



The Old-House Journal

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Restoration and Maintenance Techniques For The Antique House

Painting The American House 1820-1920



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By Dr. Roger Moss, Philadelphia

ONE OF THE MOST FRUSTRATING problems facing the old-house owner is the choice and placement of exterior paint colors. The colors should be historically correct for the age and style of the house, but they should also--on a house of traditional architectural design--be applied according to some basic guidelines concerning the correct placement of the colors. Since it is nearly impossible to discuss color choice without the benefit of color plates and actual color chips of paint, what follows will stress the second problem: Color placement.

SOMETHING SHOULD, however, be said about the colors used on American houses built between 1820 and 1920. There are, roughly speaking, four major color phases: late Federal through Neo-classical (c. 1820-1840); Gothic and Italianate Revival, or early Victorian (c. 1840-1870); late Victorian (c. 1870-1890); and Colonial Revival (1890-1920), which saw a return to Neo-classical detailing and a renewed interest in early American architecture. While this is a gross over-simplification, these four periods have fairly definable color palettes ranging from a dominant white trimmed with green, through pale earth tones, to the dark, rich--if somewhat "muddy"--colors which most people associate with late Victorian buildings, to a gradual return to white and light pastels.

EACH OF THESE PERIODS represents a reaction to the color choices which went before and reflect pendulum-like swings of half a century: Gradually darkening, then a return to light colors, followed by the current trend back to dark colors. The most recent darkening of paint colors has gradually found acceptance and happily coincides with the old-house revival. This movement has caused many people to look at houses built between 1860 and 1920 with a fresh eye, including the question of color. Since most of these structures were erected during the last period of richer color use, a considerable number of owners have adopted colorful paint schemes or are considering them.

A CASE IN POINT is the sea-side community of Cape May, New Jersey. The bulk of this handsome Landmark village's housing stock dates from the last quarter of the nineteenth century, most of which has been uniformly painted in glaring white since the turn of the century. Interviews with elderly residents inevitably elicit the response that these Victorian clapboard cottages, hotels and churches have "always been painted white." That is indeed true, for their lifetimes; by World War I the original dark colors of the 1870's and 1880's had been painted over.



(Continued on p. 72)

CLOSE EXAMINATION by microanalysis or even casual scraping reveals, however, that the first coats of paint on virtually all of these buildings were the browns, grays, reds, olives, yellows, and greens that became nearly universal in late Victorian America. Within the past few months several residents of Cape May, especially the inn keepers, have led a return to the colors intended by the original builders. The owners of The Mainstay, The Abbey and The Queen Victoria inns have so influenced the look of the historic district that a private home owner who recently repainted in colors admitted (with perhaps a bit of regret in his voice), "you can't paint in plain white anymore."

White Isn't Right

THE SHIFT AWAY from white has not been without its excesses. Recently a colorist movement, spawned largely by the owners of Victorian houses in San Francisco, has begun to spread across the country, infecting cities like Galveston, Texas. This bright, gay, exuberant use of pastels calls attention to the visually exciting asymmetrical lines and varied textures of late nineteenth-century frame buildings. In too many cases, unfortunately, neither the choice of colors nor their placement on San Francisco's "painted ladies" is historically correct.

IN ADDITION TO THE PROTECTION it offers, paint is a cosmetic. As any beautician will explain, the application of cosmetics is a subtle skill; the trick is to enhance the best features without calling attention to the effort. What is acceptable in San Francisco cannot necessarily be transported across state lines.

THIS CONSERVATISM is not new with me. E.K. Rositer and F. A. Wright, in their Modern House Painting (New York, 1883), cautioned against

"picking out small members in a brighter color than the rest, in order to enliven the whole. This gives a building a choppy and mincing effect, and instead of bringing out and helping the architectural design in a subordinate way as color should, it is apt to result in undue emphasis of features which ought to be kept back, and to give other parts a relative importance that is far from desirable."

IN PARTICULAR, these critics disliked,

"the custom of painting chamferings, mouldings and ornamentation in a positive color--frequently bright red. These features in a design ought to be appreciated in light and shade only. They bring out the form in detail, and the emphasis of shadow is quite good enough without recourse to more violent methods."

Helpful Books

IT IS EASY ENOUGH to be critical of owners for repainting time after time in safe, clean white, or for selecting freely from the wide range of boutique colors. But how is the average old-house owner to know what colors are correct and how they should be applied? The Athenaeum of Philadelphia has struggled with these problems for years. In 1975 the library reprinted a counter top display book that had been issued by the Devoe Paint Company in 1885.


Exterior Decoration was an instant success and 5,000 copies were sold in spite of the high cost of \$35.00. The book contained twenty color plates and fifty color chips. Unfortunately, the plates were more picturesque than informative and only the late Victorian colors of the 1870's and 1880's were illustrated.

NONETHELESS, Exterior Decoration remains a valuable document (an original copy was recently on the market for \$2,500 and the reprint commonly sells for over \$60.00). Since the Athenaeum did not intend to reprint Exterior Decoration, the American Life Foundation has published Century of Color: Exterior Decoration for American Buildings, 1820-1920, (see p. 96), which it is hoped will be even more useful.

Selecting Colors

COLOR CHOICE is a matter of personal preference. No matter how "correct" a color may be, if you don't like it you will not want to use it. On your own house you should be able freely to express your personal tastes. Fortunately, there is a wide enough range of colors that are historically acceptable that you can express your individuality and be fair to the history of your house. Such freedom, of course, is not available to the person responsible for interpreting a museum house. There every effort must be made to determine the original colors and apply them as they were, even if the colors and their placement are inconsistent with the curator's or the board's perception of good taste. However, most readers of The Old-House Journal are not burdened with museum houses. You face the problem of being sympathetic and letting the house make its own statement, tempered by the boundaries of your own likes and dislikes.

I RECOMMEND in Century of Color that the owner of a building in need of repainting first obtain a paint card for the period of the structure



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The Queen Victoria Inn in Cape May, on the southernmost tip of New Jersey, is painted in Sherwin-Williams colors. Joan and Dane Wells scraped down to the original 1881 colors and reproduced the original color scheme. Body is grayish green, trim is grayish olive

green, sash is dark brown (to match the storm windows) and the roof is medium reddish brown. The Queen Victoria opens its Centennial season April 10; reservations can be made by writing the Wells in Cape May, NJ 08204.

or turn to Exterior Decoration (available in large libraries) or Century of Color which contains forty documented colors for the years 1820-1920. In the latter book, I provide four ranges of color to fit the four periods mentioned above. The names used in the book and by Sherwin-Williams are somewhat arbitrarily assigned (Downing, Renwick, Rookwood, Tiffany), but keep in mind that the lighter grays and drabs of the "Downing" period can be used for houses built anytime after the 1840's, many of which continued to be manufactured long after the richer, late Victorian colors became popular.

FIRST SELECT A BODY COLOR which appeals to you: Yellow, brown, gray, green, etc. Then, by turning to the "affinity" chart which I extracted from paint company literature of the period, (in Century of Color), determine which trim colors were thought to be appropriate matches. For example, you might wish to paint your 1880's house "Rookwood Light Green" which is a grayish yellow green. The affinity chart will tell you that this color was usually trimmed with "Rookwood Dark Green" (a darker grayish green), or, if you want a lighter trim than the body,

you could also use "Downing Light Gray" which is a yellowish gray.

IF YOU WOULD RATHER have a yellow house, you might select "Renwick Yellow" (pale yellow) trimmed with "Rookwood Yellow" (a dark grayish yellow), one of the four compatible grays, several browns, or even an olive. There is nearly an infinite number of combinations by which you can express your individuality while still being historically sensitive to the period of your house. In an essay on "Modern House Painting" published in 1884 by the H. W. Jones Paint Company, the author argued that

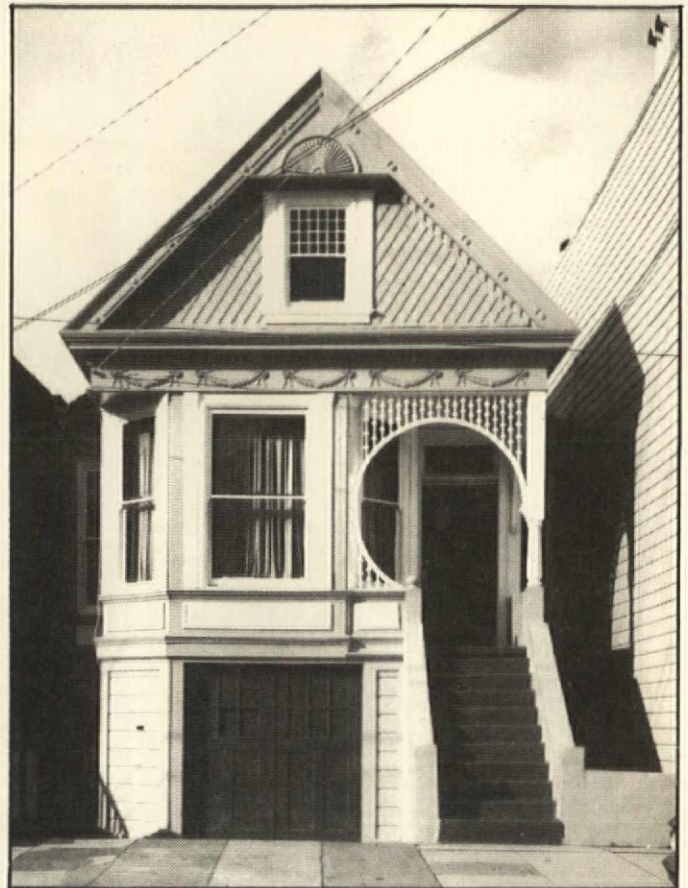
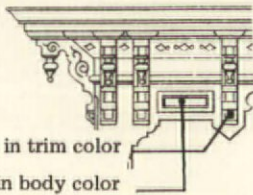
"the laudable and rapidly growing tendency to the free use of color in the decoration of villas and cottages as well as the most pretentious structures, warrants us in assuming that the 'white house with green blinds,' except as an occasional desirable variation, is a thing of the past, and we believe the new rich colors we manufacture will be appreciated by those who are desirous of beautifying their homes, at the same time securing in their appearance a greater degree of individuality than has hitherto obtained, and increasing the attractiveness of their villages, towns and suburbs, tenfold."

Color Placement

AFTER SELECTING the colors to be used, the old-house owner then faces a second major problem: Placement. Nearly all houses built in America prior to World War I were intended to be defined by the trimming color. Houses are outlined by certain architectural elements such as corner boards, cornice, water table and belt course. All of these elements are usually painted in the major trim color. Then the main vertical and horizontal elements of the porches are outlined in the same fashion. Finally, the window and door openings are outlined. I favor a light body and dark trim, but this need not be a hard and fast rule; there is ample precedent for the opposite placement. However, keep in mind that a large house can be made to appear smaller by selecting a trim color that is darker than the main body color.

AFTER THE HOUSE HAS BEEN fully outlined, you begin to introduce additional colors. The simpler the house, the fewer the colors is a good guideline to follow. Also, reversing the body color within major areas painted in the trim color is generally to be preferred over introducing a third major color. Cornice brackets and porch balusters, for example, usually look better painted in the body color against the trim.

ONE AREA WHICH CAUSES many people problems is the brackets on Italianate roof and porch cornices. Usually these are painted out with the cornice. The exception to this rule is when the brackets are fabricated from three or more boards so there is a recessed face or recessed scroll on the sides. In those cases the recesses are usually picked out in the body color for contrast.



The architectural richness of San Francisco houses kindled a new interest in color. When done by skilled colorists, some of the polychromed exteriors are quite beautiful. Other of the more garish "painted ladies" resemble circus wagons.

Sash And Shutters

THE SASH AND SHUTTERS, however, will probably carry different colors. As a general rule, these two elements will be the darkest parts of the house. Especially for houses erected between 1840 and 1900, the sash is darker than the trim, usually deep reddish or chocolate brown, dark green, olive or even black. This gives the effect of the windows receding into the facade rather than projecting, which is exactly the effect that was intended.

MANY FINE OLD-HOUSE paint schemes are spoiled at the last moment by painting the moveable sash white, the light body color, or, even more unhappily, by the application of white storm windows where the commercially available dark brown ones could have been used. Shutters, too, are usually darker. Often they are painted in the trim color with recessed panels picked out in the body color, or in an even darker shade of the body-trim combination. If your shutters are to be painted in the trim color, be sure to paint the backs of them in the body color (with the recessed panels picked out in the trim color) so when they are closed there will be definition between the window frames and the shutter rails. Little tricks such as this enliven a facade and show that you really understand how the nineteenth century used paint.



This "Queen Anne" illustrates how sash painted a darker color than the trim makes the windows look as if they are receding into the facade. Notice that the trim is lighter than the body color, although the body color is also light. The dark roof, probably a red or green, anchors the entire building nicely.

ON RARE OCCASIONS the chamfering of porch posts and the putty of sash are painted in bright red, but it cannot be emphasized enough that excessive picking out is to be avoided. If you are uncertain, leave it off; the Rossiter and Wright admonition quoted above should be taken to heart. Especially in the late nineteenth and early twentieth centuries, classical decoration (wreaths, garlands, swags) was often applied in the peaks of gables or around the drums of towers. These details were rarely picked out against the background and never, to my knowledge, like polychrome Della Robbia.

AMERICAN COLOR SCHEMES throughout the nineteenth century were relatively simple. Only in the late Victorian period, and especially on Queen Anne houses, did multi-color schemes for the body of the house become popular. The safest combination for houses of that period is a stack of dark to light shades of the same color applied with the darkest shade on the first floor, medium on the second floor, and the lightest on the third.

sash. Vandyke brown is the best general color for sash, as it is a warm color, besides being dark, and it harmonizes perfectly with all warm colors."



Elements of Queen Anne and Colonial Revival can be seen in this turn-of-the-century house. Notice how all the "classical" details (the Doric columns and pilasters) are painted white while the body and sash are darker.



This 1873 stone and brick house might have had a stone colored cornice, the iron cresting on the roof-ridge and turret might have been black, and the sash might have been dark brown. The stone would have been left its natural warm brown color.

Masonry Buildings

SPACE IN THIS short article does not allow me to say much about the painting of masonry buildings. For example, many commercial fronts in the United States dating from the last third of the nineteenth century are brick, but there is little contemporary documentation for painting the trim of these structures. The Sherwin-Williams Company wrote in 1884,

"almost all brick buildings are finished with stone caps and sills; but window and door frames, never being made of stone, should not be painted to represent it. The only part of a brick building that may be painted a stone color is the cornice, because it frequently is made of stone. If the cornice is made of brick, always paint it the same color as the body or main part of the building. All iron work, such as crestings, railings and brackets of balconies, should invariably be painted some dark color, such as black, bronze green or vandyke brown. Sash also should be painted very dark. Black or bronze green are good colors for general work. For olive combinations, a dark rich wine color is good for

Into The Twentieth Century

AS THE NINETEENTH CENTURY waned, American domestic architecture began to return to simpler lines inspired in part by our colonial past. With this revival, paint colors also changed. Body colors returned to pastels; white became the most popular trim color and even was used for sash. By 1914, for example, firms like the Lowe Brothers Paint Company were recommending that "trimming should be lighter than the house itself... white or very light colors should be used for the trim," and "dark colors rarely look well." In this period, however, the cornice, corner boards, and belt courses were still defined against the body color—even when the body was light yellow and the trim an ivory white.

ONLY WITH THE INTRODUCTION of bungalows and later tract housing were we weaned away from multi-color paint schemes, the importance of enhancing niceties of architectural detail being lost in a flood of white paint. Fortunately, Americans have once again discovered the importance of paint for the exterior decoration of their homes, and no longer will they accept the chromatic monotony of the past half century.

Dr. Roger Moss is the Executive Director of The Athenaeum of Philadelphia. He is the Treasurer of the Victorian Society, and a Director of The Historic House Assn. of America. He is also author of the new book, Century of Color: Exterior Decoration for American Buildings, 1820-1920.

Selecting Colors

By Katharine Conley

MANY PEOPLE ASK, "What color should I paint my house?" Roger Moss has already in his article stressed the importance of color placement. It is as significant a decision to place the colors properly as it is choosing the colors in the first place. The following guide should help you find color combinations that are historically appropriate and suitable for your taste.

PRE-1800 HOUSES were painted whatever colors were obtainable. White paint was not available in a pre-mixed form before the 19th century, but white lead was used to make white paint on site from early colonial days. Those people who could not afford or did not have access to white lead used whatever natural pigments they could (when they didn't simply leave their clapboards to weather) such as rust which made "spanish brown" and "indian red."

HOUSE COLORS CHANGED DRAMATICALLY between 1820 and 1920. Popular colors were pale, then dark towards the end of the 19th century, and pale again at the century's turn. These changes were made according to predictable changes in taste, but also according to changes in house styles.

BETWEEN 1800 AND 1840, houses were mostly painted in whites and creams with green shutters. The classical revival styles were most popular partly because Thomas Jefferson fostered them, thinking them best suited to the democratic ideals of the young American republic. After 1840, Andrew Jackson Downing helped start a fashion for romantic Gothic and Italian style cottages that were better painted in soft stone and field colors than in the more severe colors of the classical revival styles.

THE 1860's AND 1870's introduced more imposing formal styles like Second Empire, Renaissance Revival and Italianate. These larger houses were suited for their role in the expanding cities in which they were built. They were sometimes painted in pale colors to suggest the formality of stone palaces, but more often they were painted in dark greens and reds suggestive of the masonry and brick buildings they emulated. These darker colors were used by architects such as James Renwick, who designed some of the buildings in one of America's first national museum complexes: The Smithsonian Institution in Washington, D.C.

BY THE 1880's AND 1890's, colors were not only dark but vivid and plentiful. Queen Anne and Stick styles both boasted a wealth of detail and color to heighten the effect of all those balusters, shingles, porches and towers. And these colors became more vivid as the century wore on. Initially they were predominantly painted in earth tones of green and rust, reminiscent of the natural pigments used in the glazes that distinguished Craftsman style Rookwood pottery. Later the hues were increasingly bright and joyously fanciful, similar to the luminous colors used by Tiffany in his art glass.

THE TURN OF THE CENTURY witnessed a colonial revival that brought back plain white and creams. The many-colored late Victorian Queen Anne houses were masked in white, as were houses of every other earlier style, whether they were built in a colonial revival style or not. The movement from pale to dark and back to pale had come full circle.

Choose By Style

WHEN SELECTING COLORS, the best place to start is with your house's style. If you choose colors that were initially intended for the style, you will show it in its best light. Even if your house was built years after its style was at its peak, (a Greek Revival built in 1870, for example), you should still paint your house in the colors suitable for that style.

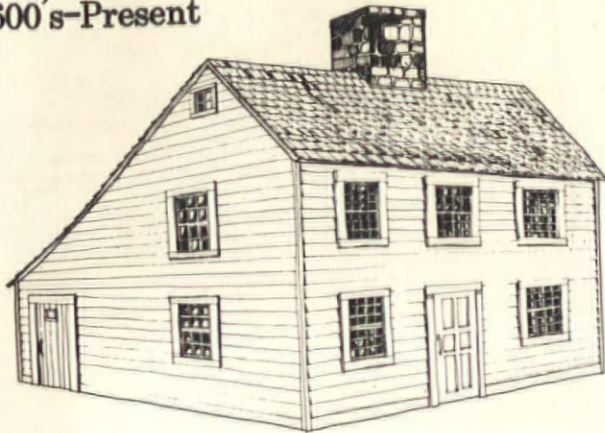
PAINT COLORS, like house styles, did not conveniently go out of fashion as soon as a new color combination or house style was introduced. Best to study the details on your house (shape, mass, type of roof, windows, porches), and determine which style it most closely resembles. Then choose colors accordingly. Most houses are not true examples of any one style. Frequently they are transitional and combine details or characteristics of more than one style.

IN THE GUIDE that appears on the following pages, the odds are you won't find a house that is exactly like yours. But you should be able to find a style--or combination of styles--that approximates it, and the color ranges that are suitable.

Illustrated by Charles Eanet. Queen Anne house adapted from "Gift to the Street."

Saltbox

1600's-Present



Early saltboxes were usually left unpainted. Wood weathered to a brown-gray color; today, stain would be appropriate. Even after the introduction of paint, colors were limited. White lead was the pigment for white paint, while other natural pigments were used to make dark brown and red.

Body	Trim
White	Same
Spanish brown	
Indian red	
Ochre	



Georgian 1700-1800

The classic formal Georgian house would most often have been painted white, with green or black shutters. Earlier, less formal houses of this style were sometimes painted in the darker, colonial colors.

Body	Trim	Door
White	White	Dark brown
Dark brown	Same	Black-green
Barn red	Cream	Dark blue
Dark green	Any of above	Red

Federal Rowhouses

1735-1835



These urban houses were often painted in light, severe colors with white or cream trim. Doors were dark: Black or natural dark wood. Shutters were dark red, green or brown.

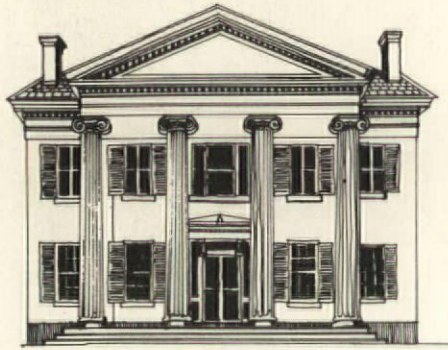
Body	Trim	Door
White	White	Black
Pale yellow	Cream	Natural
Cream	Same	Dark green
Medium blue	Any of above	Dark brown

Classic Farmhouse

1800-Present



These houses were built throughout the 19th century, and were painted whatever colors were popular at the time. Many were painted white, sometimes with red roofs. Often these houses were painted plainly all in one color, with only the doors colored dark brown or red for contrast.

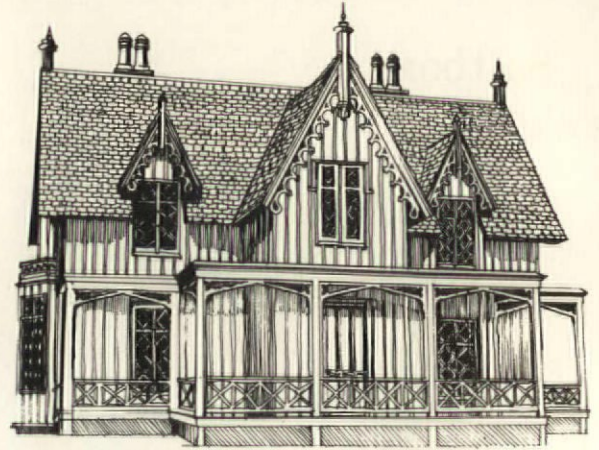


Greek Revival

1820-1865

Suitably "classical" colors were white or pale yellow, accented with white or cream trim. Pale gray, blue, green, and yellow are also considered appropriate.

Body	Trim	Door
White	Cool white	Dark green
Pale yellow	Dark green	Medium blue
Light gray	Sandstone	Black
Sandstone	Any of above	Any of above



Gothic Revival/

Carpenter Gothic 1840-1860

Gothic Revival mansions and Carpenter Gothic Cottages alike were most often painted in light browns and pinks. Trim was done in the same or similar colors, or painted dark brown. Doors and shutters were dark.

Body	Trim	Door
Rose beige	Dark brown	Natural
Light brown	Medium brown	Dark red
Dark brown	Light brown	Dark brown
Medium blue	Light gray	Dark green

Vernacular Italianate

1840-1880

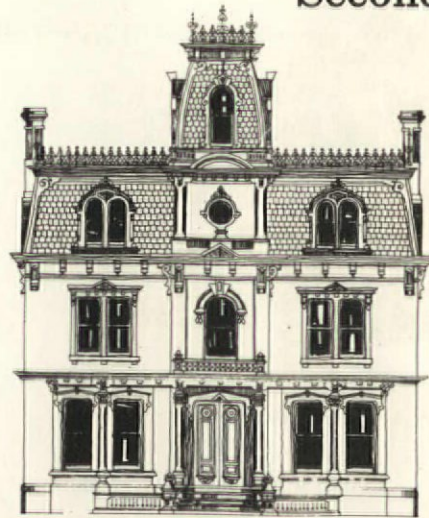


These were painted in warm, light colors with contrasting trim, and dark doors. Trim was often the same color, but in a different shade—lighter or darker. Colors range from cream to brown, gray to green.

Body	Trim	Door
Warm brown	Beige	Natural
Dark brown	Warm brown	Dark green
Dark gray	Light gray	Dark brown
Light green	Medium gray	Any of above

Second Empire/ Mansard

1860-1880



Details were picked out in dark greens, reds and browns. Earlier houses continued to be painted in Italianate colors that resembled stone. Trim was generally lighter, with doors and shutters in subtle contrast to the trim.

Body	Trim	Door
Dark green	Beige	Natural
Dark red	Cream	Dark brown
Brown	Light brown	Green-black
Beige	Yellow	Any of above

Stick Style

1860-1885



Body and trim were painted contrasting dark colors (red, gray and brown) to heighten the decorative trim. Doors were often oak or another unpainted hardwood.

Body	Trim	Door
Medium gray	Dark gray	Oak
Indian red	Dark brown	Unpainted wood
Ochre	Green-black	Either of above
Dark blue	Beige	"

Stick-Eastlake

1870-1900



Bold, colorful contrasting color schemes—reds, greens, yellows with maroons and blues—earned these West Coast houses the name "painted ladies," even as far back as 1885.

Base	Body	Trim	Sash	Door	Cornice
Pompeian red	Olive	Bronze	Indian red	Oak	Terra cotta
Indian red	Maroon	Seal	Yellow	"	"
Granite	White		Bronze	"	Sky blue

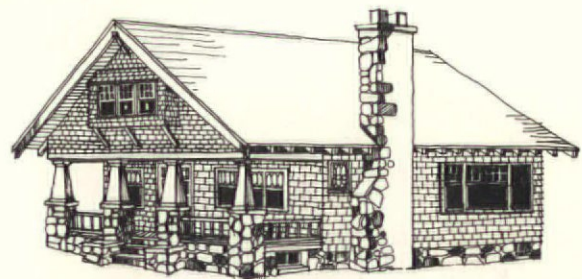


Colonial Revival

1880-Present

These went back to pale colors: Mostly white or cream, sometimes pale yellow, with white or cream trim. The difference from earlier, true colonial styles is the large size of the house and the frequent presence of a big front porch.

Body	Trim	Door
White	Cream	Oak
Light yellow	Warm white	Unpainted wood
Tan	Any of above	Either of above
Medium gray	"	"

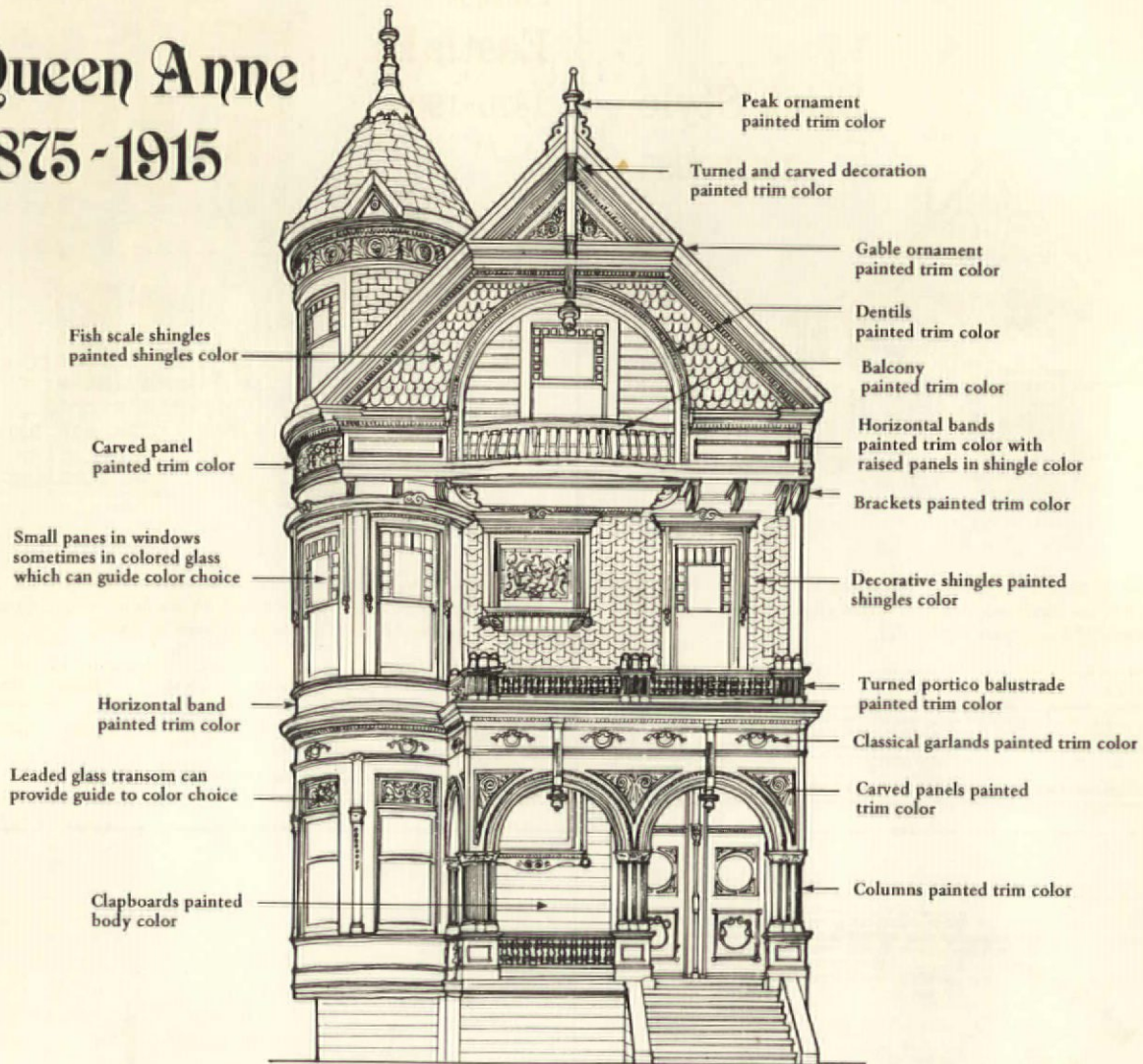


Craftsman Bungalow

1900-1930

These bungalows, like other turn-of-century styles—Tudor, Shingle—were unpainted. The natural materials used, stone and wood, were untreated except for an occasional stain to darken the wood. Stucco, too, was left a natural color.

Queen Anne 1875 - 1915



OF ALL THE REVIVAL STYLES in the 19th century, Queen Anne had the most variety of detail and texture. Coincidentally, at the same time that the Queen Anne style was most popular, the darkest, most vivid colors were also popular. As a result, Queen Anne houses were painted several dark colors, to highlight all the detail.

THERE WERE ELEMENTS of the Queen Anne style that were part of the early stages of the Colonial Revival which was in its heyday about twenty years afterwards. The Colonial Revival did not merely consist of Georgian Revival style houses. It was a general harkening back to early styles, including Queen Anne, even though most of the early styles evoked were American, not British.

THE QUEEN ANNE STYLE was fashionable at a time when a lot of building was taking

QUEEN ANNE COLOR SCHEMES		SHINGLES				TRIM				SASH		BLINDS					
		Dark red	Reddish brown	Warm brown	Light green	Maroon	Reddish orange	Bronze yellow	Dark green	Maroon	Dark red	Dark green	Olive	Dark green	Tan	Dark red	Dark blue
CLAPBOARDS	Buff																
	Olive																
	Dark brown																
	Gray																

place in the United States. Perhaps the most important thing to remember when painting a Queen Anne house is that the many architectural details outlined above were picked out and celebrated with color.

Historic Paint Research: Determining The Original Colors

By Matthew J. Mosca

HISTORIC PAINT RESEARCH is a field of ever-increasing interest, as we develop a body of knowledge on color and its enormous importance in architecture throughout history. Andrew Jackson Davis said the significance of color is second only to the form of a building; in some cases, particularly in rural settings, the exterior color was to him more important than the form, in that it is first perceived by the viewer. This is borne out by comparing the colors found in relation to the building materials used in a region. For instance, the predominance of brownstone in Brooklyn greatly influenced the paint colors used, establishing a very different color palette from that used in Indianapolis, where limestone was the basic building material.

COLORS VARY to such a degree that we have just begun to uncover the actual colors and almost limitless combinations used in the eighteenth and nineteenth centuries.

IF PAINT were an absolutely stable material and one could simply scrape an area and find the "original" color, as fresh as the day it was applied, paint research would be a simple process. Alas, this is not the case.

Paint often undergoes radical change, from fading in sunlight to darkening with age. Further, the stability of pigments varies greatly. Many earth pigments, made from treated special clays such as burnt umber and siennas, are very stable; many blues and greens, such as Prussian blue and verdigris green, are more likely to change over time. These changeable pigments are called "fugitive colors."

OFTEN, the most important change to the historic paint affects the vehicle rather than the pigment. The vehicle--very often some type of drying oil--is the material which binds the pigment (color) together as a film, and allows it to adhere to a surface. Probably the most common oil vehicle was linseed oil. Linseed oil has a tendency to yellow with time--and the yellowing is increased in darkness. Thus when a

room is repainted, the first colors, now completely covered, will darken faster than when exposed to light. The professional paint analyst must be able to recognize and overcome these complications in order to establish what the actual colors were at any given point in a building's history.

Process of Paint Research

ON SITE, the analyst will sketch the plan of the facade or the room, and record where samples were removed. The various surfaces (clapboards, stone, decorative trim, doors, sash, frames) should be examined; most frequently the cratering technique will be used.

CRATERING is a means of exposing all the paint layers by carefully sanding down a circular area. The cratered areas are then photographed for the record. Additional samples are removed for treatment in the laboratory. A sufficient number of samples must be examined to ensure an accurate accounting of all layers of paint.

AT THE LABORATORY, the samples undergo various tests and treatments under controlled conditions. Exposure to ultraviolet light, for ex-

ample, can counteract some of the yellowing of linseed oil. Chemical tests can be done to determine the actual pigment used. One common test, using sodium sulphide, identifies white lead, perhaps the most commonly used white pigment. Under the microscope, the analyst records all the layers and matches them to a system of color notation (such as the Munsell Color System). Several color systems exist which enable the analyst to assign to each layer an easily identifiable code for future reference.

THROUGH microscopic examination, the analyst can identify special finishes such as graining and marbling, and can differentiate between prime and finish surfaces. The discovery of graining or marbling requires exposure of larger areas on the site, which will enable a decorative painter to duplicate and restore the



Historic paint specialist Matthew Mosca (left), at work with Malcolm Robson, a master grainer.

original pattern. Graining and marbling were both enormously popular during the eighteenth and nineteenth centuries. It has been my experience that most buildings, great and small, bear some type of graining or marbling during their history.

BY COMPARING the number of paint layers on different parts of a building, additions to the structure--which have fewer paint layers--can be identified.

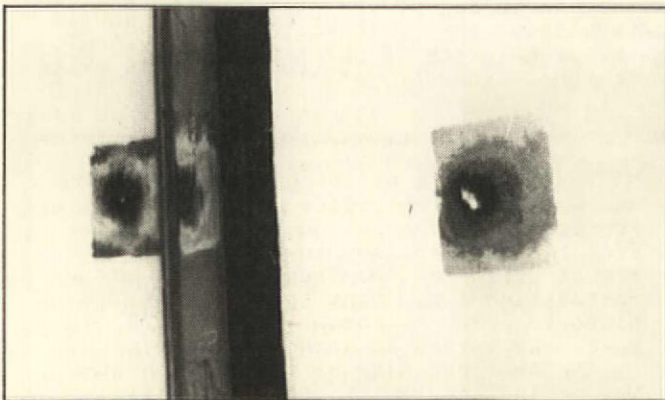
ALL OF THE INFORMATION is then organized into paint seriation charts which describe the chromochronology (literally: color history) of the building. Finally, the paint analyst will recommend the type of modern paint which may be used to create the correct surface and texture of the original. In special cases it may be desirable to mix the paints according to historic formulations or to increase the texture of the paint, such as in the case of sanded finishes. The addition of sand to paint is a technique also found throughout the eighteenth and nineteenth centuries. It increased the durability of the surface as well as simulating stone. Two famous examples of buildings where sanded paint was used are Mount Vernon, George Washington's Virginia estate, and Lyndhurst, at Tarrytown, New York. [See Sand Paint in the Sept. 1979 issue of OHJ.]

OBVIOUSLY, historic paint research is an involved and serious study. It is essential for all accurate restorations, particularly museum houses and other public buildings. However, paint research also has a place in the home.

On-Site Technique

THE HOMEOWNER who is faced with more dramatic problems (such as a leaky roof) may not wish to commit funds for a paint research report. Yet he or she may wish to get as close as possible to the original colors for the exterior of the house. In such a case, the cratering technique may be used by the homeowner.

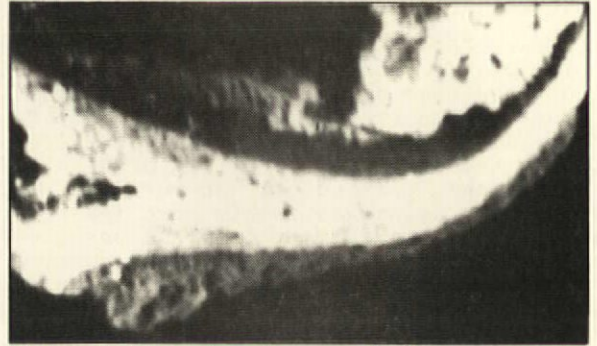
SELECTING THE LOCATION for the craters is important. Choose areas away from direct sunlight and excessive heat, since heat and light can accelerate change in paint, but avoid dark corners as well. Once you have chosen the most desirable locations, note the spots on a sketch plan of the exterior (or of the room if indoors). To begin, make a cut through all



Crater exposure at Woodlawn Plantation, a National Trust property in Mount Vernon, Virginia.

the paint layers approximately one-half inch across. I have found a #2 X-acto knife with a #22 blade best for this. Then, using 220 grit wet/dry sandpaper and mineral oil, sand the sides of the crater until smooth.

THE CRATER should be about one to one and a half inches across. A final polishing with 600 grit wet/dry finishing paper is recommended to remove any scratches. The crater is then wiped clean of all dust and is rubbed with a fresh application of mineral oil. This will help bring out the colors exposed along the side of the crater. The crater is now ready for examination.



Photographed through a microscope, the history of the paint layers can be seen in this sample, taken from an entablature.

FOR PROPER EXAMINATION, one needs a good source of white light and a magnifier. A quartz lamp camera light will provide a very bright light of sufficient whiteness for good color examination. In my opinion, the most useful magnifier is a 10X Hastings type hand magnifier which provides a wide flat viewing surface. This type of magnifier is produced by Bausch & Lomb, and other optics supply companies.

Interpretation

INTERPRETING WHAT IS VISIBLE, however, is considerably more difficult than making the crater. The first problem is distinguishing the finish layers from the primer layers. Generally, it is the first (oldest) finish that is the focus for restoration, and it may be the least difficult to determine. On exterior samples, and some interior ones, a thin dark film of surface dirt, the accumulation of air-borne particulates, may be visible. This will readily identify the finish layer. In some cases, however, all the surfaces will be clean. If this is the case, the finish layer may be discerned by the thin faded surface usually visible on the finish paint layer.

ANOTHER TECHNIQUE involves fracturing of the paint layers under pressure. Paint will generally flake off at the point of weakest adherence. Usually, this weak point is between a finish surface and the succeeding primer layer. This is because the finish layer is applied to the primer layer as soon as the primer is dry, whereas many years of aging and curing separate a finish layer from the succeeding primer. When making the initial cut with a knife for cratering, observe how the paint fractures under the pressure of the knife. Often the earliest finish can be exposed in this manner (especially with repeated attempts).

KEEP IN MIND that the finish exposed on site is an aged finish and may be quite unlike the original color when it was new. The homeowner may suspect that the finish has altered if he uncovers paints which are a murky yellowish-tan or greenish-tan. While these may be legitimate paint colors, known to have been used in the nineteenth century, the homeowner should be apprised that many paints degenerate to a yellowish or greenish tan. Faced with such a problem, the homeowner might request some professional assistance.

OFTEN THE PRIME LAYERS are significant in themselves. Frequently the prime layer (or layers) is slightly lighter than the finish coat. However, fading of the finish coat may reverse this. The use of a dark brown primer on plaster has also been found on buildings dating from the second half of the nineteenth century. This dark brown color was made from a ferric oxide pigment called "Spanish brown". It has, upon occasion, lead amateur paint researchers astray.



After Mr. Mosca's paint analysis, the Kemper House (Indianapolis) was painted light tan with salmon trim; decorative mouldings are red, sash and porch floor are dark brown, pilasters are light grey.

WHEN THE FINISH LAYER has been identified, the color may be matched to any of the systems of the major manufacturers, such as Benjamin Moore, Pratt and Lambert, or Sherwin-Williams. The homeowner should record the name or number of the new paint used for future reference. Matching to a manufacturer's color is for purposes of approximately reproducing the color only--it is not an accurate and universal record of the original color. For this, one must refer to a standard system of color notation, as discussed previously.

Further Investigation

DECORATIVE PAINTING, such as stencil work, striping, scoring, and framing may sometimes be discerned by examining the surface under "raking light"...light falling or raking across a surface. This operation requires two people, a ladder, and a strong flashlight that can be held against the wall or ceiling surface. In a darkened room, begin at the cornice and shine the light across the face of the wall. The light will accentuate any variation in thickness of the paint film, such as that caused by the additional paint used in stencil-

ing. The person holding the light may not be able to see a pattern, so a second person stationed a few feet away from the wall will observe any shadows cast by decorative painting. The entire surface of walls and ceiling may be examined thus.



This sample is taken from a cornice. Note the existence of gold leaf--the sparkling area at left.

Future of the Past

THE HOMEOWNER is under no obligation to posterity to undertake the restoration of the original color scheme of his or her house.

However, no sensitive homeowner would consciously destroy the historic fabric of his or her home. Because the paint layers comprise a document of changes in an historic house, it is essential to retain the record of historic finishes in buildings currently in private ownership. Certainly, stripping is sometimes necessary, particularly on exterior surfaces. If this must be done, the homeowner should engage a professional for paint analysis before undertaking the paint removal, or he should collect paint samples for future examination. If during the stripping process, color remnants are made visible, these should be photographed.

PAINT ANALYSIS is a field which has expanded tremendously. From the tentative beginnings which quite literally "scratched the surface" fifty years ago, the field has developed into one of sophisticated techniques based on an understanding of paints and how they change. Yet with the popularity of restoration, the professional paint analyst must request the cooperation of the homeowner. While paint analysis has come to be recognized as an important component of every major restoration, our understanding of the past will be incomplete without the conservation and study of the great majority of paint materials in historic houses that are still private homes. 🏠

MATTHEW MOSCA, a native of New York City, has worked in the Office of Historic Properties at the National Trust, and as architectural advisor to the Western Regional Office of the Trust. He is now a restoration consultant specializing in historic paint research. Since 1979, Mr. Mosca has worked on such major projects as the American Wing of the Metropolitan Museum and, currently, the restoration of Washington's home at Mount Vernon.

"It's Not As Easy As It Looks"

Preparation, Priming, Painting

By Patricia Poore

MOST PEOPLE think of paint as a decorative material. But paint's primary function is as a barrier--a sacrificial, renewable film that protects your house. Think of paint this way, and you'll see the common-sense necessity of all the tedious preparation work we're about to discuss.

REPAINT ONLY when the paint is no longer protecting the wood. Don't repaint because the color has faded or the clapboards look dirty. Too many paint layers is an endemic problem on old houses, and you don't want to add to it unnecessarily. While such advice may hardly be warranted with today's high cost of labor and materials, it may be a useful reminder that a dingy house may only need laundering.

PAINT FAILURE is most often caused by inadequate preparation of the substrate--be that the existing paint layer or new or stripped wood. The difference between a good paint job and a bad paint job has to do with the adhesion of your new paint to the existing surface. And the new paint will adhere only to a dull, clean, firm, sealed, and primed surface. It's all in the preparation.

A THOROUGH INSPECTION of the building comes first. Besides diagnosing the causes of existing paint problems, you should look for evidence of water damage--an ongoing wetness condition will ruin even the most careful paint job. Pay special attention to gutters, downspouts, roof, and cornice; check the condition of window sash, frames, and sills. Replace damaged clapboards or shingles. Before painting is the time to repoint masonry. Caulk gaps as appropriate (see Sept. 1980, "Talk About Caulk," p.113). Bushes hold moisture and insects against the siding and will interfere with painting, so cut them back from the house. Reglaze all loose window glass.

AN ALL-OVER INSPECTION will help you diagnose and solve any paint failure. Alligatoring, peeling, wrinkling, and surface cracking or crazing are discussed on pages 93 and 94. Besides these common problems, you may run up against any of the following conditions:

BLISTERS: To determine the cause of a blister, cut it open. If there's bare wood inside, all paint layers have blistered away from the wood; moisture probably caused it. Find and correct any water penetration problem. Wait until the siding is completely dry before priming. If there's paint under the blister, though, it's probably a solvent blister caused

by trapped solvent beneath paint film that dried too quickly. This can happen if you paint in direct hot sun. Just scrape or sand the blistered area.

"STUBBORN DIRT" or DISCOLORATION: This could very well be mildew. Mildew itself is unsightly, and it also attracts dirt from the air. To test whether it is indeed mildew, put a few drops of chlorine bleach on it...if it blanches, it's not plain grime. You have to kill the fungus, and remove it by scrubbing or sanding. Try scrubbing hard with a solution of 3 quarts hot water, 1 quart chlorine (laundry) bleach, 2/3 cup detergent (Spic'n'Span, Soilax, or Tide), and 1/2 cup TSP or borax (optional). More bleach equals more killing power for tough areas. Rinse this off thoroughly with a garden hose. Prime the area immediately after it has dried, but do let it dry completely. A mildew-resistant primer and finish paint should be used.

CHALKING or STREAKING: Some exterior paints are formulated to chalk a bit, keeping the paint surface clean. Other times, chalking is caused by a poor quality paint, or by inadequate priming of bare wood or a badly weathered surface: Bare or weathered wood absorbs the binder from paint, leaving the pigment (solids) to chalk. This condition is particularly unfortunate if it happens above unpainted masonry. (Be sure not to buy a "self-cleaning" paint for such locations.) Streaks on bricks are best left to wear off gradually. Before repainting, wash chalking surfaces with 1/2 cup detergent per gallon of water. Go over the surface quickly with a bristle brush, then hose off the siding and let it dry before priming with an oil-alkyd primer.

SOMETIMES NOTING WHERE paint is peeling will give you a clue to the cause. If the top few courses of clapboard are peeling, for instance, it may be that water is penetrating through a faulty gutter, damaged cornice, or a poor flashing detail on the roof.

GENERAL PEELING near the ground could mean that the siding is in contact with the soil, or that capillary action is drawing water up from wet soil through the foundation masonry to wet the bottom-most clapboards or shingles. The water running off the house must be diverted in this case. Check gutter/downspout/drainage details: Splash blocks or a dry well may be needed. Sometimes the problem is grading towards--rather than away from--the house. When siding is in contact with the ground,

grade level will actually have to be lowered. A temporary solution to the peeling is to strip the paint from the bottom five or six courses of siding. Then repaint with one or two thin coats of latex house paint, which is more vapor-permeable than oil-alkyd paint. Subsequent painting will cut down on vapor passage, of course.

IF PAINT PEELING is general over an entire side of the house, or if it's concentrated outside the bathroom, kitchen, or laundry room, the moisture is likely coming from inside the house. Excessive pressure at the interface between the siding and the bottom layer of paint pushes the paint off. A thick, impermeable paint buildup, an exceptionally tight exterior, and side-wall insulation installed without a vapor barrier all contribute to the problem. As discussed previously in the JOURNAL (Sept. 1980, pp. 108, 110, 112), ventilation of the exterior, exhaust fans in high-humidity areas, and installation of vapor barriers when practicable will mitigate the problem. When paint is peeling because of moisture in the siding, don't paint on April 1st. Wait until some hot, dry weather has thoroughly dried out the wood or masonry. Bare wood can be primed in the meantime with one coat of an exterior alkyd primer.



Excessive chalking of the paint from the clapboards caused this streaking on bricks.

Peeling on Masonry

P AINT PEELING off masonry is usually caused by water, too. But the process is a little more complicated than water pushing the paint off, as with wood. Salts are dissolved out of the mortar or plaster when water is in frequent or constant contact with masonry. Bricks especially are quite porous and act as moisture wicks; the water that's absorbed, with leached salts in solution, migrates toward the sun-warmed surface. When the solution reaches the surface, the water evaporates, depositing the salts. This efflorescence is harmless, if unsightly, when the masonry is unpainted.

HOWEVER, THE SALTS will interfere with the adhesion of paint to the masonry; staining and peeling result. Of course, peeling from masonry isn't always caused by efflorescence. Wetness alone is enough to destroy paint adhesion. About the only answer to a chronic dampness problem is better drainage to keep water away from the masonry (more in an upcoming article).

Special Care For Weathered Surfaces

FLAT, HORIZONTAL wood surfaces are the most susceptible to weathering. Water eventually gets to the wood, if not because of cracking of the paint, then through seams between sections or by absorption through end grain. The paint film is subject to erosion from ice, abrasive particles, or human handling. Too, flat surfaces are subject to standing water and snow and ice buildup. Even sunlight and temperature differences cause the paint on horizontal surfaces to weather much sooner than on vertical surfaces.



IT'S ESPECIALLY IMPORTANT to thoroughly prepare such badly weathered areas so that the new paint will adhere, and continue to protect the wood:

(1) REMOVE all loose, flaking, blistered paint as described in this article.

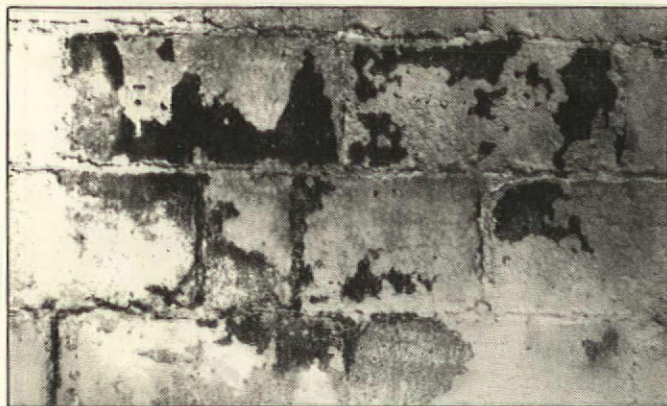
(2) BADLY ROTTED SILLS may have to be replaced. However, much can be accomplished with simple fillers. For filling small holes, linseed oil putty is cheap, available, easily worked, and paintable. Exterior-grade paintable caulks (acrylic latex, butyl, polyurethane) can be used to seal fissures and the seams between sections, or between sill and masonry. Auto body putty is an inexpensive and easy-to-use material -- follow label instructions. The more sophisticated epoxy consolidating and filling systems are another answer, although directions for their use is beyond the scope of an article on painting.

(3) IF WATER-REPELLENT PRESERVATIVES have a place anywhere, it's on window sills. Use of a WRP on both bare weathered wood and brand-new wood is strongly recommended for the conditions shown here. A WRP does no good on primed or painted surfaces, so saturate only bare wood. It might be worth the extra trouble to strip all the old paint from a weathered sill (or from the rail shown above), just to enable the all-over use of a WRP. WRP's are widely available from various manufacturers. Cuprinol is a popular brand; another manufacturer is Hydrozo Coatings, 855 W Street, Lincoln, Nebraska 68501. We don't recommend the use of WRP's containing pentachlorophenol (also called penta or PCP) because of the extreme toxicity of this chemical. Whatever you use, though, take the safety precautions very seriously.

(4) THE ENTIRE SURFACE of these high-abrasion areas should receive a coat of high-quality alkyd primer, and TWO topcoats of a compatible latex, alkyd, or oil-enamel finish paint. Use of a semi-gloss or gloss finish paint is advised.

Before repainting, be sure to brush all salts from the building. Use a masonry paint--many other formulations simply don't stick to brick.

A PAINT JOB over softened or crumbly mortar won't last either. If tuckpointed masonry or stucco is peeling, look at the backs of the paint chips. If mortar, plaster, or stucco is clinging to the peeling paint, the cause again is failure of the substrate--not the paint. Obviously, paint will not adhere to a soft surface that has loose particles. The only answer is to replace all deteriorated mortar after correcting the initial water penetration problem.



Paint peeling from masonry can generally be traced to a water problem.

Cleaning and Scraping

IN THE BEST of circumstances, the entire house would be hosed off before further preparation. A direct stream of water from the nozzle of a garden hose will not only remove dirt, but may even be sufficient to dislodge peeling paint and insect cocoons. On a large building, an all-over washing may be impractical. Broad exposed areas, including most of the siding, are rinsed by rain anyway and are relatively clean.

REGARDLESS OF whether you hose all sides or not, special attention should be paid to "protected areas"--those not weathered by sunlight and rain. Soffits, for example, will have a buildup of grime and must be washed if the new paint is to have any chance of sticking. Another complication with unweathered areas may be peeling caused by water. When these places do get wet, from condensation or leaks, the water doesn't readily evaporate. It causes greater than usual expansion and contraction of the paint film, weakening its bond.

PROTECTED AREAS should be washed with a mild detergent solution and bristle brushes, then carefully scraped and sanded. Don't repaint until the wood is thoroughly dry.

ANY PAINT that is not tightly bonded to the substrate MUST BE REMOVED. Blisters and peeling paint can be scraped off with a stiff-bladed putty knife. A paint-scraping tool is useful in limited areas which prove more stubborn.

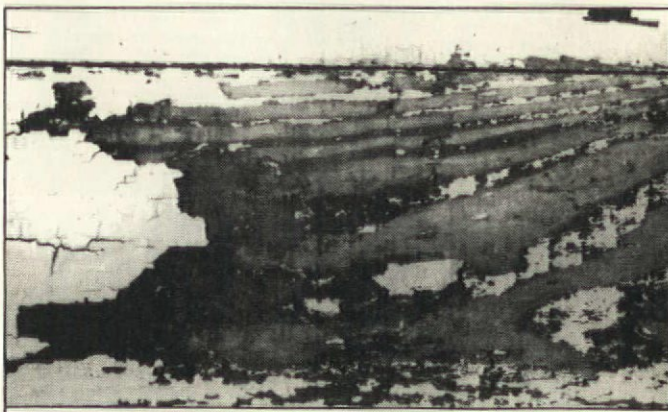
IF THE PAINT BOND anywhere in the paint layer sandwich is weak, the application of new paint

will cause paint failure. That is, if you have an old house with a thick paint buildup, your paint job may be the last straw. New paint shrinks while curing, and the old paint underneath will have lost elasticity over time. This can cause inter-coat peeling. Also, a too-thick buildup will eventually cause alligatoring and cracking of the paint layers. This is all very frustrating if it happens just after an expensive new paint job.

BESIDES BEING extremely diligent in removing all loose paint, selective stripping of alligatorated and cracked surfaces is a worthwhile precaution. If inter-coat peeling occurs right after your paint job, merely touch up the peeled spots with the same alkyd primer and alkyd or latex topcoat you used.

WEATHERED WOOD will not hold paint. If any wood siding or trim has been without paint and exposed to the weather, it must be sanded before priming. Hand-sand with a sanding block and medium-coarse paper, or use a small belt sander if the area is large and flat.

WEATHERED WOOD (and new bare wood) should be treated before priming to keep the wood from drawing all the binder out of the paint. A safe, low-tech recipe is two parts boiled linseed oil and one part turpentine. For greater protection and resistance to insects and rot, use a water-repellent preservative (see box on page 85) instead. Let the treatment cure for 24 hours, or according to directions on the label, then spot-prime with an oil-alkyd primer that doesn't contain zinc oxide. (Zinc oxide is hydrophillic.)



Extensive peeling has exposed this wood to weathering. It should be sanded and treated with a water-repellent preservative (WRP).

Priming and Painting

EVERY GOOD PAINT JOB requires at least spot-priming. An alkyd--rather than a latex--primer should be used if the last paint layer is of unknown formulation, if the substrate is dirty, if the wood is new or weathered, or if you're changing paint systems (i.e., you'll be switching to a latex topcoat this time, but you know the house has always been painted with oil-based paint in the past).

PRACTICALLY EVERY OLD HOUSE, therefore, will be better off with alkyd primer. Spot-prime the edges and both sides of new clapboards,

shingles, and trim pieces before installation. Spot-prime any scraped and sanded areas, and wherever the wood was treated with a preservative or linseed oil. Prime mildly dirty areas that may have been inaccessible for washing and rinsing. As you discover protruding nail-heads, set them below the surface, fill with putty, and spot-prime.

PIGMENTED SHELLAC is still the best thing for sealing knots that bleed through paint. Nevertheless, shellac is trouble outdoors, where it's likely to come in contact with water. Better to varnish the knots, wait till the next day, then rough up the varnish with steel wool or sandpaper before priming.

WHAT ABOUT PRIMING the whole house? It's still generally recommended for insurance that the new paint will stick. It does, of course, add to the labor cost, as well as adding one more layer of paint. If the old topcoat isn't chalking or peeling, and is tight, you can probably skip all-over priming.



Another exciting paint-failure photo: Not merely inter-coat peeling, but cracking and peeling down to bare wood, due to moisture.

APPLYING YOUR FINISH PAINT is actually the last step in painting a house. After all the preparation work—which usually makes the house look much worse!--it's very gratifying to watch the color go on.

INDEPENDENT PAINT RESEARCHERS are currently recommending exterior latex paint for outdoor use, over an alkyd primer. Buy the same brand topcoat as primer.

YOU'LL NEED A 4-inch quality brush for clapboards, shingles, and other large flat surfaces. (A 5-inch brush holds more paint, but is very heavy. Use your judgement.) Beyond that, a 3-inch trim brush and a 1-1/2 to 2-inch sash brush with tapered bristles should do the job.

PAINTING CLAPBOARDS is easy if you get a sequence down pat. A good way is to paint the bottom edge of two courses of clapboard (push the bristles up under each board too), then come back and fill in the two courses in arm's length sections.

PAINT THE BODY COLOR FIRST, then the trim. Let the body color lap over the trim where they meet. This makes it easier to paint the trim neatly, and also provides assurance that every square inch will be protected by paint.

"What Paint Should I Use?"

MANY PEOPLE agonize over whether they should use oil-base or latex paint on the exterior of their houses. In general, good quality latex and oil-base paints are about equal in durability. But for old houses, it is safer to stick with oil-base paints.

THE REASON for preferring oil paints is that most old structures already have many coats of oil-base paints on them. Oil-base paints age differently from latex. An oil-base paint film keeps shrinking and hardening, whereas a latex paint film is more dimensionally stable through time. Because of this difference in aging, a coat of latex applied directly over oil-base paint is more likely to peel and fail than is a coat of oil-base paint.

ON THE OTHER HAND, if the surface is unpainted—either new wood, or if the old paint has been removed or weathered off—it is quite safe to use either latex or oil-base paints after the surface has been primed and sealed.

IF YOU FEEL COMPELLED to use a latex topcoat on a house that already has several layers of oil paint on it, the best procedure would be to coat the house with an alkyd primer before painting with the latex.

UNFORTUNATELY, we're going to have to learn to get along without oil-base paints in the near future. Trends in the paint industry are such that there will probably be a total switch-over to latex paints within a few years.

A GLOSSARY OF PAINT TERMS

FOR FIRST-TIME PAINTERS, here is a glossary of the common terms used in describing paint:

ALKYD—A synthetic resin modified with oil that gives good adhesion, gloss and color retention. Most "oil-base" paints today are based on alkyd resins rather than the traditional linseed oil. Alkyd paints are also called "oil-alkyd."

BINDER—A film-forming ingredient in paint (usually a resin) that binds the pigment particles together.

ENAMEL—Basically a varnish to which pigment has been added. Makes a tough, durable, easy-to-clean paint. Enamel (gloss or semi-gloss) is often used on trim.

LATEX—A suspension of a synthetic resin (e.g., polyvinyl acetate, styrene-butadiene, or acrylics) in water to form the basis for a water-thinned paint.

OIL PAINT—The traditional formulation consisted of pigment suspended in linseed oil, a drier, and mineral spirits or other type of thinner. Term is now applied to alkyd paints.

PIGMENT—Paint ingredients (e.g., titanium dioxide) used to impart color and hiding power.

PRIMER—A specially formulated paint that helps bind the top coat to the surface being painted. A primer has little weather resistance by itself and needs the protection of a finish coat.

RESIN—A natural (linseed oil) or synthetic (alkyd, polyvinyl acetate) material that is the main ingredient of paint and which binds the ingredients together and provides adhesion to the surface being painted.


VARNISH—A solution of resins in a drying oil. Varnish contains no pigment.

VEHICLE—The liquid portion of a paint, composed mainly of solvents, resins and/or oils.

THOSE WHO MASK their window glass with tape haven't learned to paint. You DO want to get paint on the glass...in a controlled way, of course. The bead of paint that comes over onto the glass, covering the glazing putty, functions to keep water out. When you razor-blade the connection of wood and glass, water can penetrate into the crevice. We're back to thinking of paint as a protective skin, not just as a color.

A **TAPERED SASH BRUSH** helps in pushing a bead of paint out in front of the brush, depositing it at the edge of the glass. Paint all around the glass first, then go back and fill in the sash, then the frame. It will be slow at first, but eventually you'll learn just how much paint to leave in the brush and how quickly to draw

the brush. Slight variations outdoors won't be noticed anyway. And you won't have to mask, you won't have to remove the masking afterwards, and you won't have to scrape the glass. (Well, maybe a little bit.)

AS TO THE NUMBER of coats of finish paint, the experts disagree. A single topcoat over a well-prepared and primed surface is sufficient in many cases. In high-abrasion areas, such as window sills and other horizontal surfaces, a primer coat plus two topcoats is the recommended system. On a solid dry substrate, just good preparation and a single topcoat may do. What we're weighing on the one hand is cost of labor and the problem of too many paint layers (now or in the future), against the longevity of a 2- or 3-coat job. 

Angry Bees And Danger Overhead

By David Hardingham

Dave Hardingham's hints on interior painting appeared in three JOURNAL articles -- October, November, and December 1980. We asked for his first-hand comments about painting outside the house.

- **IF YOUR HOUSE** is two storeys or more, you will need an extension ladder long enough to reach within 2 or 3 feet of the highest point. Best buy or borrow an aluminum one. These are durable and light-weight. Because long ladders are too far from the siding at lower locations, you will also need a short section (10 ft.) or a 6-ft. step ladder.
- **LADDER ANGLE** is important to your health, and a good rule of thumb is the 25% one--that is, 1/4 of ladder length away from the house. A 20-ft. ladder would thus be set 5 feet from the base of the wall. The easiest way to position an extension ladder is to jam its feet against the foundation, then, from the far end, "walk" it to a vertical position. Now pull it away at the ground end and haul on the rope to extend it. If bushes interfere with this method, use a cement block or a helper's foot as a fulcrum. And with all ladders, look upward, angel, lest you poke it into a electrical line. Even a wood ladder, if wet, can turn this into an adventure; an aluminum ladder can really draw a crowd.
- **LEVEL** the ladder's feet with wood blocks, and use your weight on the bottom rung to test its stability. Start with the ladder under the highest point to be painted, and no more than 3 feet below it. You can paint out to the side, but you must go over the top of the ladder directly in front.
- **MOVE** even heavy ladders sideways by alternately moving the bottom, then sliding the upper end along the house. Windows are easily passed if you swing the ladder out just a bit.



Don't leave a ladder unattended overnight, or you may find the wind has jammed it into a neighbor's window or car. This causes poor community relations.

- **WHILE YOU'RE PAINTING**, your ladder will always be (we hope) against a still-to-be-painted surface. But when you come to replacing shutters and so on, the ladder must lean on new paint. To avoid marks, wrap the ladder ends with rags and slip an old sock over them. If the paint is at least a week old, you'll leave no marks this way.
- **BESIDES** electrocution and falls, ladder painting has a few other hazards. For example, one time a dog I'd never seen before refused to let me come down off the ladder in my own yard. The solution for such a situation: Drop a wet paintbrush on him. Aim at his mouth, so he'll likely snap at it and shortly thereafter will leave. A more troublesome and common problem are the bee and the wasp.
- **BEEES AND WASPS** are frequently found nesting (or whatever they do--hiving?) under eaves or inside clapboard siding. Bees often have the walls half full of honey and become quite testy upon being approached. As they can fly and you cannot, you may find yourself inventing some fancy dancing on the ladder. Wasps normally ignore you until you knock their little house out from under the eaves, which excites them somewhat.

AS YOU WILL, no doubt, become aware of these touchy spots during your initial inspection, you can either keep quiet and hire someone else to paint the place, or do as I do: Take a garden sprayer full of double-strength malathion or Chlordane up to the location after sundown when all residents are home and quiet. The only way to make this procedure perfectly safe, of course, is to dress like a beekeeper.

Stripping Exterior Paint

By Roland A. Labine, Sr.
Roland A. Labine, Jr.

STRIPPING THE PAINT from the exterior of a wood house is a laborious and tedious task--and if you're paying someone else to do it, expensive. Moreover, if the stripping is done using the wrong procedure, damage--and even total destruction--can result. So the decision to strip all the paint from a house is not something you should arrive at without a lot of thought. In this article, we'll look at the "when" and "how" of exterior paint stripping, with special emphasis on wooden structures.

When To Strip

AS AN ANSWER to the question "When should I strip the paint off my house?" a good rule of thumb is: Only when you absolutely have to! There are, for example, certain types of paint failure (see pg. 93) that can only be cured by completely stripping all existing paint layers. But such catastrophic paint failure is more the exception than the rule.

ANOTHER POSSIBLE REASON for stripping exterior paint is that the paint layers have gotten so thick that they are obscuring architectural detail. But by the time paint has reached this thickness, other problems with peeling, cracking and alligating will have also shown up. So the reasons for stripping exterior paint usually have more to do with the physical condition of the paint film than aesthetics.

BEFORE getting further into the discussion of when to strip, let's look at the concept of the Self-Stripping House.

Automatic Paint Stripping

WHEN PAINT LAYERS build up over the years, they become less permeable to the passage of water vapor. Since water vapor is continually generated inside a house (from bathing, washing dishes, laundries, etc.) free passage of water vapor through the paint film is essential. Each time you add a layer of new paint, the entire paint film on the exterior becomes a greater barrier to the escape of moisture. Moisture tends to collect at the interface between the wood and the first layer of paint. The moist wood expands, putting great stress on the wood/paint bond. Result: Cracking and peeling of the paint layer, down to bare wood.

FROM THE ABOVE, it's clear that paint can't build up on the surface of a house indefinitely. At a certain point, moisture will cause all paint layers to peel. This phenomenon, by which a house gradually sheds its layers of old thick paint, we refer to as the "Self-Stripping House."

ONE APPROACH to exterior paint stripping is to let the Self-Stripping House do all the work for you. This would be the sequence:

1. At each repainting time, all peeling paint is carefully scraped off. All bare wood is primed with oil-alkyd primer. Then the finish coat is added as usual.

2. Each spring, two weekend days are set aside for paint touch-up. First, any peeling areas that showed up during the winter are scraped and spot primed with oil-alkyd primer. On the second weekend day, all of the spot-primed areas are topped with a finish coat.

THERE ARE THREE DISADVANTAGES to this method: (1) It requires annual attention to the paint film; (2) Spots where paint has peeled out will be slightly lower than adjacent areas that still retain thick paint. (This effect can be somewhat minimized by feathering adjacent paint by sanding.) (3) This system works best on white houses. On houses that have a dark paint for the body color, the paint will change color somewhat during weathering. Thus any fresh paint put on peeled patches may look slightly different.

AGAINST THESE DISADVANTAGES, you have these benefits: (1) There hasn't been any big outlay of money or time to totally strip the house all at once; (2) This system poses virtually no risk to the house or the wood fibers of the siding.

When You Have No Choice

ON OTHER OCCASIONS, however, relying on the Self-Stripping House is not appropriate. Among those occasions: (1) A high percentage of the existing paint film is peeling; (2) The existing paint film is so badly cracked or alligatored that it doesn't provide a good base for a new coat of paint. If the existing paint film is peeling badly, however, before rushing into stripping and repainting make sure you understand WHY the paint is peeling. Most paint peels be-

cause of moisture problems. Unless you find and cure the moisture problems, it is likely that your new paint will peel, too.

THERE ARE A WIDE VARIETY of exterior paint stripping processes available to the homeowner:

- Flame tools such as blowtorches that soften paint so that it can be scraped off;
- Heat tools such as electric heat plates, heat guns, torch lamps, etc.;
- Sandblasting
- Abrasion processes such as sanding disks, rotary wire tools, etc.;
- Chemical stripping

ONLY A HANDFUL of the available processes are recommended for old houses. Here's a rundown of the inappropriate procedures:

Stay Away From...

FLAME-PRODUCING TOOLS--especially the blowtorch--are the fastest way to strip paint from exterior wood. That's why it's the favorite of many painting contractors. However, many house fires are started each year by blowtorches. Moreover, these fires can be quite insidious. The house usually doesn't burst into flame while the operator is around. Rather, the flame can ignite dust or an animal nest on the inside of a cornice or hollow wall partition. The spark can smoulder for hours undetected--bursting into flame hours later when no one is around to sound the alarm.

MOST CURATORS of historic houses have an iron-clad rule: Flame-producing tools are NEVER to be used on the house. The one exception is on



CAUTION: Rotary sanders can be used for feathering small areas of paint as shown here. But using a rotary sander to take paint down to bare wood inevitably leaves circular gouges in the siding.

parts of the house (e.g., shutters) that can be removed and worked on away from the house.

THE OTHER MAJOR precaution is: NEVER allow a contractor to remove paint from a wooden structure with sandblasting. Sandblasting will raise the grain of the woodwork so that it winds up looking like driftwood. The wood on the house will be changed--for the worse--in an irreversible way.

WATERBLASTING--when no abrasive is used in the water stream--can be a useful tool for removing loose paint and for washing off accumulated salts and dirt. Low-pressure water washers (under 400 psi.) can usually be rented for around \$30 per day. It is also possible to remove tightly adhering paint with a high-pressure water blast. But at these high pressures (up to 2,000 psi.) water can be as abrasive to wood as sandblasting. Another drawback: At those very high pressures a tremendous amount of water is pumped into the building, with possible adverse consequences for interior finishes.

Rotary Tools

MANY DRILL ATTACHMENTS are sold for paint removing purposes. All have significant drawbacks. Metal discs and rotary sanding discs can remove paint fairly effectively. But they don't work fast enough to take on a whole house. Moreover, they can leave circular swirl marks in the wood.

ROTARY TOOLS with whirling wires will remove paint--but they will also tear into the surface of the wood unless you have the hands of a surgeon. Some of these tools have flat leaves of metal instead of round metal wires; these are gentler on the wood but will only remove loose flaking paint.

ROTARY TOOLS using flaps of sandpaper are fairly gentle and effective for small sanding jobs. But you could never tackle a major paint removing job with such a tool.

ROTARY SANDERS have more power than drill attachments and will remove paint faster. They will also make circular swirl marks faster. Because of the danger of tearing into the wood surface, rotary sanders are not recommended for stripping an entire house.

Heat Tools

HEAT TOOLS--as opposed to flame tools--form one class of acceptable paint removing devices. Into this category fall electric heat plates, heat guns and high-intensity "torch" lamps. These tools can ignite paint if left in one spot too long, and so obviously have to be used with care. But the chance of starting an unseen fire inside a cornice or wall partition is less than with a blowtorch. As a sensible precaution, though, it is always advisable to have a fire extinguisher on hand.

THE OLD-HOUSE JOURNAL did extensive testing on various heat tools to determine the most effective combination for stripping exterior woodwork. Our general conclusions:

Paint Stripping Is Dangerous

EYE DAMAGE—It's always a good idea to wear eye protection when scraping or stripping paint. Flying paint chips can scratch an eye. And safety goggles are a **MUST** when using sanders, chemical removers, or wire-type rotary strippers. The Torchlamp also requires the operator to wear dark glasses to avoid eye damage from the bulb's glare.

CHEMICAL HAZARDS—Paint removers are toxic materials. The paste types contain methylene chloride, which should be used only with plenty of ventilation. Always wear rubber gloves and eye protection. Liquid paint removers are quite flammable. Commercial strippers used on large exterior jobs are usually based on potassium hydroxide or sodium hydroxide (lye). These are poisonous materials; wear eye protection and keep them off your skin.

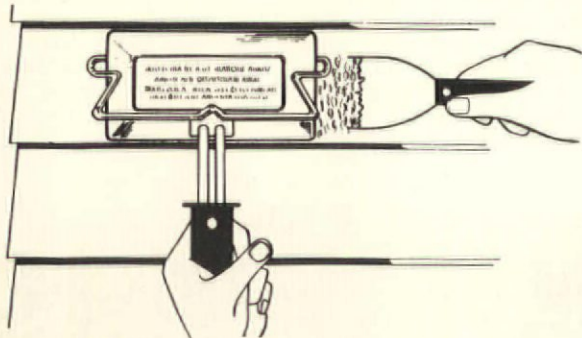
LEAD POISONING—Most old houses have one or more coats of lead-containing paint. The dust from sanding or scraping is a toxic material. Always wear a dust mask when sanding old paint. Wash yourself thoroughly after sanding; launder work clothes that contain lead dust immediately. A blowtorch or other flame tool will vaporize lead compounds, creating very toxic fumes.

FIRE HAZARD—Blowtorches and other flame tools present a severe fire hazard as explained elsewhere in the text. To a lesser extent, there is some fire hazard associated with the other heat-producing tools: Electric heat plates, hot-air guns and high-intensity lamps. All of these tools can cause paint to catch on fire if left too long in one place. There is less likelihood, however, of a spark straying into a hollow partition, such as with a flame tool.

- (1) For stripping flat areas such as clapboards, the electric heat plate is most effective;
- (2) For detail work, such as stripping porch posts and balusters, the heat gun is best;
- (3) The high-intensity lamp (A Smith Victor Torchlamp purchased from Brookstone Co.) was fairly effective. But on balance, it was not judged as useful for exterior work as the other two heat tools. An additional hazard posed by the Torchlamp: The operator must wear dark glasses to avoid eye damage from the glare of the high-intensity bulb.

The Electric Heat Plate

ELECTRIC HEAT PLATES are available from a number of sources, including Hyde Tools, Sears Roebuck and Wards. The electric heat plate has a wooden handle attached to a metal head. The metal head consists of an electric resistance heating coil, plus a metal reflector plate that directs heat toward the paint surface.



THE HEAT PLATE is held close to the paint surface until a big blister of paint begins to soften. The paint usually begins to give off wisps of smoke as it reaches the optimum softening point. Once an initial blister of paint is softened, the heat plate can begin to be moved along with one hand, while the other hand follows with a scraping tool. With a little practice, you can remove paint in one continuous motion--and fairly rapidly.

THE TYPICAL electric heat plate draws about 12 amps and operates at 550-800 F. At these temperatures, the lead components of paint are not volatilized--so there's less toxicity danger than there is with a blowtorch. Because of the red heat in the coils, however, it's obvious that you should avoid direct contact with the tool. (Heavy leather work gloves are a must.) You should also keep the coil from contacting the paint directly, as the paint will flame up.

ALTHOUGH WE FEEL that the electric heat plate is an acceptable tool for use on old houses, common-sense safety precautions must be observed. Among them:

- Always keep a fire extinguisher at hand. Occasional flaming of paint will occur. And hidden fires in cracks or small openings in walls are possible.
- Wear clothing to protect skin from hot falling paint. Protective goggles are advised.
- Don't leave a plugged-in unit unattended.
- Use only heavy-duty outdoor extension cords that have 3-prong grounding-type plugs--and connect only to grounded receptacles that accept 3-prong plugs.
- Don't use in damp surroundings or in the rain.

The Heat Gun

ELECTRIC HEAT GUNS--such as the Master HG 501--while effective in certain applications are not as efficient in removing paint from large expanses of exterior surfaces. The heat gun looks like a large hair dryer, and softens paint by shooting a blast of hot air against the surface. The best operating temperature is 550-750 F. There are some heat guns that operate at higher temperatures, but these begin to present a hazard from lead vapors.

IN OPERATION, the heat gun works similar to the heat plate. The gun is held in one hand and is moved slowly along as paint softens and bubbles. A scraper in the other hand follows along and scoops off the softened paint.

LIKE THE HEAT PLATE, most heat guns draw 10-14 amps. Therefore, they can't be used on circuits that have other electrical loads on them. Also, there is a greater danger of fire when the heat gun is used on cornices and hollow partitions (such as an exterior wall). Because the heat gun works by directing a blast of heated air, there is always a possibility the hot air will penetrate a crack and ignite dust inside the wall.

FOR REASONS OF efficiency and safety, therefore, we recommend that the heat gun be restricted on exterior jobs to an auxiliary role. On rounded and complex surfaces that are SOLID--such as porch railings and balusters--the heat gun can be more effective than the heat plate because the blast of hot air will reach into difficult spots. And on solid wooden elements there's no danger of interior dust catching on fire.

Chemical Paint Removers

CHEMICAL PAINT REMOVERS for exterior work fall into two broad categories: (1) Organic removers containing methylene chloride; (2) Alkaline strippers. The methylene chloride strippers are the common paint & varnish removers, sold under such trade names as Zip-Strip and Strip-Eze.

A MAJOR PROBLEM with methylene chloride strippers outdoors is their volatility. They tend to dry out before they have softened all the layers of paint. This can require extensive re-coating--which is both time consuming and expensive (with stripper going for \$16/gal. and up).

ONE READER reports success with methylene chloride remover (the water-rinseable paste type) assisted by a wallpaper steamer. The paint remover is allowed to soak in as usual. When it comes time to remove the softened paint, the entire mass is given a shot of steam from a wallpaper steamer. The steam assists in loosening the remover/paint sludge. There are some significant drawbacks to this system: (1) It is quite tedious; (2) Material cost is quite high; (3) There is a lot of chemical residue to dispose of; (4) The steam vaporizes a lot of the methylene chloride. Even with outdoor ventilation, there's a possibility that you'd end up inhaling more methylene chloride than is desirable.

ANOTHER chemical approach to stripping paint from wooden structures is reported by Jim Diedrich, president of Diedrich Chemicals Restoration Technologies. The company has a proprietary alkaline (potassium hydroxide) paint stripper that was developed primarily for use on masonry. Called 606 Extra Thick, the material has been used successfully to take 14 layers of paint off of a wooden building.

THE PROCEDURE called for applying the remover, allowing it to sit for 14 hours on the surface, removing with a pressure water wash, followed by an acid rinse to neutralize any remover left in the wood.

Stripping Masonry

WHEN DISCUSSING stripping paint from masonry (especially brickwork) the most important question is whether it should be done at all. There are many reasons to hesitate: (1) Many old brick structures were meant to be painted because the brick is soft and porous; (2) Stripping sometimes reveals sloppy patches that were concealed by paint; (3) Walls were sometimes made of mismatched brick because the masons knew the work would be painted; (4) A previous owner may have solved a moisture problem by painting.

ONCE RESOLVED to strip paint from masonry, Rule No. 1 is: NEVER SANDBLAST. The case against sandblasting was set out in *The OHJ*, Jan. 1981, pg. 2. Alkaline chemical cleaners are the preferred method. Most paint stripping is done by local contractors. Some use proprietary chemicals; others use products made by national manufacturers. Two of the leading suppliers are:

Diedrich Chemicals Restoration Technologies, Inc.
300A East Oak Street
Oak Creek, WI 53154
(414) 761-2591

ProSoCo, Inc.
1040 Parallel Parkway
Kansas City, KS 66104
(913) 281-2700

THE CAUTIONS at the end of this article about testing first apply equally to masonry stripping. One final note: After stripping, don't let the contractor talk you into a silicone treatment "just to be on the safe side." The consensus in the field now is that silicone waterproofers often cause more trouble than they are worth.

ALKALINE PAINT REMOVERS will, however, raise the grain of some woods. Alkaline strippers should NEVER be used on a wood structure without conducting a test on the back of the house first. Like other chemical methods, the alkaline stripper also poses the question of what happens to the material that is washed off the building. Proponents of the system claim that if the ground is soaked thoroughly beforehand, the residue can be allowed to flow into the ground without damage to shrubbery.

MICHAEL BOYER of ProSoCo, Inc., reports that they have recently supplied chemicals for a stripping job on a wooden house exterior. But rather than an alkaline stripper, ProSoCo prefers to use their 509 methylene chloride paint stripper. Their primary concern is reaction of the wood with alkaline material.

First, Test

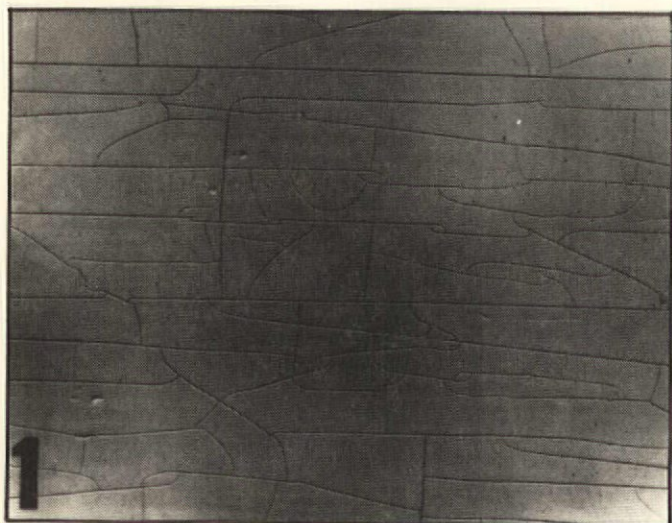
FROM THE PRECEDING discussion, it should be clear that there's a lot that remains to be learned about using chemicals to strip paint from wooden exteriors. Because of this, before you sign a contract that commits you to a major job, be sure to stipulate that the job is contingent on the completion of a satisfactory test patch on an inconspicuous portion of the house. If you are satisfied with the test patch, then the test area should be the contractual standard for the rest of the job. Sometimes the boss will do the test patch and it will come out fine; but the results will be quite different when the workmen get on the job!

Don't Blame The Paint

By Clem Labine

WHEN THE PAINT on your house or my house begins to fail prematurely, most of us are inclined to blame the paint. The answer seems simple: Buy another, better, brand of paint. But as in most real-life situations, the answer isn't as easy as that. Assuming that the paint on your house isn't some Brand X that you bought during a \$1.98 clearance sale at your local hardware store, it is likely that the problem does NOT reside in the paint. Rather, it's probable that the failure is due to improper preparation, application mistakes, or problems with the building itself.

AS A GUIDE to analyzing common paint problems, we're showing here four of the most typical conditions. Be aware, however, that your problems--which might look similar to the cases shown here--could in fact be quite different. The major paint companies who maintain regional offices say they will send a paint specialist out to help you diagnose unusual problems--particularly if it's their brand that's failed.



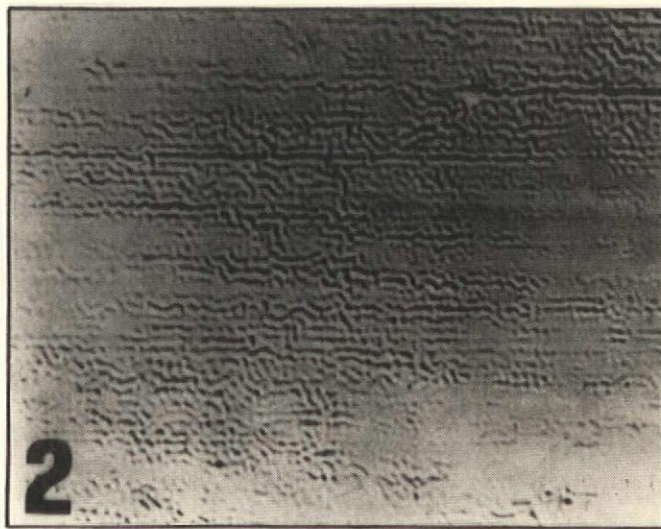
1. Cracking & Crazing

CAUSE—This condition generally is the result of a paint that has aged to an excessively hard finish. The paint film is no longer able to expand and contract with the wood underneath. The hairline cracks that appear allow water to enter and seep down to the wood itself. As the wood swells, it widens the breaks to form cracks. Because wood expands to a greater

extent between grain lines, cracks are most likely to form parallel to the grain.

CURE—If a cracking condition is noted before it becomes severe, wire brushing and repainting should be able to correct the situation. You should also select a brand of paint different from the one that is cracking.

WHEN CRACKING has progressed all the way down to the wood, complete removal of the paint is usually required. After removal, prime with an oil-alkyd primer, followed by either an oil-based or latex topcoat.



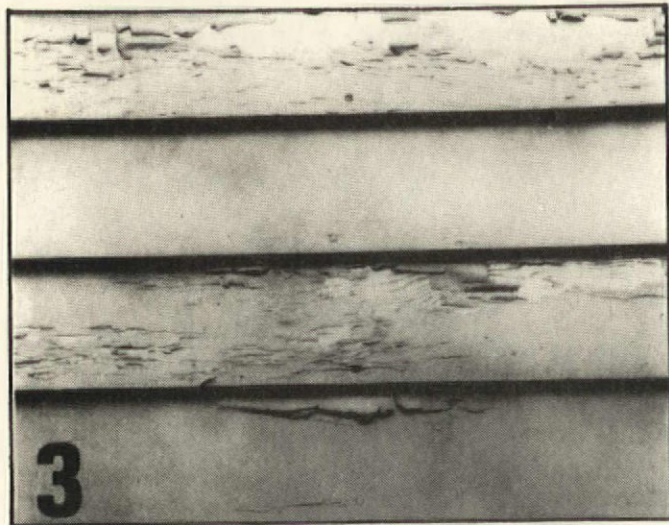
2. Wrinkling

CAUSE—This condition arises when the top film dries before underlying paint has cured. The dry film moves as the underlying paint dries--and wrinkles form. Among the causes of wrinkling: Applying a second coat before the first one is dry; applying too much paint; inadequate brushing-out; painting in the hot sun or over too cold a surface; applying a hard finish over a softer coat without priming.

CURE—Wrinkled layers must be removed by sanding or scraping. Prime with an oil-alkyd pri-

Special thanks to the paint specialists at PPG Industries for technical help with this article.

mer and follow with an oil-base or latex topcoat. To avoid wrinkling, brush out each coat thoroughly and allow it to dry completely. Don't paint in direct hot sunlight, or when the temperature is below 40 F. (50 F. if using latex).



3. Peeling

CAUSE—Peeling is the most common type of paint failure, and can be caused by one of these three general problems: (1) Painting under adverse conditions; (2) Inadequate surface preparation; (3) Moisture.

PAINTING in direct sunlight can result in heat blisters. The top of the paint film dries too quickly, leaving some liquid paint under the dried surface. Heat from the sun vaporizes some of the solvent remaining in the paint—creating a blister. This problem is especially likely to arise when painting with dark colors in the direct sun, since dark colors will absorb heat more readily than light colors.

INADEQUATE SURFACE PREPARATION may leave a grimy greasy surface to which new paint won't stick. This problem is especially likely to show up on soffits and other protected areas that are not washed regularly by rain.

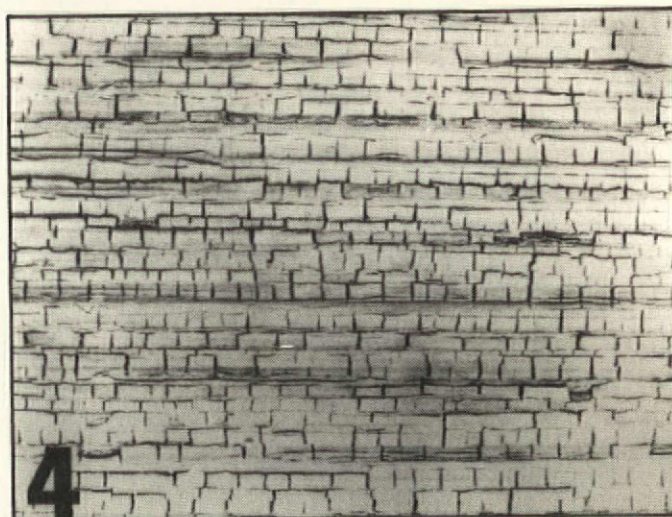
PEELING ALSO OCCURS when water reaches the wood behind a paint film. The wood swells, causing the paint to crack and peel. The moisture can come from many sources, including:

- Cracks and seams in siding and trimwork that aren't properly caulked.
- Moisture from living areas inside the home, especially bathrooms, laundries and kitchens. The problem can be aggravated by condensation in sidewall insulation that isn't protected by a vapor barrier.
- Leaks into the wall partition caused by clogged gutters, ice dams, leaking roofs, etc.
- Vegetation too close to the house, which prevents wood from drying out after a rainstorm.

CURE—Closely examining the peeling can help pinpoint the type of problem you have. If the paint is peeling all the way down to bare wood, moisture is the problem. If only the top coat of paint is peeling, it's an application or surface preparation problem.

IF MOISTURE is the problem, you have to locate the source of the moisture and eliminate it before you worry about the paint. (The specific steps for eliminating moisture are beyond the scope of this brief article.) After the water is cut off, allow the wood to dry thoroughly. Scrape off all loose paint, prime with an oil-alkyd primer, then finish with an oil-base or latex finish coat.

IF THERE'S a coat of sound paint beneath the peeling, remove all loose material by scraping and wire brushing. Light sanding will remove surface dirt from the sound paint and any additional paint that may be loosely adhering. After thorough brushing to remove sanding dust, coat with an oil-alkyd primer, followed by an oil-base topcoat.



4. Alligatoring

CAUSE—Alligatoring is an advanced case of cracking and crazing. When alligatoring extends all the way down to bare wood, it is usually a sign of an old thick paint film that has lost its flexibility.

ALLIGATORING of a topcoat can also occur when it is unable to bond tightly to a glossy paint coat beneath it.

CURE—The only sure cure for alligatoring is to remove all the paint down to bare wood. Follow with an oil-alkyd primer and an oil-base or latex topcoat.

IF ONLY the top coat is alligatoring, you can try removing as much of the alligatored film as possible by scraping and sanding. Make sure that any underlying glossy paint has been sanded to a dull finish. Prime with an oil-alkyd primer, followed by an oil-based finish coat.

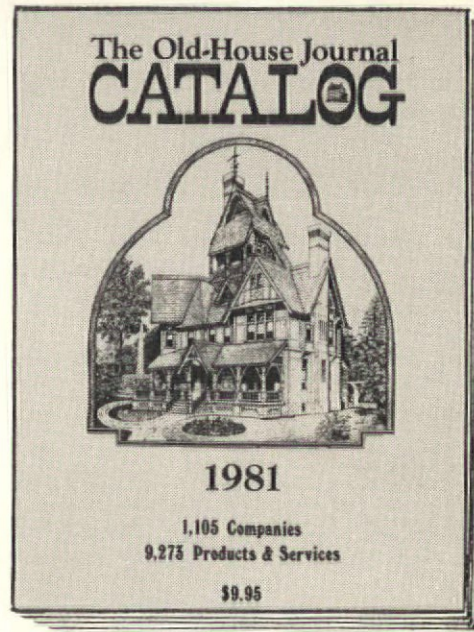
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Write: Emporium Editor, Old-House Journal, 69A Seventh Ave., Brooklyn, NY 11217.

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OUR PAST BEFORE US: WHY DO WE SAVE IT? D. Lowenthal and M. Binney editors. About why it matters to keep old buildings and historic landscapes, the dilemmas of preservation and how to reconcile public interest in the past with other social needs. \$10.95. Preservation Resource Group, Inc., 5619 Southampton Drive, Springfield, VA 22151. (703) 323-1407.

DOWNTOWN INVESTOR is a bimonthly newsletter for property owners and preservationists in need of sound investment advice. Focus is on development, financing, design, construction and operation of downtown properties in smaller cities and towns. Send for sample issue. Downtown Investor, New Fountain Sq., 12 Warren St., Glens Falls, NY 12801.

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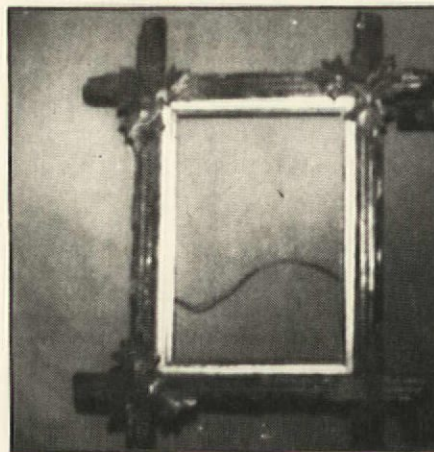
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REQUEST LITERATURE and price lists on items to be used in theme restaurant designs. Send to: Richard Henry Eiselt, AIA, The Image Group, 398 S. Grant Ave., Columbus, OH 43215.

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OLD FASHIONED HUMIDIFIERS to hang on old cast iron radiators and hold water, made of aluminum or heavy plastic. A. Belloii, 800 Edison, Detroit, MI 48202.

BALL PIN HINGE, cast iron or brass, 5 in. x 5 in. needed for restoration. Dr. James M. Otis, 422 Lee St., Bristol, VA 24201. (703) 466-9116.



CORNER DECORATIONS for picture frames in a rustic style. D. Ballinger, 1079 Kearney St., Denver, CO 80220.

TRANSOM REGULATORS such as used to be used to open and close transoms. Duerson Prewitt, 129 N. Maysville St., Mt. Sterling, KY 40353.

RED VELVET BANNISTER attached to wall with brass rings and appropriate to Tudor style houses. Reproduction will do. Gayle Marshall, 363 Moross Rd., Grosse Pointe Farms, MI 48236.

HOUSE PARTS—Victorian pine mantels, Victorian double front doors, 1880's newel posts and rail, 7 ft.-4 in. panel pine doors, marble sink top, some 1820's ash flooring. Buy and sell. Especially want Federal and Greek Revival styles. The Hickory Tree 1823, 8426 State St., Kinsman, OH 44428. (216) 876-3175.

FOR SALE

ABOUT 1000 BRICKS from wall of tavern. Mansion established 1798. (405) 348-7504.

146 YEAR OLD WINDOW GLASS for the "true restorer." The glass is wavy, clear with a slight green cast, and some small bubbles. Over 150 panes available in original sashes. Many sizes including 96 pieces 10½ in. x 16 in. and 36 pieces 32 in. x 32½ in. First good offer all or part. John. (216) 725-3006 eves.

ANTIQUÉ IRON: Box locks, press lens-locks, rare padlocks, cast iron bake oven doors, peals, old fire-place tools, small early cast iron key lock safe, etc. send for my descriptive catalogue of old house iron items \$2. J. A. Johnson, 9 Candlewood Dr., East Hampton, CT 06424.

OLD UNFINISHED MATCHING white oak balusters still in original crates. 1-3/8 in. x 24 in. and 1-3/8 in. x 28 in. Approximately 1000 in each size. Very reasonable. Larry LaForrest (419) 335-6010 days, (419) 822-4806.

2 REPRODUCTION FIREWOOD BOXES: 1) Shaker open-topped 36 in. x 20 in. x 36 in. high, pine in Early American stain \$85. 2) Slant-topped with antique hardware on battened door, 30 in. x 20 in. x 31 in. high, pine in Early American stain \$100. Yesterday's Yankee, R. W. Alexander, Lakeville, CT 06039. (203) 435-9539.

VICTORIAN SOLID WALNUT STAIRCASE parts circa 1880, professionally removed from 2 storey house. All railings, bannisters, spindles, and newel posts in perfect, natural condition. \$900. Early colonial Queen Anne pulpit staircase, circa 1710, including soffit and end wall. Mortise and tenon construction of white pine from CT \$1500. Tom Green, 49 East Main St., Mendham, NJ 07945. (201) 543-2392.

COPPER ROOFING (over 1500 sq. ft.) for sale or swap for new roof plus very good condition. (516) 437-8952, eves.

TWO VICTORIAN MANTELS, one with beveled mirror, pilasters and garlands. \$300. One with upper and lower pilasters \$300. (203) 651-9971, eves. Howard Jensen, 5 Turkey Hill Rd., Bloomfield, CT 06002.

CAST IRON FENCE, distinctive love-bird pattern. Approx. 400 ft. includes post and seven gates. \$4,000 firm. Negley, Box 517 Olney, IL 62450. (618) 395-1880, weekends.

1884 CABLE RANCH HOUSE—Salvaged materials from home built close to San Antonio by founder of Rock Island Railroad. Beaded ceiling and walls, 3-storey staircase, door and window openings, windows, large sliding doors, and mantels—All curly pine. Pine flooring and much more. J. D. Landers, 1617 Northwood Rd., Austin, TX 78703. (512) 472-3056.

FROM OUR HOUSE (1903) brass window locks, switchplates, door hardware, curtain rods/brackets, window pulls, heavy spring hinges, portiere hardware, bathroom wall tiles, milk glass bathroom shelf, hot air grate, chestnut door, poplar door, brass valance (ornate), corner medicine cabinet. Walheim, 473 St. Davids Ave., St. Davids, PA 19087. (215) MU8-9482.

REPRODUCTION GLASS SHADE HOLDERS just like the originals, made of stamped brass (unpolished) with screws. 1) 4 in. gas shade holder, \$2.50 ea., or 50 or more \$2.00 ea. 2) 2 1/4 in. bell shaped holder \$2.00 ea., or 50 or more \$1.50 ea. Sent postpaid. Stansfield Lamp Shop, P.O. Box 332, Slate Hill, NY 10973. (914) 355-1300.

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LARGE DOUBLE ENTRY DOORS, oak fronts, circa 1870, \$80. pair, two oak staircases (rail, spindles, newels) oak, \$40 and \$70, 3 pedestal sinks \$30 each. J. C. Dennewitz, P.O. Box 353, Danvers, IL 61732.

REAL ESTATE

RELOCATING—MUST SELL! Near Nashville. Local historical significance. Early 1800's Shaker-type 3 bedrooms, 2 1/2 bathrooms, 5 fireplaces, original log kitchen with stone fireplace, walnut staircase and woodwork, pegged wide poplar and hickory floors, modern conveniences. Needs some repair but very livable. Exterior vinyl siding over original weatherboarding. \$50,000. E. H. Zettlemoyer, 302 W. Main, Scottsville, KY 42164. (502) 237-4761; (502) 237-4488.

KENT CONNECTICUT Victorian circa 1865. Commercial possibilities on Rt. 7 1 acre beautifully restored to original condition. 9 rooms, fireplace, wood stove in modern kitchen. 4 bedrooms, 3 baths. Large barn, 750 sq. ft. accessory building. Ideal for antique shop or Decorator. Condo site in rear. \$185,000. J. Strobel, Johnson Realty, Kent, CT 06757. (203) 927-3932.

AMAGANSETT LONG ISLAND, NY. Older large house 1/2 mile from ocean. Short walk to train & center of village. Hand hewn oak beams, fireplace, 10 rooms. Nice barn, turn of century windmill, small out building. Aprox. 1 acre. \$185,000. (516) 728-1327.

GALVESTON, TX—Built in 1916 by Vice Consul for Denmark. Restored brick mansion on 1 acre in heart of Galveston. 15 rooms, 5 bedrooms, 2 1/2 modern baths, updated kitchen, 3 fireplaces, cedarlined attic, wine cellar, 9 ceiling fans, 5 antique rugs, greenhouse and 3 car garage with efficiency apartment. Carolyn January, DeLaney and Assoc., 1227 Tremont, Galveston, TX 77550, (713) 763-5349.



OMAHA, NE, Victorian Brick with four bedrooms and 2 1/2 baths. New wiring and plumbing. Natural woodwork shows huge oak doors, fabulous mirrored fireplace and detailed fretwork between parlor and open staircase. Spacious dining room leads into custom kitchen which fits well into historic old home. \$70,000. (402) 345-5636.



VICTORIAN HOUSE available in Inman Park, National Register District 2 miles from downtown Atlanta. Double parlors, library, 4 bedrooms, 2 baths, 7 fireplaces, good systems, new roof, stained glass. Near rapid rail line. \$135,000. Downtown Properties, Mimi Soper, 313 N. Highland Ave., NE, Atlanta, GA 30307. (404) 688-2050.

SOUTHERN ILLINOIS (Bunker Hill) 1862 Federal 2 storey brick farmhouse. 2,500 sq. ft. with 4 bedrooms, 2 baths, 2 parlors, formal dining room, 17 x 17 kitchen. Completely restored. Varnished woodwork including gorgeous staircase. New roof, furnace, central A/C, wiring. On 10 acres with outbuildings including good large barn. \$80,000. (512) 250-0859.



HISTORIC VICTORIAN HOMESTEAD, 4 bedrooms, 3 baths, living room, dining room, library, kitchen, sun parlor, 2 fireplaces, oak floors with marquetry. Stained glass window, wrap-around porch. 2 miles to beach, 3 miles from world famous Innisbrook country club, 25 miles to Tampa. High assumable mortgage. Circa 1890. Tarpon Springs, FL. (813) 938-5711.

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LARGE 3 STOREY QUEEN ANNE, circa 1890. Natural woodwork, open staircase, stained glass, windows, double parlor with fireplace and bay windows. Hardwood floors. In excellent condition. Located in Lansford, PA. 45 min. to Allentown. 1 1/2 hours to Philadelphia. \$29,900. Bill Miller, Real Estate. (215) 377-3224.

1805 HISTORIC CENTRAL CHIMNEY CAPE with 5 fireplaces, 1 with bake oven, wide board floors, 4 bedrooms, living room, family room, dining room, Woodmode kitchen, 2 full bathrooms, 2 car garage, set on scenic 2/3 acre (more land available) in upstate NY 1 mile from the village of Morrisville. \$57,900. (315) 655-8333.

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VACATION IN THE SOUTH—Housekeeping suites and rooms in restored 1870's mansion on the beautiful St. Johns River. Pools, tennis, boating, gourmet dining. Winterbourne, P.O. Box 755, Orange Park, FL 32073. (904) 264-2467.

LOG BUILDING RESTORATION—Log and timber restoration and renovation. Houses, cabins, barns, saunas. All aspects rough and finish carpentry, chinking, hand-hewn replacement of deteriorated timbers. Equipped to dismantle and move structures. Contacts for purchasing buildings. Three+ years experience, twenty+ buildings. References. Conn Huffaker, 1628 Newman, Janesville, WI 53545. (608) 752-7706.

PLASTER RESTORATION of walls, ceilings, mouldings, etc. Custom new work in any period style and faithful repairs on existing areas. Quality work, reasonable prices. Dean Russell, Rt. 1, Box 243A, Mattituck, NY 11952. (516) 298-4982, or 768-2481.

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T. A. G. PRESERVATION CONSULTATION—Services for preservation planning, restoration, adaptive re-use, National Register nominations and preparation of walking tours and publications. Thomas Greco, 226 88th St., Brooklyn, NY 11209. (212) 748-4934, eves.

PLANNING A RESTORATION? Need an informed opinion of a house to buy? Want your house on the National Register? Expert help improves your results and saves costly mistakes. Allen Charles Hill, AIA, Historic Preservation and Architecture, 25 Englewood Rd., Winchester, MA 01890. (617) 729-0748.

8th Annual Back-To-The-City Conference
June 25-28, Milwaukee, Wis.

The 8th conference on urban and neighborhood revitalization will feature five half-day workshops: (1) Management of Not-For-Profit Neighborhood Organizations; (2) Back-To-The-City Movement and the Minority Community; (3) Financing the Acquisition & Rehabilitation of Older Housing & Commercial Structures; (4) Neighborhood & Smaller City Commercial Revitalization; (5) Community & Neighborhood History as a Catalyst for Urban Revitalization.

For full program details contact: Dept. of Urban Planning, School of Architecture, Univ. of Wisconsin—Milwaukee, P.O. Box 413, Milwaukee, WI 53201. Tel. (414) 963-4014.

IF YOUR GROUP NEEDS TO RAISE MONEY...

Last Year, The OHJ Awarded \$10,000 In Matching Grants.

Here's How To Get Your Share In 1981.

The Old-House Journal Group Rate Plan is like a matching grant program. It's a fast way for any preservation group or neighborhood organization to raise money. These groups were awarded \$10,000 in 1980, and there's a lot more available in 1981. Here's how the program works:

(1) Your group sells discount group-rate subscriptions to The Old-House Journal (new subs or renewals).

(2) You forward the subscription orders to OHJ along with 50% of the money you collected.

It's very simple. The OHJ lets you keep \$1 for every \$1 you send us. (You keep \$300 for every 50 subscriptions sold.) That's why it's like a matching grant program. With the OHJ group-rate subscription plan, there's something in it for everyone:

- Your members are able to get a subscription to The Old-House Journal at 25% off the regular 1-year rate. (This special rate is available ONLY through authorized preservation organizations. It gives you an additional reason why people should join your organization—or renew current memberships.)
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- Your group raises fast cash.
- The Old-House Journal is introduced to new friends.

Your members win. Your group wins. The OHJ wins. Everybody wins! Any preservation group, historical society, block association, or other city, state or neighborhood group is eligible to participate. The restrictions are relatively few and simple:

(1) Minimum number of subscriptions eligible for the group discount is 10 at a time; (2) Subscription orders should be submitted on forms supplied by OHJ; (3) Deadline for subscriptions qualifying for the group rate discount is November 30, 1981.

Here's one hint: The groups that had the most success raising money with the plan last year did it via in-person presentations at one or more of their meetings. Groups that relied on selling subscriptions by mail or through their newsletters had much less success.

To get full details and the necessary order forms, write to us on your group's letterhead, or fill out the coupon below. Or you can call us at (212) 636-4514.



The Old-House Journal

Please send details on how our group can raise money with the OHJ Group Rate Discount Plan.

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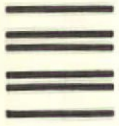
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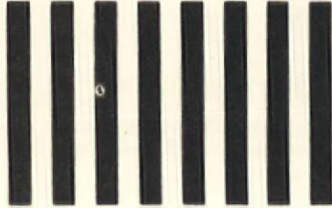
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Late Victorian Architecture



This terrific collection of house plans and details is fascinating reading and a great reference for recreating authentic late 19th century ornamentation. This volume combines two books by the renowned Palliser & Palliser architectural firm, "American Cottage Homes" and "New Cottage Homes & Details," originally published in 1878 and 1887. Containing over 300 pages, with over 1,500 drawings and details, this is the most complete collection of plans for late Victorian homes ever assembled. Extra pluses include author's instructions on paint colors, interior and exterior materials...and as a special treat, 47 pages of collector's item period advertisements for household fixtures.

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"What color should I paint my house?" "Century of Color" tells you. It's a documentary history of American exterior painting from 1820 to 1920, with a host of useful color guides and features, including: 100 color plates from the Athenaeum of Philadelphia and the archives of the Sherwin-Williams company; a large foldout card displaying chips from Sherwin-Williams' new 40-color "Heritage Colors" line; "Affinity Charts" providing over 200 color combinations for trim and accent; and the folks at Sherwin-Williams would like to make you an offer you can't refuse—the book includes discount coupons worth \$25 when you buy five gallons of their "Heritage Colors." (So if you plan on painting in the near future, you can, in effect, get the book free and save \$13 to boot! Softcover, wirebound.

\$10, plus \$2 shipping and handling.
Will be shipped May 5, allow 4 weeks for delivery.

The Old-House Journal Catalog



The only thing "old" about the 1981 Old-House Journal Catalog is the name...the rest is up-to-date buyer's information on over 1,100 companies, listing only carefully screened products and services. The OHJ Catalog—40% larger this year—is the most comprehensive directory available, with selected listings of manufacturers and craftsmen with whom we have had first-hand contact. Because three-quarters of the companies listed in last year's Catalog have changed addresses, phone number, product lines or literature prices, you must have this year's edition to keep in step. Plus: We've added 328 companies and 18 new categories this year. And if you're on our current subscriber list, you get a 27% discount!

\$10.95 postpaid (\$7.95 to subscribers)

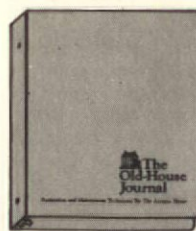
Tasteful Interlude



Stop dreaming about what Victorian and turn-of-century homes once looked like. This dazzling collection of original period photographs (some never before published) show rooms ranging from an opulent Manhattan parlor to a modest Colorado miner's shanty—an excellent brainstorming guide to a wide range of decorating styles used in these eras. This second edition—back by popular demand—has informative, analytical text accompanying each of the 269 photographs, with an introduction exploring various Victorian and turn-of-century styles.

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Get to know your old house from the chimney to the chintz, and learn of the magic you can wield. This rich body of renovation and restoration literature provides practical information in a down-to-earth manner, accompanied by illustrations designed to help you move from the "Wouldn't it be nice if..." stage to "Let's work on the cornice this week." Compiling OHJ articles into chapters organized according to the components of the house, the Compendium includes over 800 illustrations and photographs, new chapters on buying an old house, plus a detailed index. Hard Cover.

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Please Use Order Form In This Issue

New Paint Line And Book

IF YOU OWN a house built between 1820 and 1920, and are planning to paint the exterior in the near future, here's an offer that's hard to refuse. There's a new book that has more practical information on authentic paint colors than has heretofore been available. What's more, this book--which costs only \$12--contains a discount coupon worth \$25 if you buy 5 gallons of the new Sherwin-Williams historic paint colors.

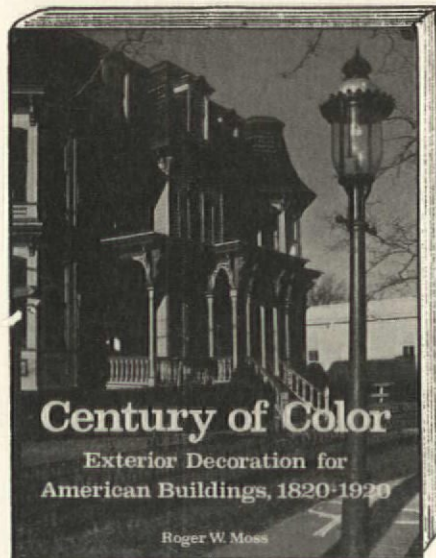
SO IF YOU'RE planning to buy exterior house paint anyway, here's a chance to essentially get this valuable book free--and still save \$13. The details:

THE BOOK, "Century of Color," is written by Roger W. Moss, who is also the author of the lead-off article in this special issue on exterior painting. Roger is also Executive Director of The Athenaeum of Philadelphia, and the leading authority on house colors of the 19th and early 20th centuries.

A MAJOR ATTRACTION of the book are 100 color plates taken from the collections of The Athenaeum and The Sherwin-Williams Co. In addition, there's a large fold-out color card displaying chips of the 40 paints in Sherwin-Williams' new "Heritage Colors" line. All of

the Heritage Colors have been selected by Dr. Moss from original documentary sources.

ANOTHER UNIQUE FEATURE of the book are the "Affinity Charts." Starting with a body color, the charts give you compatible choices of trim and accent color. The 200 color combinations allow you to select color schemes that are both historically accurate and compatible with your personal taste.



An important new tool for painting old houses.

UNLIKE MANY BOOKS on period houses, "Century of Color" does not deal exclusively with architectural gems. Many "plain" Victorian and vernacular Classical houses are shown.

AS A FURTHER guide for the homeowner, the new Sherwin-Williams colors are divided into 6 major historic time periods that correspond to changes in color taste: Classical, Downing, Renwick, Rookwood, Tiffany, and Colonial Revival. Knowing which period your house belongs to stylistically enables you to select the color group that is most appropriate for your home. And with the Affinity Charts, when you pick a body color you automatically can see which trim and accent colors would be best.

THE NEW SHERWIN-WILLIAMS "Heritage Colors" will be in all Sherwin-Williams stores around May 1.

"CENTURY OF COLOR" will also be off the press about May 1. Books will be shipped on May 5; allow 4 additional weeks for delivery. The book (softbound) has a sturdy wire binding that will take a lot of abuse. Price is \$10.00 + \$2 shipping and handling. Use Order Form in this issue, or send \$12 to: The Old-House Journal, 69A Seventh Ave., Brooklyn, N.Y. 11217.



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