

years or so - the architectural equivalent of a major overhaul.

As luck would have it, these folks caught their house at the turn of one of its major maintenance cycles and wound up with a full-sized repointing project on their hands. Over and above un-doing some earlier mis-

> guided repair attempts and localized remuddlings, they had to conquer areas of severely deteriorated mortarwork where loose sand streamed out from between stones 'as if from a crypt." In parts, it sounded like a real worst-case scenario, and as I read, I was interested to see

> > how closely the progress of their

work matched the articles on stonework, mortar, and repointing, which we've put together over the last two months.

At any rate they stuck to it, working with the weather, and knocking off areas of the wall four feet at a time. The whole job took close to a year to complete - not surprising with a broad, timeconsuming project that has to be dovetailed with smaller, more pressing tasks - and

many of the details are still being finished. Their letter concludes on a happy note: "Our house now looks like the country cottage we envisioned. Neighbors give us their thumbs-up of approval and cars honk their horns as they go by."

I'm honking too.

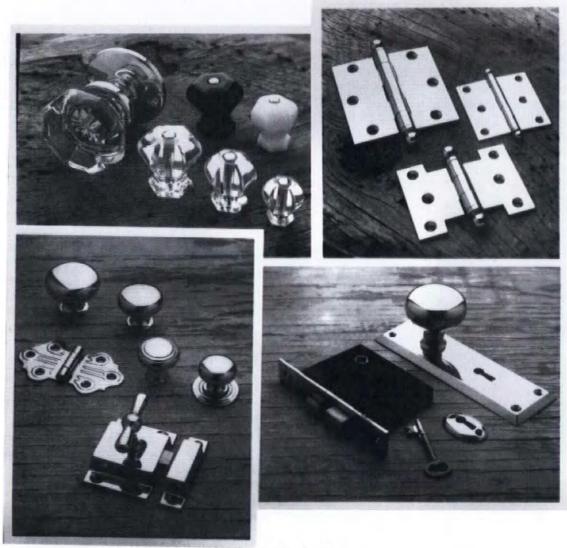
STONE-HOUSE STORIES

what they assumed was the "low maintenance side of stone." The letter went on to detail how they soon discovered that low maintenance does not equal no maintenance. All buildings need periodic upkeep and old houses, in particular, are usually ready for big repairs after years of deferred attention or outright neglect. Even a house built from a material as durable as stone requires some large-scale investment of money and labor every 30, 50, or 100

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LETTERS

Rescued

Dear OHI.

I thought you might like to know that, for some lucky homes, there is life after living death, i.e. remuddling. Our summer home in Freeport, Nova Scotia, had suffered the indignity of having its cedar shingles replaced by asphalt shingles that were later covered with vinyl siding. If that was not enough, the beautiful front entrance had been covered

with plywood and another door added in the pursuit of energy efficiency. One of the previous owners had been resourceful, if nothing else: He used an old bicycle wheel for a television aerial.

One side of the house still had its original cedar shingles. Although close to 140 years old, the shingles were still in reasonable shape. Unfortunately, the old square nails were rusting away. Will vinyl siding survive 140 years of sun, salt spray, and gales off the Bay of Fundy?

 Mark Stewart Waverly, N.S.



Unmuddling is alive and well in Nova Scotia: A 19th-century bouse has gone from abused (above) to rescued (right).



Where is Craftsman Farms? Dear OHJ,

Hi from Craftsman Farms country! I note in the March/April 1991 *OHJ* that some of your writers persist in giving misinformation concerning Craftsman Farms' location. As soon as I got to page 55, without seeing the caption, I recognized the photo of the master bedroom Grueby-tiled fireplace at CF. So I read — and discovered that now the place is located in Morristown, N.J.!

How about saying that it's located in Parsippany, N.J., and has been since 1928 when Parsippany-Troy Hills was formed? This in spite of the fact that the mailing address in that area of the township is Morris Plains. But as of the beginning of February, the Craftsman Farms Foundation has had the following mailing address: P.O. Box 5196, Parsippany, NJ 07054.

Your help is appreciated. Your magazine keeps getting better and better. Keep up the good work.

— Muriel F. Berson Trustee, Craftsman Farms Foundation Parsippany, N.J.

Painting Weathered Wood

Dear OHJ,

Your articles on exterior paint in the May/June issue were useful, as I

have not seen a technical update on this evolving subject in a number of years.

While painting on weathered wood was mentioned (page 28), I feel you should have emphasized the need to sand off *all* weathered gray wood down to bright wood before priming. Oxidized wood is friable and can easily be scratched off with your fingernail. It thus stands to reason that no paint will adhere to it, for there is no solid surface to provide adherence.

The most common preparation mistakes I find are painting over gray weathered friable wood without sanding, and skipping the spot-priming of bare-wood spots with an oilpaint primer. Usually the latex goes directly on the scraped surface and the gray weathered bare spots. I've seen a number of cases where an owner "couldn't keep paint on the house" (due to lack of understanding of technical matters) and resorted to artificial siding, thus ruining the house, unnecessarily and expensively.

— Harvie P. Jones, FAIA Huntsville, Ala.

Old but not "Done"

Dear OHJ,

Thanks to Old-House Journal, we have recently moved into our third old house in three years. Try as we may to buy a "done" house, we were immediately attracted to the house that the real-estate agent billed as having its original kitchen and bath — we were sold. We continue to pour over past issues of OHJ for ideas and eagerly await each new issue. The readers' own stories is our favorite section. Their experiences give us the motivation and the solace that our home, too, will be "done" someday. Keep up the good work.

In dust & construction,

 Pamela Eddy Pape Wellsville, N.Y. continued on page 8

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LETTERS

continued from page 6

Pre-Trauma House

Dear OHI.

I am a new subscriber, just since January. When I received my March/

April issue on "House Trauma," I thought the house on the cover looked familiar. After examining it carefully, I knew it was identical to a print which I had purchased five years ago in Charleston, S.C. I was told the house was in Summerville, just a little north of Charleston, so on my way back home I stopped in Summerville and was

able to find the house. I've enclosed a photo of me holding my print in

front of the house. As you can see, there's no mistaking it. (The photo on your cover must have been printed backward.)



Our "House Trauma" bouse, pictured in happier times.

I live in a very small community about 50 miles from Charlotte, N.C.

Even so far inland, Hurricane Hugo hit our area with unbelievable force and caused major damage. I often wondered if this particular house had been badly damaged. I'm sad to see that it did suffer, but I hope it has been repaired.

I absolutely adore old homes and enjoy reading about them.

 Jennifer F. Owens Peachland, N.C.

Palliser Pedigree

Dear OHI,

I read with interest the article in your Nov/Dec 1990 issue about the Pallisers. I am surprised that you say their origins are obscure, as this information is readily available.

George Palliser was baptized on May 21, 1848, in the chapelry of Sowerby in the parish of Thirsh, York-

continued on page 10

The simplicity of style and beauty...the "tin" roof



The old "tin" roof...

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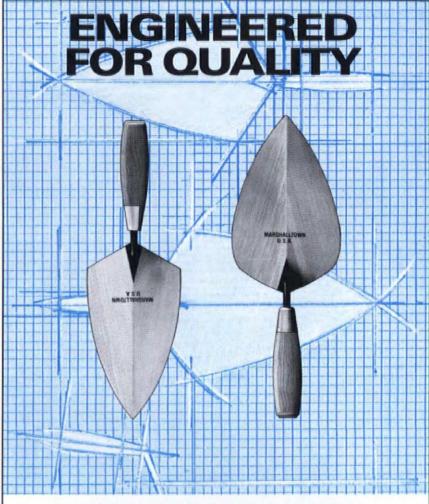
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LETTERS

continued from page 8 shire, the son of John and Ellen Palliser. His brother Charles was baptized on January 15, 1854, in the same parish. John Palliser, the father, is referred to only as a laborer in most cases, but at least once is shown as a waggoner. He was baptized on July 22, 1817, son of Thomas Palliser, laborer, and his wife Elizabeth. This Thomas Palliser was born about 1778 and was buried in 1857.

It would be interesting to know how George and Charles Palliser were related to the Charles Palliser (1780-1857) and his brother James Palliser (1780-1863) who were bricklayers in Sowerby. They were sons of Christopher Palliser and Elizabeth Powell who were married in Sowerby in 1779. (Christopher was baptized in Sowerby in 1752 son of William Palliser.) I suspect that Charles and James the bricklayers

were brothers of Thomas, making them great-uncles of the architects, but this is not proved.

Gary E. French
 Elmvale, Ont.

On the Move, Nevitian Style Dear OHJ,

Old-House Journal arrived in the



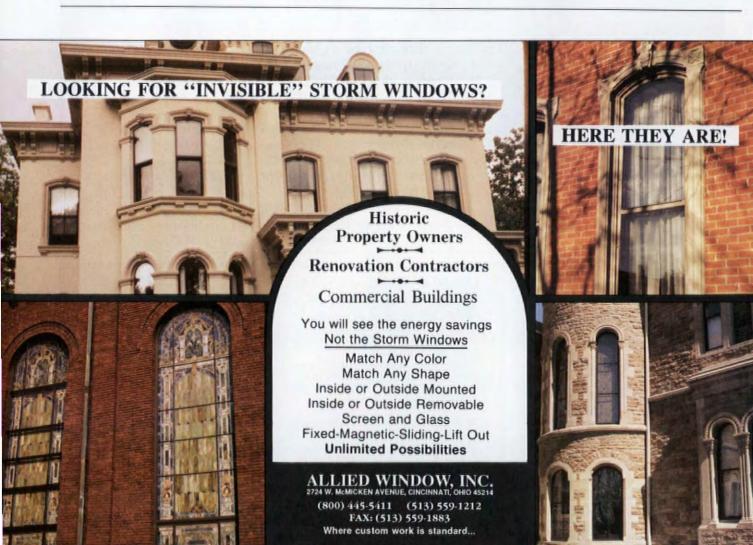
West Indies, where we were engaged in some photo and graphic services for the Charlestown Historical Society on the Island of Nevis. The enclosed photo shows housemoving, Nevitian style! About a dozen men were lifting this small wooden cottage onto a flatbed trailer. As the camera shutter clicked, a horrid

crunching sound came forth and the old floor collapsed, bringing the walls down on top of it. Oh, well.

Victoria Romanoff
 V. Romanoff & Associates
 Ithaca, N.Y.

The camera caught a last glimpse of this West Indies cottage just before it collapsed during the move.

continued on page 12



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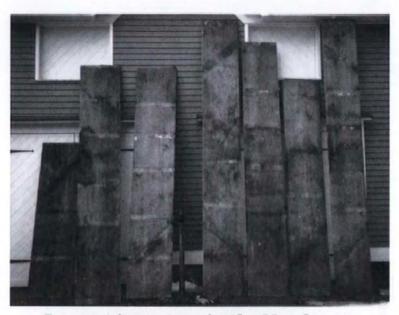
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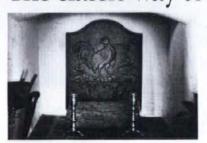
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- LETTERS

continued from page 10

Remorseless Remuddler Dear OHI.

In all the time I have been reading your magazine, no article has incited me to write until "How *Not* to Remuddle Your Yard" (March/April '91).

Not every neglected old house is a sleeping beauty awaiting the kiss of a restoration buff, and neither is every old yard. Redesigning a garden or landscaping should not equal "yard remuddling." Most yards do not have the architectural integrity that one attributes to buildings. In most cases, they were a reflection of the inhabitants over periods of many years, styles, and tastes.

True restoration does not lend itself to creative expression — it is the meticulous re-creation of a specific vision. Somewhere inside most of us is the need to incorporate a little of ourselves into our surroundings. Let's face it, living in a vacuum is plainly no fun!

I am an avid gardener who remuddled 3-1/2 acres with no feelings of remorse. Who is to say that my vision is any less appropriate than that of my predecessors? As much as I enjoy your publication, that was one silly article!

Robin M. Chevalier
 Putnam Valley, N.Y.

To quote the article in question, "Gardeners recommend that you live with a yard for a full 12 months before making major changes, to see what you really have...." Take your time,' however, does not mean 'Never change anything.' It simply means bold off on permanent alterations until you know what you are doing." Nothing silly about that. — the editors

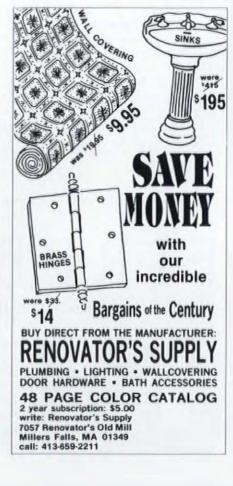
Identified

Dear OHJ.

A note regarding the article "The French Revival in Suburban America" (May/June 1991): The [unidentified] photograph at the top of page 45 is of Los Angeles Historic-Cultural Monument No. 30, "The Doheny Mansion," located at 8 Chester Place in Los Angeles. Originally the "Posey House," it was built in 1898-1900 and designed by Sumner P. Hunt and Theodore A. Eisen. The Mansion presently serves as a faculty residence for Mount Saint Mary's College.

— James Childs President, Adams Dockweiler Heritage Organizing Committee Los Angeles, Calif.







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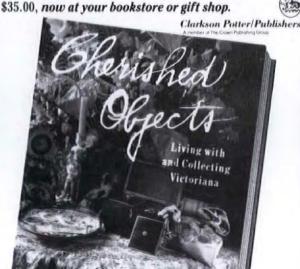
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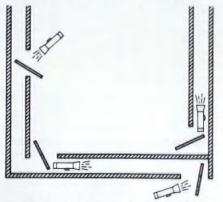


RESTORER'S NOTEBOOK

Shedding Light on Wiring

Ever wonder where those old knoband-tube wires run in a wall or second floor? Here is a simple trick that made my life easier when running new wires throughout my old house.

Remove a baseboard, electrical box, or piece of flooring. Place a flashlight in the cavity and hold a hand mirror behind it for a great view of the wires. If the space is an electrical box or something else that's too small for the flashlight to fit



inside it, place a smaller mirror in the cavity and reflect the light off it while seeing the reflection of the wall or floor cavity.

Jerry Trancik
 Ada, Mich.

Preserving Photos

I have found that the photographs and documents which record the history of my house and its renovation require proper care. Photographs will fade, discolor, stick together, or become spotted very quickly if improperly stored. Many commercial, "magnetic" photograph albums (the ones with adhesive, plastic-covered pages) will damage photographs in as little as ten years due to adverse reactions between chemicals in the photographs and those in the glue and plastics of the albums. I insure that my house's "before," "during," and "after" photographs last by placing them in acid-free, archival albums and boxes stored in a dry, cool

place. A wide variety of sizes and types of archival storage boxes, albums, and scrapbooks are available from suppliers such as Light Impressions Archival Supplies (439 Monroe Avenue, Rochester, NY 14607; 1-800-826-6216) and University Products, Inc. (P.O. Box 101, 517 Main Street, Holyoke, MA 01401; 1-800-628-1912). The catalogs of these firms contain useful information on how to preserve documentary records.

 T. Robins Brown Nyack, N.Y.

Getting into Hot Water

The most frustrating job I have encountered thus far in restoring my First World War-era Colonial Revival is the removal of a thick layer of glue used to secure linoleum to a wood floor. The glue was hard as cement and impervious to chemicals, solvents, sanding, and wire brushes.

In consulting so-called experts, I was advised either to use a chisel-type device to lift the glue (a procedure which I feared would ruin the floor), or to forget the whole thing and install a new wood floor on top of the mess.

My problem was finally solved when it occurred to me that hot water can dissolve certain substances. Working in areas about 4' square, I poured boiling water on the floor, waited a few moments for it to soften the glue, and then used a driveway broom to sweep the worst of the mess away. I followed up with another application of hot water and a scrub brush. I was able to clean a 12'-×-12' floor in about four hours.

Rudy Kopp
 Footville, Wisc.

Utilizing Utensils

Several years ago when I stripped the tiger-oak woodwork, I could not find any tools to scrape the stripper out of all the concave radii. My carpenter husband has an extensive collection of tools, so this is really saying something. Finally I made a great discovery. I got two sizes of utilitarian, stainless-steel spoons and honed the edges with a jewelry file — straight down, just like a straightedged scraper. I ended up with quite a variety of sizes of radii, and saved a lot of money on steel wool.

Cynthia Hastler
 Akron, Ohio

Sash-Painting Tip

Very often, the top sash of a doublehung window won't slide down past the bottom of the lower sash which is a problem when you want to paint the inside of the bottom rail. My solution for reaching this rail is to remove the window stop from one side and pull out the lower sash, just enough to get a brush near the rail. Afterwards, you simply reinstall the stop.

John Armenti
 Iselin, N.J.

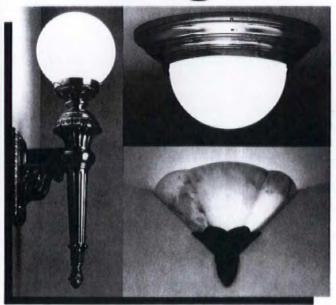
Preserving Caulk

One of the more annoying things about working on my old house is the waste of expensive silicone and latex caulk, materials that are packaged in the familiar tubes for use in caulking guns. Many jobs require only a small amount, but once the tube is opened, the remainder invariably hardens by the next time it's needed. I have spent hours trying to free up frozen tubes with varying degrees of success. On more than one occasion, I've cut open tubes of silicone out of frustration, and then used a screwdriver to apply the contents!

Some manufacturers provide caps to reseal the tip, but the caps apparently are not airtight, because the material inside the tip eventually hardens. Even if the caps did work better, they do nothing to prevent the metal disk that pushes the con-

continued on page 16

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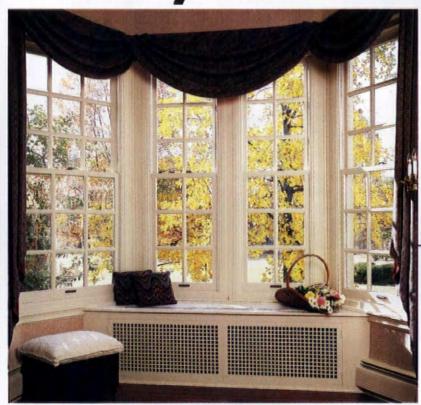


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RESTORER'S NOTEBOOK

continued from page 14

tents through the tube from freezing.

I've discovered a simple solution to this problem. It works whether tubes are stored for a few days or many months. All that's needed is a two-gallon plastic bucket and some ordinary tap water. To save an open tube, stand it nozzle down in the pail. Pour water into the pail until it reaches about two or three inches above the nozzle base. Then pour enough water directly into the back of the tube to fully cover the metal driver plate. The water forms a very efficient airtight seal. It is surprising how long materials can be stored using this method. Even after three and four months of storage, the materials flow and work as easily as they do from a fresh tube.

This system will fail only if you al-

low the water to evaporate. Also, don't forget to replenish the water if you are storing tubes for extended periods. It is easy to forget about the bucket if you put it in an out-of-theway place. Another caveat is to be sure to drain all the excess water out of the tube before using it. Occasionally, even if this is done, some water may have seeped into the tube and will come out in the first few lines of material drawn from the gun. For this reason, make it a practice to purposely discard the first few dabs.

> - Joseph Trapani Baldwin, N.Y.

Erasing Tarnish

I used a commercial brass cleaner to clean my Victorian brass hardware. It was effective but couldn't get into the ornate scrollwork as well as I wanted. (Brushes work but I hate the spattery mess.) In desperation, I tried a pencil eraser: The tarnish was removed. I've since graduated to larger erasers, trimming them into effective shapes for every scroll, and use them with brass cleaner to clean all my ornate brass hardware.

> Brenda Dewald Pomona, Calif.

TIPS TO SHARE? Do you have any hints or short cuts that might help other old-house owners? We'll pay \$25 for any how-to items used in this "Restorer's Notebook" column. Write to Notebook Editor, The Old-House Journal, 435 Ninth Street, Brooklyn, NY 11215.

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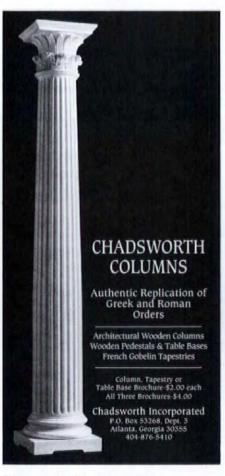


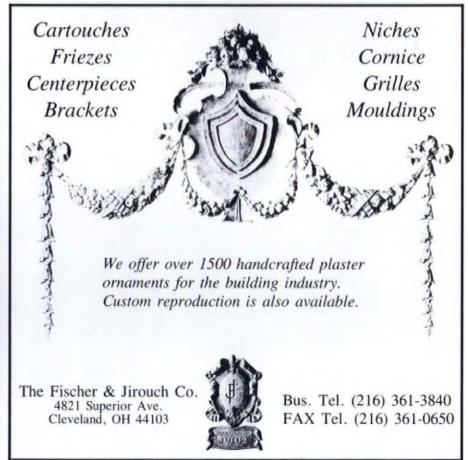


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ASK OHJ

Builder-Style Tudor

Last summer I purchased a house in Menomonie, Wis., which was originally built by Dr. J.R. Ray, one of the pioneers in the Industrial Arts Department at the University of Wisconsin-Stout. (Dr. Ray built this home for his own use, and I am the second owner.) The house has an escalloped roof line that runs from the peak of the house on the right side and descends over the rear porch at the bottom. I have never seen a design quite as radical as this one. Any comments would be appreciated.

 Dan Hampton Galesville, Wis.

Your home looks like a 1930s (possibly a 1928!) "builder style" Tudor Revival. These are modest dwellings built without the direct involvement of an architect, which often employed simplified versions of major architectural features found on high-style houses (see "Builder-Style Houses," Sept/Oct 1990 OHJ). In your house, the multiple steep gables facing the street, the arched

doors, and the triple first-storey window are typical Tudor Revival details adapted from the English Medieval originals. The "escalloped roof line"

The similarities between the 1928 "DeKalb" (above) and the Hamptons' bouse (left) are striking.

so prominent in the photo extends into an *arcaded wing wall*, which was almost always pierced by a door that leads to the back yard. This feature was a very popular effect on Cotswold Cottage-style houses, as well as other eclectic styles of the 1920s and '30s.

In trying to find further informa-

tion, we came across a house plan called the "DeKalb" (above), which appears to be an exact match for your home. The plan is from the *Home Builder's Catalog* of 1928, and it seems possible that Dr. Ray picked the house from this Chicago-based company's catalog.

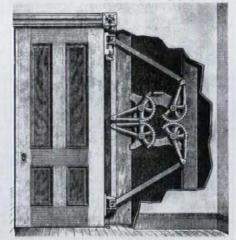
continued on page 20

Pocket-Door Puzzler

The pocket doors in our circa-1889 house are neither bottomtrack nor top-hung. They're mounted on a scissors-type support similar to those wooden laundry racks. The support is screwed into the back edge of the door and mounted on the inside of the pocket in the wall. Is this an unusual arrangement?

What steps, if any, can be taken to minimize the side-to-side wobble our doors seem to bave, which has worn grooves in the top face of the door (where it has rubbed on the mouldings)? Other than this small problem, they work wonderfully, which leads me to rejoice that we are not the owners of tracked doors!

 Patricia DeMaria Columbus, Obio Pocket or "secret" doors were very popular by the end of the last century, and supplying the hardware that made them work was a lively industry. Advertisements show there were many competing patented



systems, most relying on barn-doortype rollers and rails. Some companies, however, devised trackless alternatives such as the 1894 mechanism from the Van Wagoner & Williams Hardware Company, shown at left.

It's hard to speculate about the condition of your doors, but play or wobble in machinery usually indicates bearing wear. After 100 years of service (probably without regular lubrication), the weight of the door may have worn the pivot points of arms and gears to the point where they're a little "sloppy." If you can get the offending parts out of the wall, a good machine shop may be able to help you further.

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continued from page 18

Puncturing a Balloon Frame

I would like to install two windows on the rear second storey of our turn-of-the-century farmhouse. The house is balloon-framed, with 1×12 sheathing running diagonally over the studs. Wood siding covers the sheathing. By cutting two openings in the sheathing, will I weaken the structure of the house? I am concerned that the sheathing may serve to brace the adjoining walls.

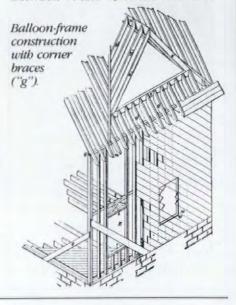
— Howard E. McCurdy Purcellville, Va.

A Balloon framing is the stud-construction method that began to replace heavy timber framing in the 1830s, when machine-made nails and sawmill lumber became plentiful. In balloon framing, the exterior shell of a house is basically erected first, using a framework of light lumber

closed in with sheathing — a "balloon" to the early builders. Floors are added on ledger boards mortised into the wall studs (which run uninterrupted from foundation to eaves), and windows are cut into the walls. In contrast, modern platform framing requires that the first-storey floor be built first, then the first-storey walls and windows, then the second-storey floor, and so on.

In most cases, average-sized windows can be added to a balloon-framed wall providing good carpentry practices are followed, including spanning the openings with new headers and support studs. While most balloon-frame buildings are built with corner braces let in to the stud wall, any diagonally run sheathing is intended to help stabilize the structure and its integrity is worth maintaining. Reattach all cut sheath-

ing securely around the window perimeters, and keep the total amount of open area in the wall within normal proportions, typically between 1/4 and 1/3 of the wall area.



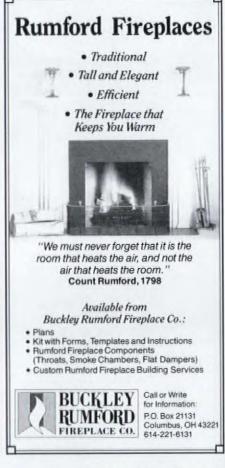
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The American Arts and Crafts movement included many of the best artists and artisans in the last 100 years. Yet its durable reputation is largely

the work of one man: Gustav Stickley, editor, author, publisher, architect, and furniture designer. Born March 9, 1857, in Osceola, Wisconsin, to

Leopold and Barbara Stoeckel

(American-

ized to Stickley), Gustav was the oldest of eleven children in a family where five brothers became furniture manufacturers. His first job was actually as a stonemason's apprentice at the age of twelve. Later, he recalled that it was the "heavy and tedious labor" of stonework that motivated a love for the more-easily worked material, wood.

In the early 1870s Leopold Stickley deserted his wife and children and Mrs. Stickley moved the family east to Brandt, Pennsylvania, where her brother operated a chair manufacturing company. Young Gustav, now responsible for the family's fortunes, quit the eighth grade and entered the furniture business. By twentyone, he had become manager and foreman of the Brandt Chair Company. In 1883, Stickley married Eda Simmons (who had, literally, escaped from a convent in a milkman's wagon) and the following spring they relocated to Binghamton, New York. There, funded by his uncle, Stickley founded Stickley Bros. Co. which served as an outlet for Brandt products and the heavy, neo-baroque parlor furniture that flowed from Grand Rapids, Michigan, at the time.

Dissatified with selling this furni-

ture, Stickley soon began a search for more sensible designs to produce. He found philosophical guidance in the writings of John Ruskin and William Morris and design inspiration from early colonial furniture and the

work of the Shakers, and

ing the prison workshops in Auburn), he arrived in Syracuse.

With the help of a business partner, Stickley started his own company making period colonial furniture. During this time h

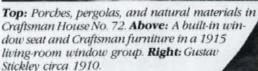
During this time he formed an important friendship with Dr. Irene Sargent, an archi-

tecture and languages professor at Syracuse University. Sargent, who was to become the first Managing Editor of

The Craftsman, educated Stickley in current European design and encouraged him to abandon reproduction furniture for his own line. Once more he quit his job, this time to travel in Europe. There he met leading Arts and Crafts figures of the day, including C.R. Ashbee and Charles Voysey.

Upon returning, Stickley had a clear idea of

what he wanted and by 1901 he had introduced his continued on page 24



began making some simple chairs based on these influences. Destined to be his own man, Stickley left the company to his brothers, and after a series of jobs (including supervis-



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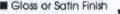
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new line of "structural" furniture. Stickley's designs considered the essence of each piece's function and stripped away all historical association. He built them in a straightforward manner, using native white oak

and relying on the timetested strength of mortise-and-tenon joints. The result was pioneer modern-style furniture manufactured in America, a landmark between the Shakers and the German Bauhaus. The same year he began publishing a magazine, The Craftsman, with the first issue devoted entirely to William Morris. At age fourtythree, Stickley had finally found his stride, and his business enjoyed a rapid growth that was to last for 16 years.

Craftsman furniture embodied a whole way of living — a simple, natural lifestyle fit for the new century. From a few sticks of oak Stickley conceived an entire domestic realm, everything from textiles to tableware, from gardens to garages. By 1902 he had introduced complete house plans into The Craftsman and by 1904 "The Craftsman Home Builder's Club" offered architectural advice and customized plans to new homebuilders.

Stickley greatly enhanced America's concept of the home. He promoted a design aesthetic that called for materials native to their site, as well as outdoor living with porches and pergolas. He brought the fireplace back into popularity, believing that the hearth was the center of family life, and introduced the sleeping porch on a wide scale. Each of these features was part and parcel of Stickley's version of the bungalow, which became the flagship for Craftsman architecture. Once again, function became the organizing principle, and rooms were laid out to flow into one another depending on their working relationship. Bedrooms had closets, kitchens had pantries, and all were

designed for the modern woman who was no longer relying on servants. (Though Stickley meant for the working man to latch onto his ideas, many of his clients were affluent.)

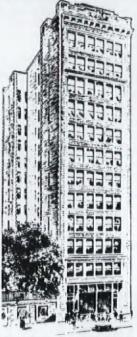
In 1913 Stickley moved his offices to a 12-storey building off Fifth Avenue in New York City (an unlikely headquarters, perhaps, for a promoter of bungalows). At its height, one could enter the Craftsman Building and walk through four floors of furniture, a whole floor dedicated to gardening, four more floors housing a permanent "Homebuilder's Exposition," and the Craftsman Restaurant which served

meals from food grown at Stickley's farm estate, Craftsman Farms.

The Craftsman empire lasted only a few years, and on March 24, 1915. Stickley was declared bankrupt. He had grown too fast and had unwisely incorporated all of his enterprises under one roof. On top of this, the Craftsman movement was greatly af-

The Craftsman logo, based on a medieval combass.

fected by a shift in public taste and the arrival of the First World War. Stickley spent his remaining years in Syracuse, experimenting with wood finishes. He died on April 21, 1942, his quiet funeral attended by the men who had once worked for him.



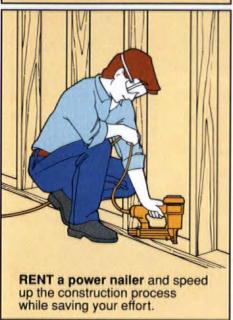
The Craftsman Building at 39th Street, east of Fifth Avenue, New York City.





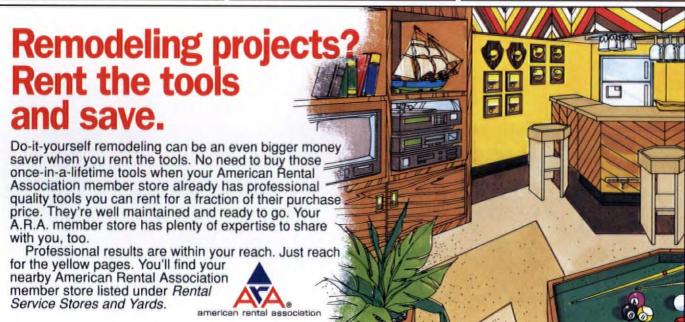


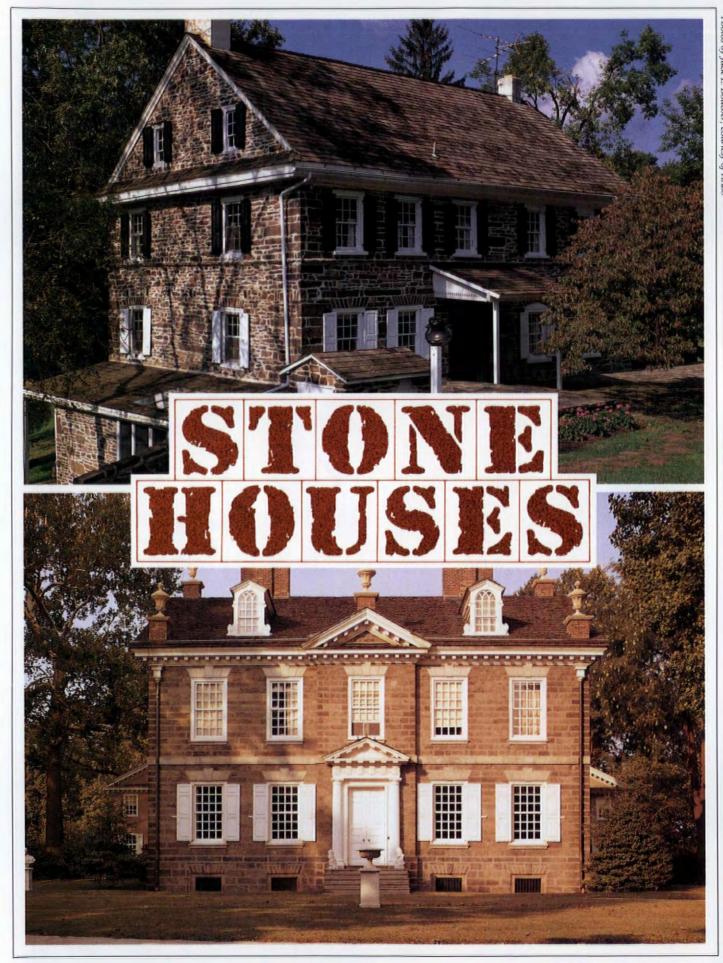
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Facing page: **Top:** An unassuming building set off by exquisite fieldstone masonry — the stone house at its most romantic. **Below:** Formal Georgian architecture expressed in the coursed asblar of Cliveden near Philadelphia (1767). **Above left:** The Gothic

Revival style borrowed decorative details from cathedrals, as well as stone construction. Above right: The straightforward lines of a gable-front house were well adapted to building with beavy stone: bere, a transitional Adam/Greek Revival in Orwell, Vt.

BY GORDON BOCK

n a continent where most buildings are wood, stone houses occupy a special place. Stone masonry is the construction method of classical antiquity, of Europe (where the ancestors of most North Americans came

from) and of endurance, and houses made of stone carry these associations with them. Stone houses also represent

a high level of skill in transporting, shaping, and assembling a difficult natural material. On top of this, stone houses stand for enormous investments of labor and time and are evidence of projects that were completed not in weeks or months, but years.

Stone was used in the earliest colonial settlements for foundations and chimneys, but it was not until the economic comfort of sustained communities (as well as the importance of having fireproof buildings) took hold that full-sized stone houses in any number began to appear. Each colonial group brought their own, well-established masonry traditions

with them, and these roots produced vernacular styles such as the Dutch stone houses of the Hudson River Valley, the Spanish structures of Florida and the Southwest, or the distinctive building idiom of French Canada. English arrivals carried on a medieval heritage (such as the house on the cover) that, while coming to a close in the British Isles, was influential into the 18th century in the New World. Later, the formal English Georgian and Adamesque styles, so often rendered in stone, became the dominant architecture as the colonies matured.

In areas where it was plentiful and easily obtained, build-

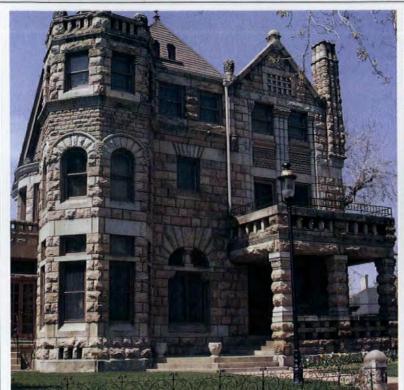
ing with stone often preceded the use of brick. Cut and dressed stone, however, was usually reserved for framing window and door openings or decorative quoins at corners, and the bulk of the wall surface was usually left rough. At this level, local quarries and glacial deposits were able to supply the demand even as major cities grew, and stone was seldom shipped large distances. As with most architecture prior to about 1840, stone houses were regularly built with regional materials and construction methods and often in vernacular styles. Sandstone and limestone were the most commonly used and widely

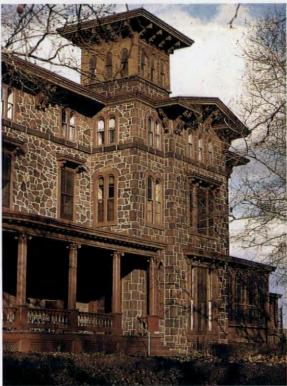


Grand Second Empire buildings were likely to be masonry like their European models, but modest bouses such as this 1875 straight-roofed example are also found in stone.

distributed building stones, but sources of granite, serpentine, conglomerate (pudding stone), and coquina (shellstone) were also worked.

As the 19th century progressed, fashions in building





High-style Victorian bouses took full advantage of stone. Romanesque buildings such as the 1890 Castle Marne in Denver, Colorado (left), were almost exclusively stone structures. Asblar

was the ideal material for Italianate houses, though rubble stone examples like the 1861 Philadelphia house shown here (right) also were built along with versions in brick and wood.

moved from one eclectic style to another, construction technology evolved, and with them changed the nature of stone houses. The Greek Revival style, loosely based on classical temples, gave form to the front-gabled houses that sprang up in all areas throughout the mid-1800s, in stone as well as wood. When architects and tastemakers like Alexander Jackson Davis and Andrew Jackson Downing revived the Gothic style of medieval Europe in North America, they advocated building with stone, both for its naturalistic as

well as historical qualities. Mid- to late-Victorian architecture such as the Romanesque, Second Empire, and Queen Anne styles made much use of complex surfaces, and regularly employed carved and highly textured stone. This demand spawned the use of "imported" stones transported long distances by newly developed intercontinental rail networks as well as salt- and freshwater shipping lanes. Limestones continued to be important, but easily worked red and brown sandstones took on a new popularity.

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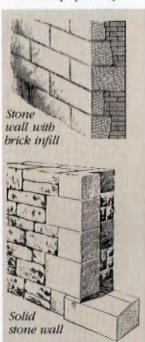
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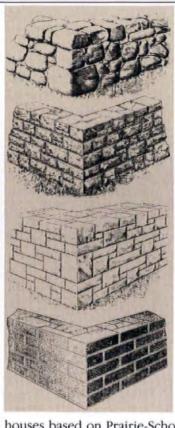
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Common stone wall patterns (top to bottom): random, uncoursed rubble, consisting of fieldstones and small boulders; coursed rubble, with stones roughly cut and dressed; broken, random-coursed asblar, where joints do not break directly over each other; coursed asblar, where all joints are regular and continuous.

By the turn of the 20th century, new construction materials such as steel beams and poured concrete suddenly made stone obsolete for structural purposes, and its role became more solely aesthetic. Always desirable for public and monumental buildings, stone remained popular for grand and imposing houses built in the Chateauesque and Beaux-Arts styles. It occasionally saw use in

houses based on Prairie-School style, but was heartily endorsed for Craftsman and Arts & Crafts houses and featured prominently in foundations, chimneys, and porch supports.

Traditional stone masonry has its own set of terms and construction systems which are useful to know for understanding stone houses. Generally, all stone masonry is either *rubble* or *ashlar*. Rubble masonry is composed of loose stones collected from fields or shorelines, or stone from quarries left in their unworked state. Rubble stone is used either as is in its natural shape, or split to create roughly square edges while still retaining a natural outline. Ashlar masonry is made up of stone that is squared and sawn so that all its exposed surfaces are uniform. The regular dimensions of ashlar stone makes specific or repeating patterns possible and in this respect it is much like brickwork. Within these basic categories, the character of the stonework is often further defined with labels such as *coursed*, *split*, *broken*, and *random*.

Prior to, roughly, the middle of the 19th century, most stone houses were built with solid stone walls. These walls consisted of outer facing stones that created the exterior appearance of the building, inner facing stones that were usually less refined, and infill of small or broken stones that made up the intervening space. Large through- or tiestones then bonded together the full width of the wall at strategic places, so it would not buckle under the load. Other details included wood strips mortared in with the inner facing stones to present nailing surfaces for anchoring plaster lath, and cavities created by incompletely mortaring the infill so as to limit moisture condensation.

In the latter half of the 19th century, the construction of most stone house walls gradually changed from solid stone to using brick infill with a stone exterior. Outer facing stone







New masonry techniques in the 20th century did not stop the use of stone. **Top:** a solid stone Foursquare in Blauvelt, New York (1926). **Middle:** A natural material much favored by Art & Crafts designers, stone was used liberally in this bungalow. **Above:** Stone linked Colonial Revival houses to the Georgian and colonial buildings that served as their models.

was most frequently ashlar; in the best cases these were oriented so that the grain was perpendicular to the exposed face, but often positioned with the grain parallel to the face for reasons of economy. Stone walls of both types were load-bearing and supported the wooden floor beams and roof framing via interior-wall pockets.



ooking for restoration materials in a cliff face may sound like taking authenticity too far, yet, in many cases, this can be the most efficient and cost-effective approach to matching masonry on old stone houses. Syn-

thetic resurfacing agents designed to produce the "look" of real stone often have structural and aesthetic problems. Finding acceptable matches for historical stone at masonry-

supply yards can be hit-or-miss at best. Before beginning extensive repairs to deteriorated sections, it pays to consider complete replacement with local native stone.

Early settlers did not travel very far to obtain their building materials. In the past, quarrymen and masons chose the most suitable stone that was close at hand because it would have to be transported to the building site by horse team. Consequently,

the job of finding a perfect match for your building stone can be relatively simple. For instance, replacement sandstone for the 19th-century National Register home and grocery store in Madison, Wisconsin, described here was located only a few miles away.

Most stone used for building homes is either sedimentary (hardened layers of sediment laid down millions of years ago) or slightly metamorphic (transformed

from other rock types). Working dense, igneous (volcanic) stones like granite requires special tools and skills, but sedimentary stones such as sandstone and limestone are relatively soft and easy to shape with simple tools. Generally, the geologic conditions that provided the original stone also prevail for some distance, so one needn't find the original quarry to get a good match. Once you find

stone that matches your home, it can be shaped to the required dimensions for a structurally and aesthetically satisfying repair job as in the lower half of the house shown below.

Preliminary Survey

Before actually prospecting in abandoned quarries and exposed cliff faces, determine the extent of the damage to the stone building and thus the amount of replacement stone needed.

> Water is the principal agent for stonework deterioration and problem areas are where you will find most stone damage areas that have to be corrected before repairs can begin. Check all gutters and downspouts to make sure water is being efficiently carried away from the masonry. Make sure soil against the foundation is sloped away from the house. Check for signs of algae or moss, usually behind down-

sills, and at the edges of protruding columns. Once all water problems are put to order, decide whether ivv or the other vines that cover many old stone houses are worth their picturesque effect. Not only must all organic matter be removed to perform repairs, but rootlets pentrating the stone grain and acids formed by vine decay can also cause stone

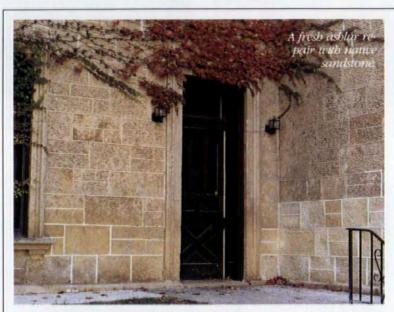
spouts, beneath

Next, gather all stone that has come

disintegration.

loose from the building and place it in a pile. This can be used later as sample or practice stone, or raw material for small repairs. To evaluate the stone on the building, first look at it structurally, then aesthetically. Use a chipping hammer or chisel to test all suspect stone for soundness. If the unit (the dimensioned block of stone) continues to yield to the hammer by spalling or otherwise disintegrating, chalk it for replacement and pro-

ing, chalk it for replacement and proceed to the next suspect stone. Units



BY JACOB ARNDT

30

that are spalled but structurally intact are a judgment call, and may warrant only a dutchman repair or complete replacement. (Deep spalls can hold water and cause future problems.) As a rule, every 20 square feet of deteriorated wall will require about 1 ton of raw stone, a figure that can be further qualified as you investigate the particular construction. As you survey the damaged stone, carry a tuckpointing trowel in your pocket and check for pointing

requirements by digging the trowel into joints that appear to have cavities or that show signs of crumbling mortar. Chalk those areas needing attention.

Getting to Know the Stone's Personality

Before removing any stone from your building, take time to familiarize yourself with it. Take a piece from the pile of deteriorated stone and inspect it with all of your senses. Feel the texture and look closely at its grain. If you are not familiar with the characteristics of stone, you can quickly get to know how it behaves by trying out each of the tradional mason's chisels (see photo, top right). Listen to it as it responds to the chisel. Practice shaping your particular type of stone by placing a large chunk from the debris pile onto some sand or other yielding surface so that it is firmly bedded. Then, experiment with the tooth chisel and attempt to shape the stone into four distinct corners that are flat and square.

Work the stone with the chisels and notice how the angle of the tool

affects the pitch of the spalled face. Remember to keep the stone piece firmly bedded, otherwise it may fracture at random as the energy of the blow is misdirected into vibration rather than cutting with the chisel point. The more you experiment with the different chisels and observe how the stone behaves under different conditions, the easier it will become to correctly identify the stone you need when searching for it in the field.

While familiarizing yourself with the characteristics of

the stone, apply the chisel at various angles around 45 degrees to take off high spots, never perpendicular to the face unless you are attempting to score and then break the stone in two. In any event, a saw will perform this task much better and without fracture damage to the stone. To do this, first acquire a diamond blade for your circular saw (expensive at \$120 apiece, but better suited to stonework than masonry blades). Then, saw a groove in the

stone and wedge the split with square sided masonry nails (see photo, bottom left). Use safety gear suitable for the heavy (and often loud) nature of stonework, including gloves and eye, ear, and lung protection.

Rock Hunting

Aside from direct contact with the material itself, another good way to identify the type of stone in your building is to consult the local historical society or preservationminded masons. They may know what kinds of stone were popular for building in your area and, perhaps, even the location of the original quarry. In Wisconsin, for instance, there is a state reference guide published in 1898, which provides maps and detailed descriptions of quarry operations a century ago (On the Building and Ornamental Stones of Wisconsin by Ernest Robertson Buckley, distributed as Bulletin No. IV of the Wisconsin Geological and Natural History Survey). This guide greatly simplifies matching historic stone in Wisconsin and similar





Top: Tools for shaping and setting stone include (left to right): chipping hammer, 2^{V_4} " set, 2^{V_4} " tooth chisel, point chisel, 1" tooth chisel, small chipping hammer, pointing trowel. **Above:** Stone is cut by first scoring both sides, then wedging off waste with cut nails.

references are worth looking for in other states.

Using these sources, visit promising areas with a sample of the stone you need. Locating stone is an enjoyable part of the restoration process. In selecting your stone, you will discover the same geology the original masons found and go through the same thought processes. Take along chisels, a heavy hammer, an iron breaker bar, some rope, and a hand-operated winch. Visit abandoned quarries, railroad cut banks, working quarries, exposed cliff faces along road-

ways, abandoned buildings. When you see a likely-looking stone outcropping, use your experience with chisel and hammer to identify the find. If you're lucky, the stone will not only appear like your sample, but feel, sound, and yield just like it as well.



ou'll be very close when you find stone of the right color and texture. You will also find that the position of the stone in the cliff face affects its characteristics. Locate the layer, or bedding plane, in the cliff face which corresponds to the stone in your building. If you cannot ex-

tract the stone you need from one site, try to keep track of that plane as you locate other sites. Don't be discouraged if you run up against stone that is much harder than your sample, but in all other respects the same stone. Instead, keep looking for softer stone in the same general area, or dig further back in the plane to find "green" stone that has not been hardened by exposure to air.

Assess the amount of stone you require by measuring the wall area previously marked with chalk, noting the dimensions of the units. Determine how the wall was built by viewing it in cross section, often done by surmising from what you can see at damaged areas behind the outer stone. Generally, you will find a 4" to 6" stone veneer laid over a rough stone or rubble wall. As mentioned, average





Exploit the natural breaks of horizontal bedding planes by wedging with chisels. A hand winch helps when loading stone.

veneers need approximately 1 ton of raw stone for every 20 square feet of wall area. If you have thicker stone units in your building, you'll need that much more tonnage and corresponding equipment at the quarry site to extract larger sizes. (If this is the case, you may want to settle for the veneer and use the system for anchoring the stone described below.) The stone found on many houses is laid "out of bed" — that is, with sedimentary layers positioned vertically. Take note of this construction as well when sizing up your replacement-stone requirements.

The original builders were using the same geological

planes, so it should not be too difficult to find the same bed thickness for your match. When you do, clean off the top surface of the plane and wedge a breaker bar and a number of chisels into a sedimentary joint (say, every 6" or so). Begin to pound the wedged chisels into the crack (see photo above), driving the chisels in evenly so that one does not apply more force than an- For most operations, chisother. With enough pressure, the els should be applied at an stone will break approximately perpendicular to it. 12" to 18" back into the wall, a



angle to the stone face, not

depth that depends on the hardness and thickness of the stone, and the nature of the overlying material. You can help define how far back into the wall the piece gives way by scribing a line with a chisel, but if you do so, place it beyond the dimensions required for the final unit. Pounding a perpendicular line into the stone fractures it, and any such work should be carried on as far away as practical from the raw stone.

Once a stone is dislodged from the cliff face, roughly shape it at the quarry site so as not to haul large amounts

Support the stone above deteriorated areas by inserting angle iron at a bed joint. Shore the iron with timber posts and brace all elements to prevent shifting.

of waste to the job site. If you can get your hands on a portable generator, it's even worth sawing the stone before hoisting it into the truck.

Dressing the Stone to Match

Final stone dressing is performed at the restoration site. At this point, pay particular attention to the surface markings and tooling details on the original stone work. Experiment with the chisels and duplicate the markings of the original. After practicing for a while, you will be ready to shape the raw stone into replacement units to be laid into the wall.

Begin the shaping operation by using dimensions that are oversize for the final piece. You will discover that corners and edges are very susceptible to chipping, but if you save cutting the final dimension until last, your piece will be that much better as it goes into the wall. Inspect the raw stone for fissures by washing it and looking for cracks that seem to penetrate the stone. (Water will clearly define any cracks.) Fissured stone is not suitable for building material and must be discarded. You will probably discover a fissure or two after having worked on a stone, but that is to be expected; just begin again with a sound piece. Patience is an important attribute when dealing with stone.

fter satisfying yourself that you have a sound piece of stone, level the primary face. First, lay a 2 × 4 along the stone's length to rest your circular saw on. Next, set the blade to the depth of the deepest hollow on the stone face. Then, cut "corduroy" grooves the length of

the entire piece, approximately ½" to 1" apart. After this, place a chisel against the side of the corduroy and proceed to strike off the grooved layer until you have very shallow saw marks and a considerably flatter surface.

The finished surface of the stone you're trying to match will typically be either sawn, ribbed, pointed, bush hammered, polished, or chiseled. To duplicate the surface simply select the tool originally used and practice on your new stone until you acquire the same markings. Traditional stone-finishing tools have changed little over centuries, and most are still available today. If your stone is relatively soft, you may be able to immediately dress it with the tooth chisel until you have the ribbed effect that is characteristic

of much of the old stonework. For the sawn finish, grind the surface flat using an abrasive masonry disk, and then sand the surface with a belt sander to the required hone.

If your stone is too hard or brittle to work with the tooth chisel, first grind the surface flat. Then if a ribbed, slight corduroy effect is still desired, use the tooth chisel to duplicate the original surface. For a pointed finish use the point chisel. This finish can be tooled when the surface is still relatively rough and out of flat. Simply take off the high parts with the point chisel and "think flat" as you work along the surface. For the bush-hammered effect, locate a



To level a stone face, run a circular saw along a 2×4 with the blade set to the deepest depression in the stone.

hammer that looks just like a meat tenderizer made of hard steel (art-supply stores carry them for stone sculpture). As with all finish chiseling, always chisel into the center field of the unit — never near or into the edge — or you will blow large chunks of your nice cleancut edge off the stone and end up with what looks like an oversized, odd-shaped arrowhead.

Once you have the piece flat and dressed, saw it to the exact dimensions needed for placement in the wall. The saw blade will not reach through the entire thickness of the stone, so it must instead be sawn partially through on both sides to score it. Wedge off the excess stone from the backside (to avoid spoiling the finished face) by using the squared masonry nails as before. Then grind down the rough, unsawed portions in the center so that the unit will lay properly in the wall. Think flat and square so that when you install the stone you'll have no trouble with the fit and

look of the joint.

Watch for Falling Rock

Deteriorated stone must be removed from the building with care to prevent the units above from falling. Although it is uncanny how effectively the *bead joints* (vertical joints) in the masonry will keep a stone wall intact when it is unsup-

Anchor replacement stone to a frame wall by grinding a pocket into the stone (far left) and securing a brick tie in the cavity with a wedge (left).







A nearly complete capital. Note the darker, inner stone that will change color and become uniform with the rest of the capital as the unit cures.

ported from below, it is also surprising how quickly a wall will come down when its structural limit has been reached. Usually, one or two pieces of stone can be removed without adding temporary bracing, but experience is the deciding factor in this kind of work. When dealing with larger areas, it is always prudent to be overcautious and use posts, wedges, and angle iron (see photo, page 32) to support the masonry whenever you remove stone from a wall.



eplacement stone is installed much like any other masonry unit, except that each stone is anchored with a metal brick tie wedged to the inner framing wall or masonry rubble wall. Metal ties were not always used historically, but they insure a good mechanical

bond when making repairs. Use your saw or angle grinder

to grind a pocket into the top of the stone behind the face and bend a galvanized brick tie to fit into the cavity. Secure the tie firmly with a hardwood wedge and then either nail the tie to the wood framing or grind a similar pocket into the inner masonry wall and secure. Make sure the tie is bent close enough to the top of the stone to allow the next unit to fit on top without enlarging the mortar joint. If your joints are less than 1/8" thick, grind a path for the brick tie so that is lies flush or below the top surface of the stone edge. As you install the repair stone, test each unit for level and plumb and then backfill the space behind with

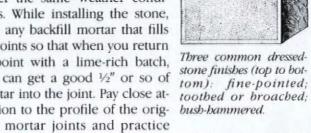
mortar. Avoid prying one end or the other to achieve plumb and level because this will result in voids between the stone and mortar bed. If you find you need to relay a

stone to achieve a firm, level bed, fatten the joint some and then tap the unit level and plumb with a soft-head hammer or piece of wood.

Mortar must never be stronger than the stone itself or in years to come the stone may spall as temperatures change (see "Mortars and Finishes," page 35). For our

restoration work, we have had good results with mortar typically mixed with one part white portland cement, six parts sand, and one part lime. (We use Miracle Lime.) The consistency of the mortar should be almost crumbly as you roll it into a ball. If it crumbles under its own weight, add a little

Leave the final pointing until last so you can do it all in one day under the same weather conditions. While installing the stone, rake any backfill mortar that fills the joints so that when you return to point with a lime-rich batch, you can get a good 1/2" or so of mortar into the joint. Pay close attention to the profile of the original mortar joints and practice



duplicating them before working on your finished job. A poorly executed job will produce a disappointing repair, especially after going through all the work of repairing

building stone.

Native-stone repairs will look lighter for the first few years. As the stone hardens and weathers, though, they will blend into the surrounding work and add to the sense of permanence and stability that characterizes masonry.

Jacob Arndt owns Northwestern Masonry Company in Madison, Wisconsin, and specializes in bistoric masonry restoration and consulting in the Midwest (608-238-0202).

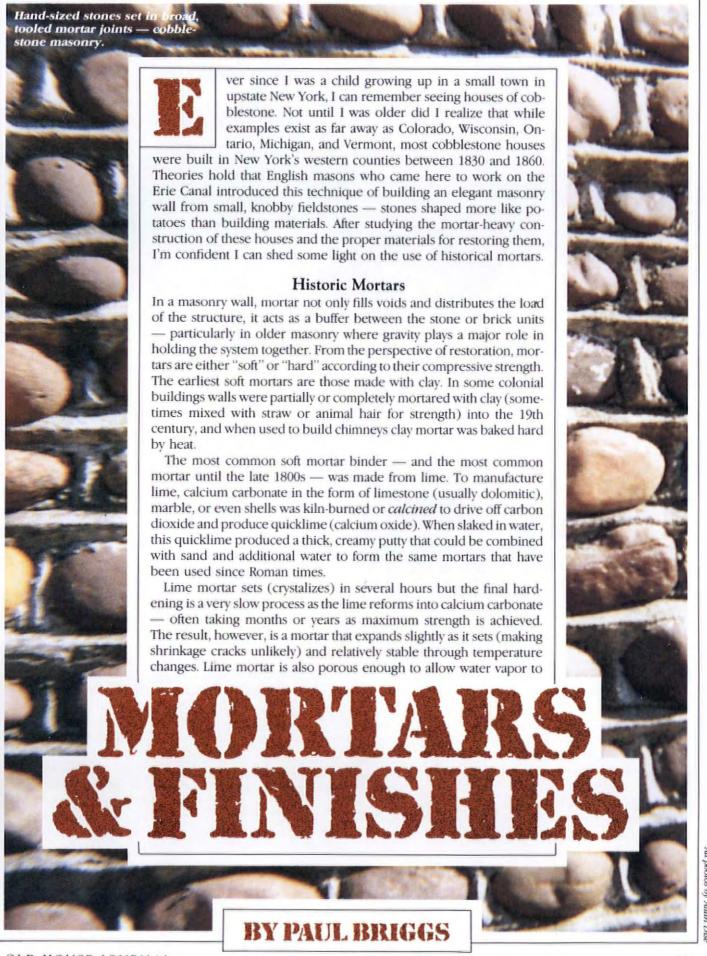


The nearly complete repair showing steps, watercourse, and columns of newly quarried native stone.

SUPPLIERS

Bon Tool Company, 4430 Gibsonia Road, Dept. OHJ, Gibsonia, PA 15044, (412) 443-7080, Extensive stoneworker and masonry tools, diamond blades

Orange Bolt & Supply Company, 2611 Route 9W, Box 986, Dept. OHJ, Ft. Montgomery, NY 10922, (914) 446-6525, Masonry tools, diamond blades







Left: Test samples of lime mortar made from a variety of local sand grades and combined in different proportions provide a

basis for mixing new mortar. Right: Poorly matching mortar makes a "repair" only worse.

migrate out of the masonry, and water-soluable enough to enable it to redeposit itself and "heal" hairline cracks that appear due to settling or other stresses. Lime mortar is soft because it gives and takes or "flexes" as the masonry units expand and contract, keeping the bond intact.

It is the inclusion of cement that makes a mortar hard.

The most well-known cement is portland, produced by calcining lime, clay, and other substances in strict proportions. Portland cement was invented in 1824 in Leeds, England, by Joseph Aspdin, but did not make its way to the U.S. until 1871 when one David Saylor built the first portland-cement kilns in Coplay, Pennsylvania. As late as 1883, however, there were only three portland-cement plants in operation, and its use did not become truly widespread until the beginning of 20th century. The primary advantage of portland cement is its tremendous strength, but it also cures much quicker than lime and does not need to be slaked before use. Portland-cement mortar, though, shrinks as it sets, resists water movement, expands and contracts with temperature changes, and resists the

movement of masonry around it. In the 19th century there were also naturally-occurring cements in production — deposits that when calcined had characteristics somewhere between lime and portland cement.

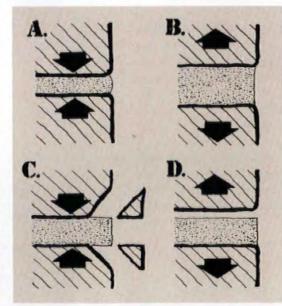
By and large, it's a safe bet that the masonry in any pre-1880 house is straight lime mortar. This is important to understand because mortars for repointing or repairs must always be softer than the original mortar and the masonry units. Introducing a hard, high-portland-cement mix in soft lime-mortar masonry can cause problems over time such as cracking of the hard mortar or spalling and disintegration of softer materials. If you're not sure about the nature of your mortar, brush vinegar on representative samples

taken from deep in the wall so you're sure they're not later repointings. The vinegar will immediately show some fizzing if the mortar is lime-based; no action if it is portland-based.

Most stonemasonry mortar ratios earlier than this century hovered around one part lime to three parts sand. For instance, the cobblestone samples I've analyzed show a range from about 1:2 to about 1:4. It's difficult to determine the original ratio of a mortar, so the best approach is to keep repair mixtures soft and stay within some guidelines. An alllime mortar is the safest, but for ease of application under modern conditions, adding up to 5 percent white portland cement for not more than 20 percent of the lime will add to the mortar's workability without compromising the

lime and making the mortar too hard. Mortar mixes are usually adjusted to the project and the materials used (particularly sand), but the following proportions are often recommended for making a basic soft mortar: 6 parts hydrated lime, 12 parts sand, 1 part white portland cement.

Hydrated lime, the lime most readily available these days, is "dry slaked" in a steam chamber so that, unlike quick-



Soft mortar compresses (A) as units expand, and flexes (B) as they contract. Hard mortar resists expansion (C), causing deterioration, and does not flex (D), which opens cracks.

lime, it is chemically stable for long periods. It is still necessary, though, to slake hydrated lime for up to 24 hours prior to use to form a putty. Once you've slaked the lime according to the manufacturer's instructions, it can be stored covered in a large tub and will keep indefinitely as long as it doesn't freeze. I recommend buying hydrated finish lime for about \$7 a bag. If you can't get any of this, standard type-S hydrated lime will do. All bags weigh about 50 lbs. and are one cubic foot in dry volume.

M

asonry cements have also been used successfully in lieu of cement/lime mixtures when certain conditions are met. These products are combinations of portland cement, gypsum, and other in-

gredients, factory-mixed in controlled proportions and rated by a letter system. Mortars made with masonry cements should be mixed according to the strength or durability of the masonry, typically: 6½ to 7 parts sand to 1 part masonry cement (Type N) for a soft mix; 5½ parts sand to 1 part masonry cement for a medium mix; 4 to 5 parts sand to 1 part masonry cement for a hard mix.

Besides clean, drinkable water, you will also need sand for your mortar. Buy only washed mason's sand from the two or three nearest sand and gravel pits to increase chances that it will match the sand in the old mortar. It doesn't hurt to wash the sand again before using it for small repointings; I have seen instances where dirty or clay-containing sand has been responsible for the poor performance of mortar

been responsible for the poor performance of mortars. Try a few buckets each of fine and coarse sand before you commit yourself to a large purchase. To go further in duplicating your old wall's mortar, mix up three different mortars for each pair of local coarse and fine sands, using different proportions. Spread the samples on a moist board, label, and take the whole thing somewhere out of the sun and rain to dry. After two days, brush each one with a fine, stiff stove or suede brush to remove much of the whitish *laitance*. Wearing goggles and gloves and working in a ventilated area, brush a 10% solution of muriatic acid onto the samples. They will fizz and foam quite merrily for a few seconds and then die out as the acid loses its strength. Then, gently rinse the samples with plenty of



Mortar-joint failure in a cobblestone wall, possibly due to a bardness mismatch between original and repointing mortars.

water to dissolve the salts from the reaction. You can now see what each mortar would look like if exposed to the natural acidity of rainfall for a dozen years, and compare them to your home's mortar.

Masonry Finishes

Cementitious finishes, much the same as mortars, have long been used to protect and improve the looks of stone masonry. Whitewash, which contains no sand or other aggre-



Lime mortars have time-tested durability, as evidenced by the health of this circa-1850 cobblestone Gothic Revival example.

gate, is the simplest of these coatings (see "Old-House Mechanic," page 54). Others contain sand, lime, or cement in proportions that will allow them to be easily applied to a flat, vertical surface.

Parging: Parging is a single layer of mortar applied directly to the wall with a trowel so that it covers the entire surface. Parges generally are rough and cover the whole masonry surface, but at times they are only applied to the joints or recessed portions of the stonework. Parges might subsequently be whitewashed for a more refined appearance, or used later as the scratch coat for stucco. Parges were generally composed of lime mortar up until the introduction of cement in the second half of the 19th century, particularly when used to waterproof foundation walls.

Barndash: A finish half-point and half-parge in appearance where the mortar is allowed beyond the limits of the masonry joints.

Stucco: Also called exterior plaster, stucco is a coating applied in more than one layer (three is common). The top layer may be tinted, given an ornamental texture, or tooled to give an ashlar or cut-stone appearance to rubble walls. Stucco is usually applied directly to masonry without the use of lath. Like parging, stucco mixtures were usually lime-based until cement became popular.

Roughcast or Harling: Roughcast, an English stucco technique, dashes the newly applied surface with clean gravel, pebbles, broken earthenware, burnt clay, and similar items screened to a uniform size. The Scottish version, harling, uses fine-screened gravel and thinned, slaked lime thrown on with a bucket.

f you are restoring the exterior
of your stone
house — or any
similar stone
nasonry — repointing is

masonry - repointing is likely to be one of your projects. Repointing (also called simply pointing) is the process of renewing the mortar joints by removing old, deteriorated mortar and replacing it with new mortar. Mortar joints absorb many of the stresses in stone and brick masonry, and over decades these stresses can lead to breakdown of the mortar. Repointing restores the integrity and appearance of the wall, and is a maintenance procedure that may be performed many times over the life of the masonry.

Repointing is not complicated and does not demand specialized skills. It is, however, a time-consuming undertaking in a relatively unforgiving medium. Before committing yourself to a repointing project, bear in mind that, regardless of the appeal of old stonework, not all of it was meant to be seen. Parges and stuccos were often intended to be the finished surfaces, and re-

moving them may be historically inappropriate. This is often the case if there is no evidence of nice craftsmanship in laying courses and corners. Second, repointing is a labor-intensive procedure that requires care, flexibility, and

long-range planning. Begin to map out your pointing job at least a year









A selection of uncoursedrubble pointing styles (top to bottom): German raised point; ribbon point; reveal or "tuck" point; freshly applied old-time smear point.

in advance.

Keeping in mind that, like most old-house work, repointing is not a job for the impatient, we'll explain how we approach the job here in southeastern Pennsylvania. There are many types of stonework and a wide variety of joint styles, and the terminology for both varies from region to region. However, we'll concentrate our discussion on repointing uncoursed rubble masonry with what is known in our area as the "reveal" (also called "tuck") point: a common, simple and attractive flat point that is recessed to expose the edge of the stone.

Preparing the Surface

To prepare a stone surface for repointing, you must chip all the deteriorated mortar out of the joints as well as remove any surface coatings. Plan to chip and point just one wall at a time. You never want to have the entire house stripped of mortar, leaving it vulnera-

ble to water infiltration. Begin by excavating along the bottom of the wall to a depth of about one foot; you will be repointing this far below ground. The general rule we use is to chip from the bottom up, erecting a scaffold as

we move up the wall. We then point from the top down, striking

BY DIANE LEBOLD

with Ken Fisher, Jr.

The best preparation jobs are still done by hand using a masonry chisel and a hammer. However, with care and experience a hand-held pneumatic chipping gun can be used for a lot of work. (We find that electric guns don't have the moxie for most projects.) Protective eye gear, gloves, and a dust mask are also a must. Chip the joints to a depth of about two inches, using a hose to wash them out thoroughly as you go. After you finish an area, use a wet wirebrush to remove any remaining debris and rinse again to get the joints as clean as possible.

Joints deteriorated deeper than two inches will have to be chipped back to sound mortar. Joints around windows and doors may be horrifyingly large, but don't panic. If you find that a great number of stones are loose or broken. you may have to allow time to back-point the wall before you can do a final repointing. Back-pointing is mortaring in between stones deep in the wall so they are firmly supported, still leaving the joint about 11/2 inches deep for the final point. Replace badly cracked or damaged stones with new stone, making sure they are securely anchored with small shim stones, if necessary. Back-pointing must cure for a minimum of several months — preferably over a winter - or the mortar may affect the color of your final point. If you suspect your wall might need this additional attention, start your project as early in the spring as possible so you have time to do the final repointing before winter.

Mortar Color and Texture



nce your surface is prepared and cleaned, it's time to decide on the color of the point. The color of the unweathered mortar deep in the old joint is often your best guide to the original color of the point. On occasion, historic

mortars were tinted with pigments, but appearance was usually a function of sand and other major ingredients. Barring this example, aim for a neutral tone that blends with the stone, rather than a strong color that in any way draws attention to itself.

Arriving at the right color and texture for the point is a matter of planned trial and error. In one-pound coffee cans,

mix test mortars with different colored sands in different proportions, keeping accurate records of the contents of each mix. Create the mixes with the precision required for baking a cake and try, perhaps, half a dozen different combinations. We've had good luck with a product from Allentown called Medusa 72A, a light-tan, type-N masonry cement to which we add lime, if required. Add water to each of the dry mixes to produce a workable mortar, then apply it to joints in a test area.

If you're aiming to match a historic mortar, consider adding certain indigenous materials to your mix, like sand from a nearby stream



Careful use of a chipping gun removes old mortar, but some band chiseling is still necessary and does the job best.

bed or crushed shells. Get creative, use your imagination, and don't be afraid to experiment. Adding pigments may seem like a good idea, but in our experience, no matter how carefully you mix them in, you risk getting an uneven or blotchy-looking point. Also, pigments will not age in the same way.

At this juncture, you will also want to decide on the appropriate surface texture for the point. To create an even, weathered-looking surface, wait until a couple of your test patches stiffen up a bit, maybe 15 minutes or so. Then brush a couple of them lightly with a sash brush that has been taped to reveal about half an inch of bristle. To produce a texture that approximates slight weathering, spray a couple of the samples with water from a hand sprayer. As a third option, leave some samples unbrushed with your trowel marks showing. You should note that an unbrushed point sheds water best.

Mixing the Mortar

It is very important that the dry materials are mixed thoroughly and evenly throughout your entire mortar batch to ensure a consistent color in your point. Start with two fivegallon buckets of sand and proportional amounts of other



Restored reveal pointing on a circa-1786 fieldstone farmbouse in Kimberton, Penn. ingredients, and use a mixing hoe to blend them thoroughly in your mixing pan. Avoid handling cement or lime with your bare hands. There is no great advantage to using a motorized cement mixer because the batches are relatively small. But if you want to use one, let it run for a long time to assure a uniform dry mix.

Next, move all of the dry mix at one end of the mixing pan and pour a small amount of water at the other end.



Wetting joints is important at two stages: to clean newly chipped joints, then to dampen masonry before repointing.

Then pull the dry mix into the water a little at a time until the mix is the consistency of firm but flexible mud. Wet only the amount of dry mix that you can use in about 20 minutes, otherwise the mortar will dry out. "Retempering" or re-wetting the mortar is a poor idea because it reduces the strength of the final mortar — some say by as much as 20 percent for each time you add water. For this same reason, never use dry mix left over from the day before. (It absorbs residual moisture in the sand.) As you gain experience with mortar quantities and consistencies, don't be afraid to throw out a batch and start again.

Doing the Repointing

The trick to repointing successfully is to take it slow. An amateur should plan to complete about a four-by-four-foot area per day in the beginning. With a large trowel, place a portion of wet mortar on your mortar board, or hawk, and shape it into a neat, compact mass that hangs together like wet sculpting clay. At the wall, use your hose or hand sprayer to wet the

Joints near window and door frames are often large (right) and can be reduced by adding stone or moulding, or pointed as is. Poorly anchored stone (far right) will require backpointing before proceeding further.



joints of a small area, or the dry masonry will draw water out and it won't adhere or cure properly.

Start with one of the horizontal *bed joints* (they're easier). Hold the hawk right up against the joint you want to fill, cut off a small piece of mortar with your pointing trowel (or brick slicker), and push it into the joint. The size of the pointing tool you choose depends on the size of the joint you're trying to fill, and you will probably keep more than one model on hand. Then pack the joint with mortar to the desired depth. We usually bring it out to within ¼ inch of the stone face, but if you want more of a "reveal," don't point out so far. (For an even shadow around the building, some masons point a little deeper on the north side.) Make sure that you really pack the mortar in, get it good and flat, and seal it firmly to the stone with no sagging so water cannot penetrate. The objective is to seal the joint with as consistent a surface as possible.



acking vertical head joints or oddly angled joints is a little trickier and may take some practice. As you progress, you should be able to cut a piece of mortar, pick it up on the back of your pointing trowel, and quickly lay

it into the joint in one smooth action, regardless of the angle of the joint. If the joint is very narrow, lay in a little ribbon of mortar and skim it lightly to produce a seal. If a joint is really deep — say, more than two to three inches — you should backpoint it first and bring it out to about the two-inch depth. If you are brushing or spraying the point, let it set up a while, then go back and brush it lightly with your sash brush or spray it with a hand sprayer as with your test patches. Don't overspray the point, or you'll get "ghosting."

The joints around windows and doors are often quite large. Adding or nudging a few key stones closer or adding trim to the frame can partially fill this gap. If you opt to simply fill the joint with mortar, then remember to fill

vertical joints starting at the bottom. If the mortar starts to sag, let it set up a little before you continue to build on it. The larger amount of mortar around doors and windows will shrink somewhat as it cures, probably about ½ inch. After a month or so, return and caulk the joints.

When stopping and starting a day's work, just wind up at a logical spot at the end of the day and cut the point square or at an angle, then wet and start afresh the next day. After finishing a large section, allow the mortar to cure slowly for maximum strength by keeping it moist with damp tarps.





A fresh, unbrushed reveal point filled to a depth just below the stone's surface, which highlights its texture.

The ideal times to repoint are spring, early summer, and fall. Winter can cause mortar to freeze, thus weakening it and changing its color. The peak of summer can be too hot or dry and cause the mortar to cure too fast, weakening it again. If repointing must be carried out in very warm temperatures, mist the work down with water periodically to retard curing. If the temperature is predicted to fall below freezing at night, stop pointing at 3:00 PM or earlier.

Final Touches



nce you've finished the pointing, you can experiment with finessing. We've had success "aging" points by brushing on a solution of cow manure tea after the mortar has cured a little. Leaf mold soaked in water also works.

Another trick is to spray the point with spoiled milk. At this stage, some masons wash down the stone with a mild solution of muriatic acid or an acid/detergent product to take off any mortar film. (We just let the weather do it.)

If you get really proficient and ambitious, you may want to try some of the other points common in this area (shown on page 38):

German Raised Point: Also called "fishtail," this point is produced by filling the joint to capacity, then striking the top and bottom with the trowel at a beveled angle to create a ridge in the center. At the intersections of joints, sculpt the mortar to maintain the raised look.

West Philadelphia Cut Joint: For this modification of the German Raised Point, you fill the joint, then bevel the top of the mortar and cut the bottom off straight to make a profile rather like a shed roof.

Ribbon Point: First make a ribbon tool by cutting a hacksaw blade in half and attaching each piece to either side of a square stick that is the same width as the desired width of the joint. The edges of the blade should extend about ½ inch beyond the end of the stick. Then overfill the joint

To repoint borizontal joints, bold the bawk up to the joint (top), cut some mortar off the pile, and pack it in the joint with one movement. Vertical and oddly angled joints (middle) require loading the trowel first, then filling the joint. Smooth mortar so it seals the stone with a regular surface (bottom). Joint width determines the size of the tool. Pointing trowels, caulking trowels, and brick slickers are all popular.

somewhat and cut the mortar with the tool you've made to create a "ribbon" with a flat top surface and a straight line on each side of the joint. Dust on dry white cement and flick off the ragged edges.

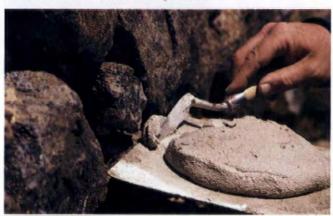
Diane LeBold writes about houses from her home in Malvern, Pennsylvania. Ken Fisher, Jr., operates Morning Star Masons in Spring City, Pennsylvania (800-553-2493).

SUPPLIERS

Hyde Manufacturing Company, 54 Eastford Road, Dept. OHJ, Southbridge, MA 01550; (508) 764-4344. *Repointing trowels and tools, masonry equipment.*

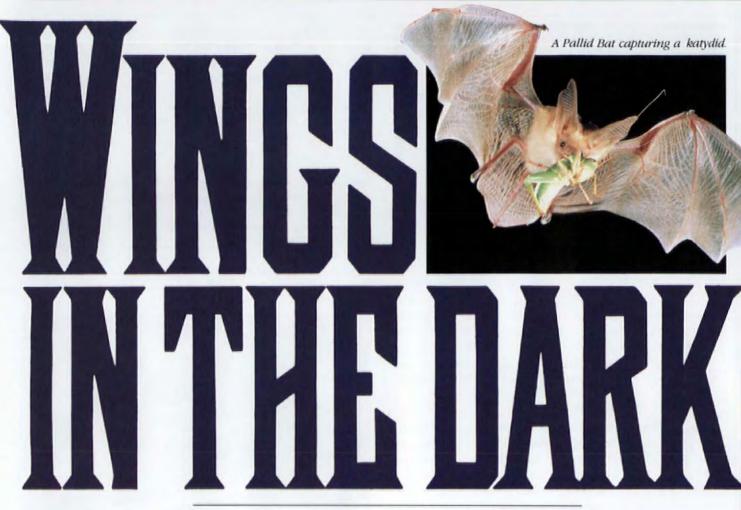
Marshalltown Trowel Company, P.O. Box 738, Dept. OHJ, Marshalltown, IA 50158; (515) 753-0127. Repointing trowels and tools, masonry equipment.

Trow & Holden Company, P.O. Box 475, 45-47 S. Main Street, Dept. OHJ, Barre, VT 05641; (800) 451-4349. *Pneumatic chipping tools, stoneworker and masonry tools.*









BY DWIGHT D. MOODY

he bat has always been one of our most misunderstood and maligned creatures. Country folks worry about bats carrying rabies, women fear bats tangling in their hair, and if bats find their way into a house, panic tends to set in until they are forcibly removed — usually in a non-living state. This is unfortunate because bats have value to mankind and some are on endangered-species lists. Today, there are better, environmentally acceptable ways to evict and control bats when they become unwanted flying houseguests.

Bat Biology

Bats are the only true flying mammals. Contrary to popular opinion, the insect-eating bat is not blind, but it does get its bearings primarily through an echolocation system that uses high-frequency pulses. When you hear a bat squeaking, it is actually vocalizing at the low, audible end of its vocal range. The normal, ultrasonic pulses are used to locate food insects which are usually captured and eaten in flight. Bat Conservation International reports that a single endangered Gray Bat can consume 3,000 insects in an evening, and a single Little Brown Bat might devour 600 mosquitoes in an hour — numbers that go a long way towards keeping flying-insect levels in check.

Scientific studies have shown that bats are not carriers of rabies and are no more immune to the virus than any other animal. In fact, bats seem to have a lower incidence of the aggressive form of the disease and are even less likely to be agents of transmission. Though most of the smaller bats have difficulty piercing human skin, all bats should be dealt with carefully.

Common places where bats can be found include attics, between walls, under porch and roof overhangs, in chimneys, behind shutters (especially on brick buildings), and under roof shingles, slates, or tiles. Bats in buildings are usually not seen and, instead, discovered by the odor of their droppings or the noise of their movements. House-dwelling bats are normally colonial species that like company. House interiors can also provide ideal conditions for bat nurseries, which need to be a fairly warm, constant temperature. Bats roosting on the outside of the building are often bachelor bats of a colonial species or migrating bats. Bats are seldom present in the winter in most areas, as most species migrate south or seek local caves in which to hibernate. The two frequent overwintering species are the Big Brown Bat and the Mexican Free-Tailed Bat.

Problems between bats and humans usually start when they are discovered in or around buildings. Bats that enter the living area of a house can be encouraged to leave by

closing the door (to prevent a chaotic chase through the house), then opening a window and leaving the lights on. If the bat decides to roost, it can be captured by slowly covering it with a thick towel or large can; then, using the towel or can-and-cover to contain the bat, take it outside and release it. Butterfly nets will capture flying bats if the net is swung towards the bat's rear to avoid its sonar — a frontal assault will give it ample warning.

One of the best methods for determining that bats, and not mice or other animals, have taken up residence in a house is to examine droppings by crushing them with a stick. Mouse droppings are usually shiny and hard whereas bat droppings are dry and crumbly. If droppings can't be controlled by placing sheet plastic under the roosting area. or you just can't live in harmony with a few bats, the only safe and effective solution is to evict and exclude them from the structure. Given that the building was attractive to bats to start with, if the resident population is simply removed or killed without taking additional steps, bats will eventually reestablish their colony.

Repellents and Exclusion Devices

Watching the building as evening falls is one way to figure out how bats are getting in and out. However, if bats leave only after dark, the building will have to be examined closely for likely exits. Look for gaps under roof overhangs, cracks around windows and doors, spaces between chimney and roof or wall - generally, any opening wider than a quarter-inch or longer than an inch and one-half. Entry points can be confirmed by brown stains from body oils or the presence of scratch marks.

The next step is to seal the holes after all the bats leave. Ideally, this could be done at night when they're feeding, but most homeowners and contractors prefer to work during daylight hours — just the time bats are on their roosts. If you can't wait until fall (or if the bats are known to overwinter), the alternative is to convince the bats to leave by using repellents or to prevent them from returning with exclusion devices. The proper time to evict bats is late summer or early fall to avoid leaving young, flightless animals behind to die in the walls.

Moth crystals or flakes (napthalene or paradichlorobenzene) are one of the most effective bat repellents, and can be suspended in mesh bags at a rate of five to ten pounds

per 2,000 cubic feet of bat-infested area. This approach works well for attics and may convice bats to exit chimneys, too. A somewhat less effective repellent is to completely illuminate an area with 100watt bulbs (or, better yet, 150-

> An active bat entrance created by poorly fitting eave soffit trim. Batproofing requires sealing all such gaps.







Top: A cluster of Pallid Bats roosting at night in attic eaves. Other bouse-dwelling bat species may roost singly or in bidden areas of the building. Above: Bat droppings on a church attic rafter, looking much like mouse feces.

watt spotlights) so there are no dark places. This method may drive out open-roosting Big Brown Bats, but it is not as effective for those species that roost in cracks or between walls. Drafts created by fans or vents can also act as repellents because they make an area unattractive for roosting and raising young.

Ultrasonic devices are often touted as bat repellents, but their usefulness is questionable. Their sound waves do not penetrate walls deeply, making them ineffective for walldwelling bats, and they may, in fact, attract some species. Fumigants or toxicants are not recommended for bat con-

> trol either, for good reasons. As both bats and humans are mammals, air currents in the building can spread toxic substances into living quarters and also poison humans.

Bats can also be evicted without repellents by using various exclusion devices. The simplest and probably § most successful is 1/2-inchmesh polypropylene bird net- 5 ting, recommended by Dr. & Merlin Tuttle in America's & Neighborhood Bats (see source list below). He advises attaching the netting just above the entrance so that it hangs down at least two feet below the opening. The netting does not prevent bats from leaving (they crawl out from under it), but they cannot find their way back in. When the bats have all left, the netting can be tacked down over the cracks and holes. This technique is especially appropriate for bat populations living between walls where repellents may not



The Mexican Free-Tailed Bat in flight.

Stats on Bats

Of the over 40 species of bats identified in North America, six are the likeliest to be encountered in old houses. The Little Brown Bat (Myotis lucifungus) is the most common house dweller and is found in all continental U.S. states except Florida. Little Brown Bats have glossy brown or gray fur, and a forearm (wing) bone 11/2 inches in length. The Big Brown Bat (Eptesicus fuscus) is found in the entire continental U.S. It has brown fur in various shades and a forearm length of around two inches. Big Brown Bats often roost in open spaces and are easily seen. The Evening Bat (Nycticeius bumeralis) ranges from southern Pennsylvania, west to eastern Nebraska, and south to Texas and Florida. It is about the same size as the Little Brown Bat and has dark brown fur and black wings. The Pallid Bat (Antrozous pallidus) is found from western Oklahoma and Texas and northwesterly through California to Washington. It has light-colored fur and big ears and likes to roost on porches. The Mexican Free-Tailed Bat (Tadarida brasiliensis) is found from South Carolina westward through most of the southern U.S. to California. It has short, dark-brown, velvety



fur. Colonies of this bat give off a musty odor and often inhabit Spanish-tile roofs. Other species may occasionally occupy buildings, including the Indiana Bat (*Myotis sodalis*) which closely resembles the Little Brown Bat and is an endangered species protected by Federal Law.

Little Brown Bats, here roosting in a cave, are one of the most abundant species.

work. For Spanish-tile roofs, use of bird netting in conjunction with metal rain gutters (placed so that the top edge of the gutter is even with the bottom edge of the tiles) is recommended. Bats, apparently, dislike crawling on slick metal.

Batproofing

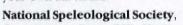
fter the bats have been evicted, batproofing all external entrances and exits is called for to prevent recolonization. Cover ventilation louvers not already screened with ½-inch hardware cloth. Seal all bat-size cracks by adding new facing, replacing worn shingles and clapboards, or by caulking. Useful caulking materials include foam rubber, weatherstripping, pieces of fiberglass insulation, and cartridge-caulking products. Self-expanding urethane foams that come in pressurized cans often work for sealing larger cracks, and fiberglass insulation alone is a potent deterrent to recolonization. Flash over large gaps near the chimney and seal the joints with roofing cement.

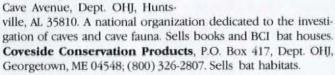
Bats may be excluded from chimneys by capping them after eviction with ¼-inch hardware cloth or by using commercially available spark arrestors or bird screens. Areas that do not lend themselves to other methods can often be temporarily batproofed by applying dog or cat repellents (which will need to be renewed).

You may be an enlightened individual who would like to have a resident population of bats for insect control, but prefers not to share your living quarters with them. The

solution is bat houses, structures without bottoms that function much the same as bird houses. A few bat houses can harbor a small army of dedicated mosquito exterminators willing to work all night for only a place to live.

Information & Supplies Bat Conservation International, P.O. Box 162603, Dept. OHJ, Austin, TX 78716-2603. This scientific organization promotes bat conservation, research, and education worldwide. A donation of any amount will bring a packet of bat facts and plans for building your own bat house.

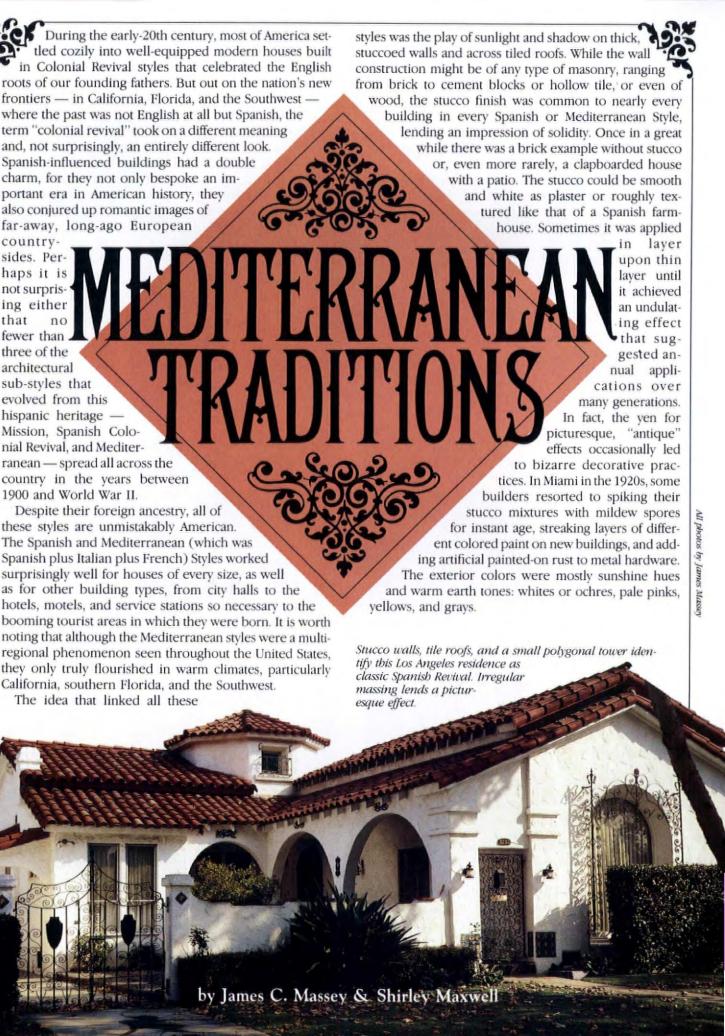




America's Neighborhood Bats by Dr. Merlin Tuttle. 1988. University of Texas Press, Box 7819, Dept. OHJ, Austin, TX 78713; (800) 252-3206. 96 pages, \$9.95 paperback, \$19.95 hardcover (include \$2 for shipping). Chock full of biology, non-lethal control methods, and nice pictures.



Bat houses are mounted so the bottom entrance is clear of obstructions.



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Walls were pierced with as few openings as possible, at least on the street facades, but the openings were deep and dark. Round-arched doorways and windows were often protected by wrought-iron grilles and balconies and were shielded from glaring sunlight and the gaze of curious passersby by striped awnings mounted on spear-like struts. Since this was an age as enamored of technology as of history, casement windows of wood or, more often steel, were usual.

Red tile roofs typified all the Spanish and Mediterranean styles. The roofs were usually flat or low pitched, hipped

or with very low gables. While barrel or S tiles were standard, shingles were sometimes used. Chimneys, while often present, were not usually prominent.

The popularity of the various sub-styles came about in a fairly orderly sequence. The first and most important of the Spanish styles to be picked up by the revivalists was the Mission Style (sometimes called Mission Revival), based on the small adobe churches built by Spanish priests in California, New Mexico, Arizona, and Texas during the early settlement days. These churches had been fashioned after Spanish designs filtered through the memories of padres with little or no training in architecture, and they were built by Indian workmen who had no familiarity European construction. Yet the structures prosometimes crude, irresistibly appropriate to

their setting, and often profoundly beautiful — were a powerful architectural presence in the territory. Interest in the missions reawakened in the 1890s, spurred on by influential writers who were bent not just on saving them (Los Angeles *Daily Times* editor Charles Fletcher Lummis pronounced missions more important than "our oil, our oranges, or even our climate") but also on encour-

oranges, or even our climate") but also on encouraging the development of a new regional style, the Mission Style.

Faced with the need to house a flood of early-20th-century immigrants from eastern states, California looked to its own Spanish and Indian past for inspiration in designing the new homes. The missions provided an attractive and very adaptable precedent. Like other Americans in the new century, Californians wanted their buildings to be simple (well, relatively simple), but they also wanted them to be Spanish in feeling. Enough of Queen Anne-style "painted ladies" and their Victorian folderol! Fortunately, California by now had plenty of professional architects (mostly, to be

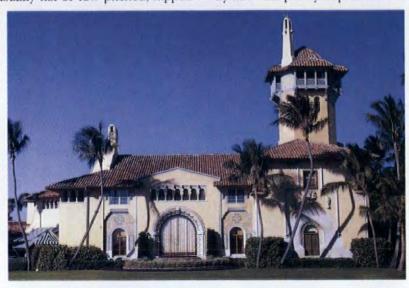
sure, transplants from the east) who knew how to use historical examples as a springboard to original designs. In such competent hands, the Mission Style flourished. It was successfully exhibited at a series of public expositions from the Columbian Exposition in Chicago to the California Midwinter Fair at San Francisco in 1894, and then was applied to houses, hotels, schools, churches, and virtually every other type of edifice the modern world demanded.

Simplicity was the hallmark of the Mission Style. Thick, white stucco walls were pierced by unframed round-arch openings. Low-pitched tile roofs were ubiquitous. Rooflines frequently ended in shaped or parapeted gables, often decorated with cartouches and quatrefoil windows. Arcades and recessed porches suggested the quiet, shaded walks of Franciscan monaster-

o, California, bungalow court.

Franciscan monasteries. Arches might be supported by simple piers or columns, but often they sprang directly from the base of the walls. Domes and "bell towers" were sometimes used to add picturesque interest. Ornament, when there was any, was frequently cast in terra cotta or concrete and might have a Moorish flavor.

Important Mission Style architects included Willis Polk, who led things off in 1887 by publishing the first known sketch of a Mission Style design; Lester S. Moore of Los





duced by this unlikely **Top:** Mar-a-Lago in Palm Beach, Florida — the ultimate Mediterranean Style partnership — simple, fantasy. **Above:** Spanish detailing including iron grillework adds charm to sometimes crude, irre-this cottage, one of many in a Coronado, California, bungalow court.

Angeles; A. Page Brown, the best known of the 1890s Mission Style architects; J.P. Kremple; T.W. Parks; E.R. Swain, who designed the Golden Gate Park Lodge, San Francisco, 1896; Arthur Benton, designer of the Mission Inn, Riverside, California, 1890-1901 — still the largest Mission Style building; Charles F. Whittlesey, designer of the Alvarado Hotel, Albuquerque, New Mexico, 1901-05, for the Santa Fe and Southern Pacific Railroad.

he Mission Style flourished for about 15 years before blending with the Spanish Colonial Revival. A Spanish revival trend had

begun in Florida in the 1880s, but these late-19th-century buildings were based directly on Old World examples rather than colonial ones. In 1888, the architectural

firm of Carrere and Hastings dignified the poured-concrete structure of St. Augustine's new Ponce de Leon Hotel with a formal Spanish design. The Ponce de Leon and other Florida buildings fit neatly into the search for picturesque revivals and fed the growing interest in all things Spanish.

The real union of Spanish Colonial Revival and Mission Style took place in 1915, when the well-attended Panama-California Exposition in San Diego highlighted spectacular Mexican-Baroque buildings by Bertram Grosvenor Goodhue and other distinguished architects. By the 1920s,

Spanish Colonial Revival architecture had overcome every competing style in California, and examples were showing up all

Right: In Camden, S.C., a Mission Style with Spanish accents: a shaped dormer, quatrefoil window, and arcaded second-storey porch.

across the nation.

Like Mission Style buildings, those in the Spanish Colonial Revival style have stucco walls, tile roofs, and arched openings (though perhaps not quite so many arches as in the Mission Revival). But unlike the Mission Style buildings, Spanish Colonial Revival houses could display a dazzling penchant for ornament. Irregular, picturesque building outlines played a vital role in enlivening flat walls. Low round or octagonal towers with low-pitched tile roofs were common, sometimes placed at the intersection of two wings. Applied ornament, particularly the rather flam-

boyant Churrigueresque (Spanish baroque) or Plateresque (16th-century Spanish/Moorish) types were popular on high-style examples. Such ornament was usually, but not always, confined to major doorways or windows. Entrance doors were usually large and high, often double, and made of heavy wood, either carved, paneled, or nail-studded. The fortress-like walls had as few openings as the need for light and air would allow. Windows were not usually symmetrically placed, nor were they uniform in size, even in the same facade. As in other revival-style houses of the period, there was a real effort to integrate indoor and outdoor living areas through the use of French doors and large window expanses, usually at the rear of the house. An exception to the small-window rule is a large, round-arch window frequently placed in the end of a projecting gable-roofed wing. Patios are less typical in this style than in Mission Style, however, whereas



At El Jardin (1917) in Coconut Grove, Florida, "Churrigueresque" Spanish ornament embellishes this door and cornice line.



pergolas are very popular. Balconies and decorative rejas, or window grilles, of wrought iron or with turned wooden spindles were common, and the spindles were often painted in lively primary colors. The rejas, probably of little practical use in the suburbs, were usually set just far enough out from the building to allow casements

and French doors to open fully.

Besides Goodhue. prominent Spanish Colonial Revival architects practicing in California included George Washington Smith; Carleton M. Winslow; Edgar V. Ullrich; Richard Requa: Roy Sheldon Price, Wallace Neff, Frank Mead, Reginald D. Johnson, Myron Hunt, Elmer Grey, and the firm of Marston, Van Pelt and Maybury. Florida architects who were noted

for their Spanish Colonial buildings included Marion Syms Wyeth; Robert L. Weed; Addison Mizner; Kiehnel and Elliott; and Walter C. De Garmo.

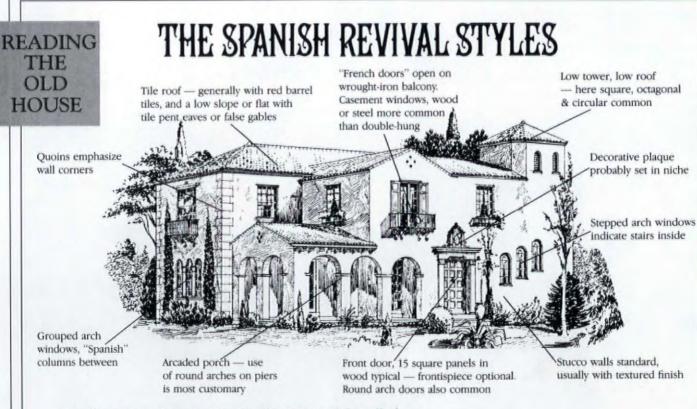
From the Spanish Colonial Revival, the design stream led fairly quickly to a Spanish-Italian-American hybrid known in the United States as "Mediterranean" style — although nothing quite like it had ever been seen in any Mediterranean land. "Mediterranean" is an umbrella term that reflects the diverse origins of the European building traditions that inspired the movement: primarily Spanish with Moorish tendencies and Italian, with an occasional

touch of the French. Structures that evoked the strongest remembrance of Spain and Mexico were likely to be labeled Spanish Colonial Revival, and the Italian or Tuscan Revival label, probably the least used of the group, was applied to the most formal and symmetrical buildings in the 1920s and 1930s. However, these often appear to modern eyes as less "Italian" or "Spanish" and more generically

"Mediterranean." The term "Mediterranean" came gradually to be applied to large, stylish houses (like Mar-a-Lago in Palm Beach and El Jardin in Coconut Grove) that suggest no specific place or country, but reinterpret ideas from all of them. It was a convenient stylistic hook for those who



Facade symmetry and a formal entryway impart an Italian look to this circa-1910 Mediterranean Style, Pensacola, Florida, bouse. The main roof is flat behind the balustrade.



Mediterranean, Mission, Spanish, Monterey, and Santa Barbara types — despite origins or inspiration from many countries, this product is a thoroughly American development.

Source: The Book of Beautiful Homes, Vol. VIII, by Andrew Charles Borzner, architect. Philadelphia, 1932 wanted some formality in design but did not wish to forgo entirely the picturesque or exotic benefits of revivalism. Its thoroughly eclectic approach provided a place for symmetry and classical ornament, although these are far from universal in Mediterranean Style houses.

Roofs, as always, were generally of tile and were low

pitched, frequently hipped. The eaves in Mediterranean examples might have shaped brackets that suggested carved rafter ends or projecting ceiling joists, sometimes richly polychromed in reds, blues, and vellows. Facades tended to be more nearly symmetrical, often with regularly spaced windows and doors.

In the Mediterranean countries, and especially in Spain, the patio was the center of the home, so many Mediterranean and Spanish Style houses had patio-like features, though few had true patios (that is, enclosed on all sides by roofed living areas). These sheltered outdoor "rooms," usually enclosed by an arcade. garden wall, or a wing of the house, were extremely useful in a period of shrinking indoor spaces. Recessed porches provided shelter at entrances and gave shadowy relief from the stark wall surfaces. Pergolas, a favorite motif in Arts and Crafts house designs of the same period, were frequently found, providing broken shade for terraces or porches. In keeping with the gen-

eral feeling of the period that house and landscape should exist in nearly seamless harmony, there was usually a conscious attempt to provide appropriate plantings in beds and planters, and to make gardens and porches as accessible as possible. The rear of the house was often supplied with expansive windows and French doors opening on gardens and terraces.

The interior finishes and fixtures of the houses aimed to match the style of the exterior, and owners were urged to select compatible furnishings and colors. Tile floors, waxed to suggest age, were considered most appropriate

in all the styles, but wide oak boards also were favored. For the

budget-conscious, linoleum or composition tile flooring were satisfactory substitutes. Walls were plain, often rough plastered, and tinted or painted in a light or neutral tone. Beamed ceilings of dark weathered-looking wood provided a rare use of wood trim in Spanish houses, and rich, vivid colors reds, blues, greens, vellows, and golds were encouraged in fabrics to complement the neutral walls. Ceramic wall tiles in geometric Moorish patterns or figural tiles were popular for wainscots and on fireplace surrounds. Arched openings connected living areas and small wall niches provided a place to display interesting objects. Wrought-iron grilles, stair rails, wall sconces. chandeliers, and hardware were essential parts of the Spanish ambience. Wroughtiron or brass wall sconces and chandeliers and four- or sixsided lanterns of copper or brass provided light, but since the interiors of these houses were intended to sug-







Top: The typical Spanish features of this Pasadena, California, house include false balconies with wrought-iron grilles, a classical doorway, and an arched entry to a rear yard. Middle: The roof of this Mission Style in Cape May, N.I., is shingled rather than tiled, and the scalloped gable betrays the residence's Spanish roots. Above: Projecting bays of this Claremont, California, bungalow create a Mediterranean Style, courtyard-like space.

light, they tended to be on the dark side.

Although never as numerous as American Colonial Revival buildings, Spanish and Mediterranean houses defined the regional character of Spanish-settled areas for many years, and their influence is still felt.

gest a haven from sun-

A real Old-House Journal

by Pamela J. Waterman

e attacked our 1898 Queen Anne in the spring of '83, ready to undo the effects of two-family-ization (illegal, of course) and years of moderate neglect. Did we know what we were in for? We thought we did. But we hadn't yet learned that all old-house projects take three times the money and five times the number of bours you generously estimated, and that in the middle of it all you change your mind about what you really want.

With some vague premonition of events to come, I decided on moving day to keep a journal (only a bandful of excerpts fit bere), backed up with lots of pictures. As you'll notice, I couldn't resist updating my entries before sharing them with OHJ. The diary proved to be a source of comfort on many discouraging days, and solid proof that we HAVE made progress. So here's a glimpse at old-bouse living from the ever so comfortable perspective of eight years and two babies later.

Watermans' — Why does it seem like all I do these days is polish doorknobs, change light bulbs, mount curtain rods, and take down old Venetian blinds? For that matter, why is every light blub either 15 watts, 25 watts, or dead? And is the fact that the toilet handle just broke off in my hand an omen of things to come? [Since this was only our third day in the house, I quickly became Josie the Plumber. Little did I know how many other hats I would wear (in addition to the 40 dress hats I proudly call my own!). The real restoration work had yet to begin.]

having fun cleaning out the floor registers while poor Jack, my husband, is cleaning out the yard in 90-degree weather! Just in the dining room, I've already found an old sterling silver ring with one black stone

(one is missing) and five small, round wooden beads.
[In the course of time, finding remembrances of things past became one of the most pleasurable aspects of old-house living. The childrens' toys were the best, from wooden blocks and clay marbles to glass beads and china cups, but the

Yes, the shower head was taped to the stepladder (below) - but it worked! Inset: a "before" shot of our homestead.

number of still-corked, dark-green beer bottles made us wonder most — about the builders, that is! The true treasures we found included all the parts to the original castiron, two-way spring binge for the pantry door (removed for unknown reasons and distributed throughout basement debris), and a slab of marble that became a seat in the new third-floor shower.]

other fun surprises — Today, I cleaned more copper doorknobs. Jack took down the French doors and planed them so they'd clear the hump in the foyer floor. Removing a couple of ceiling panels in the dining room, he found a trap with an ancient (dead) mouse, and no ceiling above — only broken lath and pipes! Did we really pay \$80K for this place?!! [Polishing doorknobs was a way to get some instant gratification in the midst of the many slow jobs. And with dozens upon dozens in the house, you might say gratification was easy to come by. Under all that grime and tarnish, some were copper, some brass, and the ones on the third floor beautifully turned wood!]

"insulation" — While Jack was repairing the garage doors (three panels that are supposed to slide sideways on a cast-iron track. . .), I removed all the "insulation" from the basement pipes. It consisted of old newspapers dated March and April 1942, with a few pages from December 1942. I took a break to read about the progress of the war, General MacArthur, rubber recycling, black-outs, painted-on nylon stockings, war stamps, debutantes, shoes for \$4.49, and child star Roddy McDowall.

house-paint colors, Part I — Finally selected house colors: Taupe stain for cedar shingles with Monterey White, Georgia Brick, and Charcoal for the trim. We painted the garage doors Brick and White on the outside; the interior will be stained clear. [Actually, this is as far as these colors went. By Spring of next year, we decided we still liked the main color, but the trim choices

were too dull. Two years later we tested a trim scheme (which also didn't last) on some of the porch fascia, but the garage doors stayed Brick for another six years. Our neighbors must have really wondered why we couldn't make up our minds.]

September 6, 1983 A visit from a former occupant — On a whim, Jack decided to call every "Clinton" in the West Suburban phone book (after we had gotten all the previous owners' names through the local historical society). On the third try, he reached Ella Clinton, sister of Edward F. Clinton, who owned the house from 1945

to 1959. Ella told us that Mr. Clinton's daughters are named Barbara Brennen and Kathleen Rochefor, and that Barbara lives in Quincy and Kay is also nearby. We called Barbara, and she's scheduled to visit us on Sept. 24th. On the telephone, she told us that her father put a potbellied stove in the basement so they could play cribbage down there (where he also smoked his pipe). Must make up a list of questions. [We had a wonderful visit. Among the facts that Barbara shared: There used to be a mantel in the living room, which matched the one in the dining room except in one respect: It surrounded a bookcase, not a fireplace. Barbara also noted that there were sliding glass doors on the shelves in the butler's pantry (long gone - sigh), and a sink in the second-floor bedroom that became the illegal kitchen. The family rented out that room, as well as the entire basement (which still bas a pull-chain toilet and charming cold-water tap). During WWII, workers at the local armaments factory desperately needed such places to live.)

The Midnight Paint Brigade — The draperies (my self-indulgence) came for the living room and dining room. When we put them up, they looked terrific, but the institutional green walls were too much. We ran out to the hardware store and bought paint, rollers, a tray, and brushes. Jack spackled while I washed down the walls, then we started priming. Worked till midnight! (Wow, in those days I thought that was late! Eventually, 3:00 AM became an early night, often not begun until our never-say-sleep baby settled down at eleven.

From the beginning, we promised ourselves a small island of serenity — the living and dining rooms — in the midst of everything else. As more and more years went by, this turned out to be a very wise plan. Although both rooms needed new ceilings and complete rewiring, we were able to entertain friends even when the only electricity came via an extension cord through the ceiling from



the second floor. Parties were a great ex-

cuse to clean everything up, relax for a

week, and convince everyone that we

Right: Only the sink says that this was our kitchen. **Inset:** Just call me Josie, master of old-bouse plumbing problems!



OHJ — We've taken off almost all of the moldings on the third-floor landing, using hacksaw blades to cut the nails from the back, in preparation for the bathroom installation. New purchases included a heavy-duty paint-stripping heat gun from OHJ. [Our plan all along was to (legally) rent out the third-floor rooms to a student. Fortunately, the tiny maid's kitchen still had a working sink, so our main job involved carving space for a bathroom out of the third-floor center hall and closet.

We lucked out in two ways by renting to a young carpenter from the crew we had hired to redo the roof and cedar shingles. He moved into our guest bedroom, helped us finish the bathroom, and frequently worked off his rent by pitching in after hours. He had a bachelor's degree in historic preservation, so we also had a live-in consultant for renovation dos and don'ts!]

September 22, 1984 One person's junk, another person's treasure — On Wednesday we started installing the ceiling fan/light in the third-floor shower stall. Doug (our carpenter) brought home an old oak medicine cabinet with a bevelled-glass mirror

from a house in the Cliff Estates of Wellesley. Doug's crew was working there renovating bathrooms, and the owner was throwing the cabinet away! Doug also found a towel bar of one-inch diameter glass with huge brass ends (I had to take off three layers of paint to learn that!). [Recycling became almost a game, it was so much fun. Among items we eventually brought into the house were leaded-glass windows for the kitchen, a turn-of-thecentury sink with chrome winged handles, and French doors. Parts from three banged-up hanging fixtures were combined to fashion two almost-matched bathroom lights, and half of the no-longer-needed column from the old rear stoop now serves as the pedestal for our breakfast bar.]

The Catch-22 of installing vinyl flooring — Well, I'm not doing too badly — only two months since my last entry. Doug moved upstairs about six weeks ago, as soon as the bathroom was usable. However, for a while it was "Catch-22" as to whether we could lay the new floor. The plumbers had worked on the furnace system earlier, and though we were freezing, we weren't sure it was safe to turn on the heat. BUT the plumbers wouldn't return to finish the bathroom radiator until the floor was laid. BUT, according to the experts, it was

too cold to lay the floor. We rented a small heater, and laid our electric blanket on the 8x10 piece of Solarian. Then we got really daring and decided to try bleeding the radiators ourselves, a task that proved to be so simple. [Prior to this, I couldn't have told you the difference between a radiator key and a skate key. But being cold was a great incentive to learn.]

windows — what a pane!! — From late November to the end of January, Jack and I scraped and reputtied the third-floor diamond-pane windows. At seventeen panes per window, it took nine hours to reputty one. Thank heavens there are only three in the whole house, because I never want to glaze a non-90-degree corner again.

you going — Comment by Jack, serving dinner: "I have prepared a seat for you by the window. If that's not to your liking, I'll have the window removed." [And he would have, too. On a had day, that is. Jack developed a habit of knocking on walls, saying, "Doesn't sound load-bearing to me," and taking a whack with a crowbar.]

terer — We hired a plasterer for the third-floor bath and hall, as well as the second-floor archway we uncovered. He could handle the large smooth walls, but was unbelievably sloppy around all receptacle boxes. The bathroom was such a disaster, it took three hours on hands and knees to extract the mess from the grooves in the linoleum floor. Silly me, to expect he would use a drop-cloth! [For a while it seemed as though every time we closed the door on a contractor, we said, 'We'll never hire a (blank) again. Surely we can do better!" We certainly did do our share. Besides the inevitable strip-

ping, sanding, and painting, we managed to do wiring (we're both electrical engineers), insulating, buttressing, pointing, demolition, excavation, and sand-blasting. So we try not to laugh when acquaintances bemoan the now-simple task of wallpapering. However, we did hire out some fancy dining-room-ceiling work. Next house, maybe.]

didn't do much on the house this month, as we are both taking night classes. However, Jack took two weeks "vacation" and used the heat gun to strip paint off the front-porch trim and bay window. He then painted with our finally chosen color scheme: light-tan stain, medium-tan trim, dark-green highlights, and deep-red accents. [Except, of course, that after living with those colors for another winter, we changed our minds again. Mind you, we still didn't know what we wanted. We just knew what we didn't want ... one more time.]

What have we gotten ourselves into . . . again — The problem this time is
that the porch needs a fair amount of shoring up. (A
garage was added in 1927, and it turns out the renovation combined with damp dirt weakened the porch
supports and rotted the shingles and floor joists.) [The
"fair amount" resulted in our jacking up the front porch,
pouring a concrete porch footing where previously there
was none, adding "sister" joists to all existing ones, completely rebuilding the front steps, and laying a new porch
floor. Just your typical weekend project — eventually,
about 18 months of weekends in between everything else!]

One thing leads to another: the Mushroom Factor in our kitchen — I couldn't stand it any more, the lime-green/lemon-yellow/mustard-gold plaid and pop-art flowers in the kitchen. I started ripping up the wallpaper while talking on the phone one night. Then I painted the walls white because the yellowed plaster was too depressing. Then I took a stab at stripping the mustard-gold woodwork, which proved to be a BIG job. I also ripped up most of the curling linoleum just a few days before Christmas.

[These urges came over me at oddball times, when I just had to rip and tear and create several more yards of renovation debris. My husband was on the other phone at the time of the wallpaper-removal episode, and he thought the ripping sound was sizzling bacon!]

Once again, we're changing paint colors: The taupe body will remain, but now we're going for shades of Blue-Green, Light Taupe, and possibly the Brick that's still on the garage doors. [Well, the Brick finally went for good, but the bouse trim IS now painted — for real, for good — in New London Blue, Salem Green, and Philadelphia Cream, with new dentil moldings a surprisingly perfect Salmon Pink. Our neighbors can finally rest easy.]

Right: Our old bouse sported new paint colors don't ask me to name them! — and a festive garland at Christmas last year.

intember 30, 1981 Kitchen contractor tribulations - Okay, so we could not get a contractor to start on the kitchen extension till December 1986, so of course the exterior wall was out while it was snowing. Boy, did we go through fuel! The contractor threw his back out after three days, lifting the steel I-beam. He disappeared for two weeks, then returned, only to find that the beam was too short. Shall I go on? Also, at the last minute, we changed our minds from a wood floor to tile, chose a color, then found the whole lot was defective, and had to choose again! Lastly, the French doors came three weeks late, and the delivery guy wanted me to help unload the truck. He'd expected the work crew to be there, but of course they weren't due to return until the French doors had finally showed up!! [I think the snow blowing in through the plywood sheets added a festive touch to Christmas that year....

Lots of water under the bridge again. Jack and our visiting nephew have ripped out the cracked ceilings in the living room and front foyer in order to do the new wiring. All the furniture is upstairs. Next weekend we'll rip out the ceilings in the study, guest bedroom, upstairs foyer, bathroom, and master bedroom.

I hope that will be the end of the mess for a while, as we have a mild incentive to restore these rooms, especially the guest bedroom: Our baby is due around the Fourth of July! [Ab, renovating around a baby ... BUT that's a whole 'nother topic.]

March 6, 1991 "Don't tell us you're moving" — Almost three years since that last journal entry, and baby number two just arrived. In 1988 we actually reached that luxurious point of decorating, having our fun with wallpaper, paint, light fixtures, curtains, carpeting, and polished floors. It seems like we have it all, and it definitely WAS worth it. [So, wouldn't you know: Family in the Midwest is calling to us, and we'll likely be gone by Fall. Do it all again out there? Yes, when the girls are old enough to help. Do it all again the same way?

Perhaps. But next time, I think I'll just buy the whole paint store!]



OLD-HOUSE MECHANIC

by Gordon Bock

Whitewash has always been the apple pie of exterior finishes — a simple, pleasing,

been the apple pie of exterior finishes — a simple, pleasing, good-value-for-the-money coating appreciated by both rich and poor. Like apple pie, too, whitewash can be storebought, but the best mixes have traditionally been made from scratch as needed and according to taste.

Whitewash is a water-based lime paint
— liquid plaster in many respects — and lime is the principal ingredient. Quicklime, with its long slaking (soaking) period was once the only lime for

whitewash. Since the invention of hydrated limes, whitewash is made with virtually any of these modern substitutes.

The list of other possible components is long. Most are binders, mixed in to add durability and chalking resistance to the basic lime-andwater combination. Salt is the across-the-board favorite, but glue, sugar, flour, starch, varnish, skim milk, whiting, and brown sugar have popped up in the past. Indigo and laundry bluing are popular still, to counteract yellowing and add brightness.

Recipes for whitewash abound. Here's a basic formula from the 1930s, which is good for general woodwork:

Salt, 15 lbs. OR Calcium chloride (dry), 5 lbs.

Lime paste, 8 gals.

Dissolve salt or calcium chloride in about 5 gallons of water, then add to lime paste, mixing thoroughly.

(Lime paste: Soak 50 lbs. of hydrated lime in 6 gals. of water.) Thin, if necessary, with fresh water. The calcium chloride version is less likely to chalk.



Whitewash had many historical uses, including painting simple wood buildings, fences, greenhouses, and stonework of all kinds (left). Basically a thin mix of lime and water, whitewash is applied with a wide, fiber-bristle brush (right).

Whitewash also has a history of being tinted for colored effects. The watchword for pigments is that they have to be limefast and insoluble in water. In the 19th century, brick dust, charcoal dust, and yellow ochre were all popular. Today, any mason's dry pigments usually work.

The interiors of stables and dairy barns regularly got whitewashed for the health of the animals. Fruit-tree trunks are still whitewashed as a barrier to ground-dwelling insects and frost. Spraying the tops of railroad cars was a method to detect coal thievery. In the 1800s, the U.S. government even adopted their own "lighthouse whitewash" mixture for painting these structures.

A recipe that works best on surfaces other than wood:

White portland cement, 25 lbs. Hydrated lime, 25 lbs.

Elmer's Glue (white casein glue) Combine cement and lime together in dry form, then add about 8 gals. of water. Mix thoroughly, adding a dollop of glue per working batch. The result should be a thick slurry, which is further diluted and mixed until the consistency of beavy cream is achieved. Don't mix more than you can use in a few bours.

Painting with whitewash is not an elaborate procedure, but you must follow some guidelines. Old whitewash scale, dirt, and other loose material should be brushed or scraped off first, and defects filled. If complete removal of a previous coat is necessary, washing with a solution of vinegar or dilute hydrochloric acid speeds the work.

Wetting the prepared surface first helps the new whitewash coat dry gradually and reduces chalking.

Painting one or more thin (almost translucent) coats produces better results than applying thick layers. Use a whitewash or calcimine brush (a wide tool with plant-fiber bristles that resist lime) and brush evenly, stirring the paint mixture frequently. In decades past, a frequent practice for better adhesion was to paint the whitewash on hot. Sometimes this was done by preparing the wash with boiling water, but usually heat was the welcome byproduct of the chemical reaction of quicklime and water.

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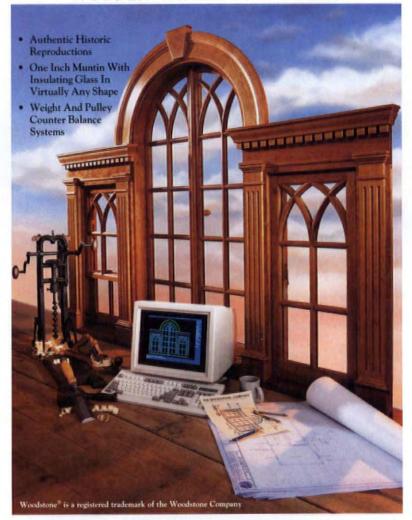
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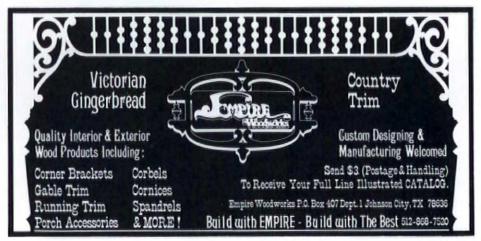
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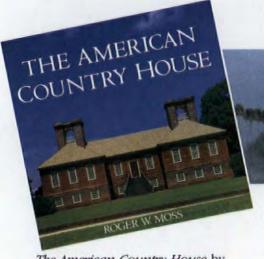


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GOOD BOOKS



Casa Grande (above) is the cathedral-like focal point of William Randolph Hearst's California estate. San Simeon.

The American Country House by Roger W. Moss. Pub.: Henry Holt & Co., 115 West 18th Street, New York, NY 10011; 1990, 235 pages. \$44.50. The American Country House by Clive Aslet. Pub.: Yale University Press, 92A Yale Station, New Haven, CT 06520, (203) 432-0964; 1990, 302 pages with 75 black-&-white and 200 color plates. \$45.

The Architect and the American Country House 1890-1940 by Mark Alan Hewitt. Pub.: Yale University Press (see above); 1990, 312 pages with 250 black-&-white and 200 color plates. \$55.

What is an "American country house"? All three authors do agree on what it isn't: simply a house in the country, i.e., a farmhouse, a vernacular rural house. Beyond that, there is no consensus on exactly what defines the American country house, and in order to get a complete, comprehensive perspective you might want to read all three books. But if you can't afford that option, you should still enjoy any one of these recent publications.

Roger Moss, director of the Philadelphia Athenaeum and past contributor to Old-House Journal, offers several models for the country house in his book. The earliest were the (primarily) 18th-century estates of the wealthy plantation class. These family seats, such as Drayton Hall, a Palladian treasure outside of Charleston, were symbols of wealth and

power derived from private agricultural empires established from Maryland to Georgia. A second phase of country houses commences with the appearance of "villas," often in the Classical styles, the seasonal houses of wealthy merchants generally built one-day's journey from America's prospering cities.

The "romantic" villa, espoused by the likes of A.J. Downing, represents the next evolution. These houses of the 1840s-on were designed in a variety of picturesque styles, and were often sited amidst idvllic gardens. The last phase highlighted are the often pretenious "set-pieces" of the late 1800s, such as Richard Morris Hunt's "Marble House," built for super-rich industrialists and financiers. Moss' The American Country House has an easy-to-read narrative and lavish color photos that show off his subjects at their mouth-watering best. Many contemporary interior photos of country houses from Georgian through early-20th-century Mediterranean styles should provide plenty of information and inspiration for old-house lovers in search of authentic period decor.

Whereas Moss examines country houses as far back as the early 1700s, Clive Aslet's book by the same name concentrates on the period from 1865 to 1940, considered by many to be the golden era of American country houses. Aslet, an Englishman, is deputy editor of Country Life. It is not surprising therefore that he com-

pares English and American country houses, finding a desire by wealthy Americans to imitate the country life of European aristocracy. But in some of the most interesting chapters, Aslet explores the uniqueness, or "American-ness," of our country houses: the latest in conveniences, comfort, and practicality. The American rich may have wished to "play" at farming and the rural life, but their homes featured the latest in bathrooms, laundries, electrification, bowling alleys, heated swimming pools, and so on.

Aslet's text is probably the most readable and lively for a general audience. He is particularly adept at portraying the leisurely social life revolving around these country estates, devoting sections to the "sporting life," the gentleman farmer (and the outbuildings necessary for this hobby), and the integration of a new invention — the automobile — into the estate complex. Chapters are devoted to the country houses of California, Florida, the Berkshires, the Adirondacks, the Hudson River Valley, and Philadelphia's Main Line. Illustrations are ample; many are historic views or taken from period magazines.

Hewitt's book is the most narrowly focussed, concentrating on the 50year period from 1890 to 1940. It is also the most academic and analytical of the three: This book doesn't invite casual perusal, but it will be invaluable for serious readers.

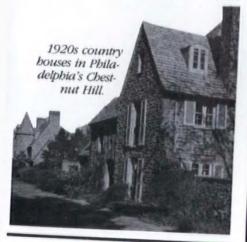
Hewitt is a practicing architect, and as the title The Architect and the American Country House suggests, his point of view is how the architects of these great country houses

thought and worked. What was their relationship with their patrons? What were the economic and social factors that spawned the creation of so many country houses during this era? What were the architectural theories and building technologies that went into their design? These are some of the questions that Hewitt adroitly addresses and answers.

Hewitt discerns three ideals for the country house: the stately, or aristocratic, model as espoused by Edith Wharton and others during the 1890s (example: the Vanderbilt House in Hyde Park, N.Y.); the country, or "pastoral genteel," model that was part of the House and Garden movement of the first two decades of the 20th century (example: the House in the Woods by Howard Van Doren Shaw in Lake Geneva, Wisc.); and the regional, or indigenous, traditions of the 1920s and '30s, such as the Spanish-influenced houses of California, ranches and adobes of the Southwest, or the antebellum revivals of the Old South.

The Architect and the American Country House, like the others, is gorgeously illustrated, with emphasis on architectural plans and rendering. A useful Architects' Biographies section profiles many such deserving but not-yet widely-known personalities as Charles Platt, George Washington Smith, and Wilson Eyre.

J. Randall Cotton

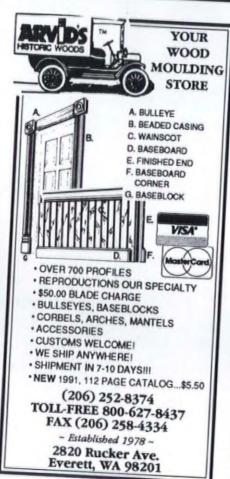




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You can order actual blueprints for all the houses featured. Plans conform to national building-code standards - however, modifications are usually necessary for your site and local requirements, so you'll probably need the assistance of a professional designer (your builder may qualify) or an architect.

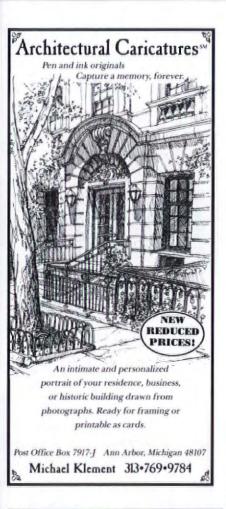
- · Framing diagrams that show layouts of framing pieces and their locations for roof, first and second floors.
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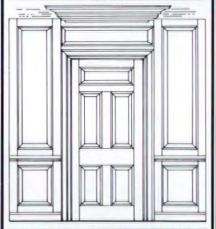


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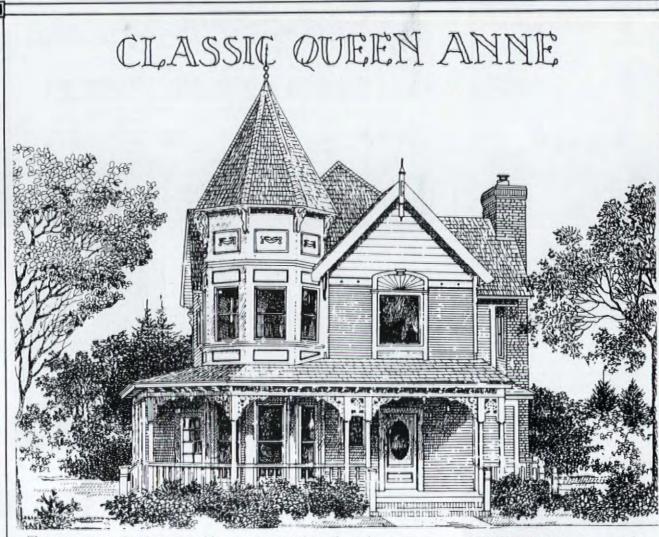
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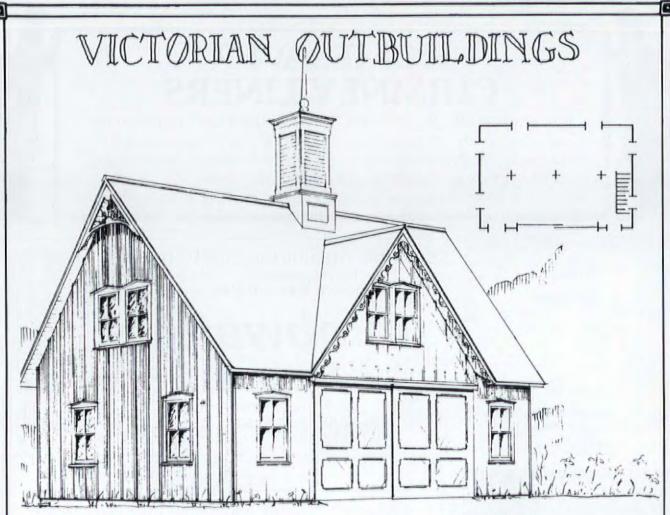
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Carriage Barn

This carriage barn with its Gothic Revival front gable and decorative eaves is a building type seen with many late-19th-century homes, particularly in towns. The barn is well adapted for use as a two-car garage and incorporates a 6'-×-22' storage area at either side of the car bays plus the upstairs loft. The plan includes details for doors, trim, and gingerbread work.

Plan G-03A-CD

Cost: \$50

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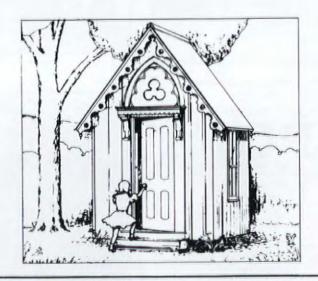
Children's Playhouse

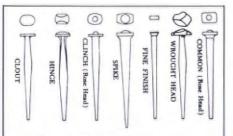
Adults aren't the only ones who love Victorian houses! This Carpenter Gothic-style playhouse will be a neighborhood favorite with the children. After they have grown, it will make a useful tool/garden shed.

Plan G-04A-CD

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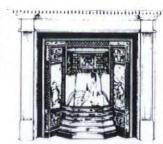
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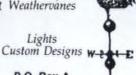
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by Lynn Elliott

For the Birds

Hughes & Wentworth handcrafts stately birdhouses and dovecotes that are based on historic architectural styles. The hexagonally-shaped "Carlsmith House" (shown below) is a reproduction of a dovecote design popular in Victorian England. Suited for a tall post, the birdhouse is 34" wide by 38" high and has a shingled palladian roof. Its large entrance holes



The shingled roof of the Hughes & Wentworth "Carlsmith House" is removable for easy cleaning.

are sized for purple martins, swallows, and wrens. Equally charming is the "Supper Station" which has four open-sided entrances, a copper roof, and roof ornament.

All of the birdhouses are constructed of white pine or cedar. The nesting cavities are unpainted and therefore non-toxic. The "Carlsmith House" costs \$995; the "Supper Station" is \$225. For information, contact Hughes & Wentworth, Main St., P.O. Box 35, Dept. OHJ, Francestown, NH 03043; (603) 547-3633.

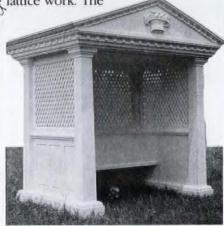


Heirloom Seeds

Once we heard about the Flower and Herb Exchange, we had to let you know about them. In an effort to preserve and share plant species, this unique, non-profit organization offers heirloom seeds that are unusual or unavailable commercially. The Exchange consists of listed members who have heirloom seeds, and nonlisted members who are interested in obtaining seeds. The 1991 catalog has over 1000 listings of many species. Those seeking a lost heirloom seed can use the Plant Search section to help locate a source. After the initial \$5 membership fee, a seed exchange costs \$.50 for listed members and \$1 for non-listed members. The Flower and Herb Exchange, R.R. 3, Box 239, Dept. OHJ, Decorah, IA 52101; (319) 382-5990.

Garden Houses

Adapted from architectural styles of the 17th and 18th centuries, Stickney's garden houses are built with attention to detail. The Full Triangular Pediment garden house (shown below) has a built-in seat and open lattice work. The



Note the extensive moulding on all sides!

garden houses are built in modules and arrive with two coats of white primer. The Full Triangular Pediment garden house costs \$6,995. Stickney's Garden Houses and Follies, One Thompson Square, P.O. Box 34, Dept. OHJ, Boston, MA 02129; (617) 242-1711.

Victorian Wirework

Finding garden seats is easy among the Victorian wirework from R. & A. Rayment. Many of Rayment's designs are reproductions of Victorian originals, like the intricate French Canopy Seat. Whether it is placed indoors or

outdoors, the 35"-×-52" Victorian Long Planter (shown below) is an attractive way to display plants, and is handpainted in black, white, or forest green. The French Canopy Seat and the Victorian Long Planter cost \$6,373

and \$836 respectively. For more information contact Seahorse Trading Company, P.O. Box 677, Dept. OHJ, Berryville, VA 22611; (703) 955-1677.

This bandpainted Victorian wirework is made from galvanized iron.



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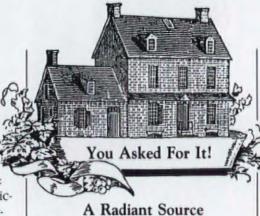
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various styles, and interlocking modular patterns. Available in a full range
of colors, the collection is handpainted. Deer Creek offers 30 origi-



Some Julia Morgan tiles were designed for the Hearst Castle in California.

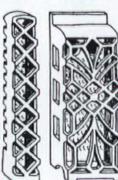
nal patterns as well as a line of tiles inspired by the collection. Tiles cost \$20 to \$30 per linear foot depending upon the pattern. For a list of distributors, contact Deer Creek Pottery, 305 Richardson St., Dept. OHJ, Grass Valley, CA 95945; (916) 272-3373.



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> Two of Andy's early-model gas radiants.



Beaded Vinyl

A lot of folks have asked for more information about the "vinyl beadboard siding" mentioned in the Sep-



Wolverine's vinyl beaded soffit looks like 19th-century bead-board.

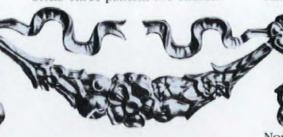
tember/October 1990 issue. Wolverine Technologies produces a vinyl beaded soffit product as part of its Restoration Collection. The vinyl beaded soffit is a low-gloss exterior siding that's designed to be compatible with older homes. Though a substitute material, the product is an acceptable look-alike for wood beadboard and may have applications for high-moisture areas. Depending upon the style, the vinyl beaded soffit costs \$81 to \$86 per 100 sq.ft. For information, contact Wolverine Technologies, 17199 Laurel Park Drive North, Dept. OHJ, Livonia, MI 48152-2679; (313) 953-1100.

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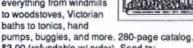


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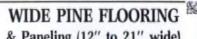
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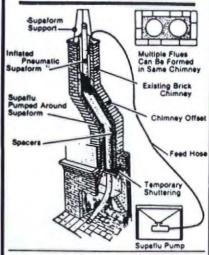
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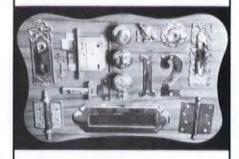
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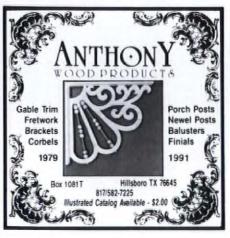
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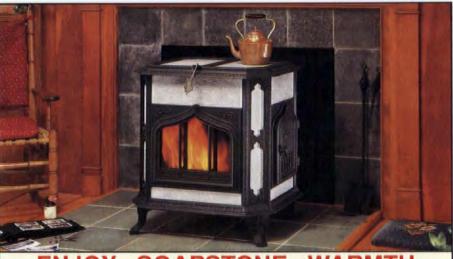
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CERAMIC TILE — By Hermosa, a Japanese import popular after WWII and into the 1950s. Contact: Graff & Schuck, 22 South Kershaw St., York PA 17402, (717) 751-0653.

MOVEABLE HOUSE — Under 1,500 square feet. for small beach town in the Northem Neck of Virginia. Cottage/Sears Catalog architecture needed along with outbuildings if available. Write: Cottage, 6012 N. 25th Rd., Arlington VA 22207.

LIGHT FIXTURES — Gas/electric combination for our early 20th-century home. We need two more. Six or more arms preferred, all others considered. Please send description, price, and photos to Bob Saeger, 308 South Main St., Plainwell MI 49080, (616) 685-9661.

SITUATION WANTED — Dedicated and skilled old house restorer seeks exchange of room and board for work on restoration project. Must be able to commute to NYC. Call (212) 922-0846.

MEETINGS & EVENTS

TWO-WEEK RENOVATION COURSE — July 21-August 3. Integrating design development with hands-on construction at a renovation site. Discussion of financing, scheduling work and subs, recycling old houses and materials. For information contact: Yestermorrow Design/Build School, PO Box 355, Warren VT 05674, (802) 496-5545.

OPEN HOUSE — Sunday, July 28, 12-5pm in Yarmouth Port, MA. The Winslow Crocker House and the Captain Bangs Hallet House will be open for tours. There will be music on the lawn at the Winslow Crocker House and refreshments will be served at both houses. Contact: Society for the Preservation of New England Antiquities, 141 Cambridge St., Boston MA 02114, (617) 227-3956.

TIMBER FRAMING WORKSHOP — July 16-20 in the Village of Grand Rapids, OH. The workshop will include a community frame raising during the village's Rapids Rally Festival. For further information, contact: Northern Timber Framing Inc., 12525 Box Road, Grand Rapids OH 43522, (419) 832-1616.

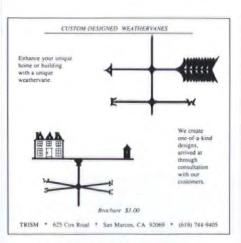
1991 NATIONAL HARDWARE SHOW — August 11-14. McCormick Place Complex in Chicago, IL. More than 3,000 exhibitors will display the latest products in the areas of hardware and allied lines, building supplies, paint and paint sundries, automotive aftermarket, lawn and garden, housewares, information technology. Contact: Pat Dolson, Association Expositions & Services, (203) 964-0000.

ANTIQUES SHOW — The 5th Annual Vetted Antique Show of the Antiques Dealers' Association of America will be held on July 19-21 at the Westchester County Center in White Plains, NY to benefit Historic Hudson Valley. Admission is \$8. Contact: Antiques Dealers' Assoc. of America, PO Box 335, Green Farms CT 06436, (203) 259-3844.

MCKIM, MEAD & WHITE'S NY EXHIBIT — June 12-August 18. In conjunction with the exhibition, a series of exciting public programs are offered at The New York Historical Society. Lextures, walking tours, and workshops for the young explore how New York's foremost turn-of-the-century architectural firm inspired generations. Call the Office of Public Programs (212) 873-3400, ext. 246.

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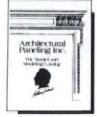
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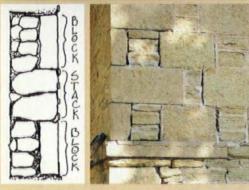
storey bungalows in our village. In recent years I have seen a number of these bungalows undergo renovation" — including the two shown at left, which have had "somewhat questionable 'improvements.'"

That's putting it mildly. Unlike the handsomely maintained bungalow pictured below, these houses have been 'improved' into parodies of themselves. The second storey of space may make the living easy in the house shown top left, but the rest of the world has the hard job of looking at a tiny-windowed box, sheathed in substitute siding of an inappropriate color, creating an outof-character, multi-gable effect. But even that backbreaking burden seems minor compared to the house pictured bottom left. Turning the facade into an outsized camera may have helped business, but this bungalow has no business sporting vertical cedar siding, a blank cyclopean picture window, and a circular entry. We don't know if this house will ever be freed of its clown costume - but we'll tell you in a flash if anything develops!





Vernacular Houses



Top: Block-and-stack masonry in a gable-front-andwing house (Wintermantel House, 1871). Above: Cross section of block-and-stack construction (left) and detail of wall under repair (right). Below: Polychrome patterning of red sandstone, yellow dolomite limestone, and white marble in an Italianate example (Thilke House, 1870).

Block-and-Stack Houses

The limestone quarried near Roxbury and Sauk City in lower Wisconsin is a type called dolomite, which can be worked with hammer and chisel to produce a variety of surface textures, or sawn into rectangular blocks and fitted together to form a uniform veneer called *ashlar*. Between 1855 and 1885, masons from the Swiss settlement of Honey Creek in Sauk County produced a unique, ashlar-like effect by alternating large cut blocks and smaller stacks of unfinished stone in a pleasant "block-and-stack" pattern.

Unlike ashlar, each large cut block in block-and-stack masonry is held in place by the stacks of stones above, below, and to each side, which project back from the wall. This construction makes for increased strength because the blocks are integral with the load-bearing wall as well as bonded to the rubble behind them. In addition, only the blocks are given a chiselled finish, and so a dimensioned surface is achieved with far less labor than that required for a true ashlar stonework. The generous amount of mortar between blocks and stacks is concealed by a raised bead along the joints, giving the wall a finished appearance.

The pattern was probably inspired by stonework produced in nearby Madison, where masons were turning large, rectangular pieces of the local limestone on edge ("bed-faced") to form ashlar surfaces over rubble-stone walls. The specific block-and-stack technique, however, is well traced to three masons: Caspar Steuber, John Peter Felix, and Peter Kinschi.

Block-and-stack houses appear in several styles. After the Civil War, a highly profitable boom in hops-growing enabled local farmers to build masonry versions of the gable-front-and-wing farmhouse seen throughout Wisconsin. The block-and-stack pattern survives on nine houses of this type. Nineteen other buildings, including churches, farm and commercial structures, and a schoolhouse, also display this inventive workmanship.

