Circular 784

Scientific Section

National Paint, Varnish and Lacquer Association, Inc.

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WASHINGTON 5, D. C.

HOW TO ASSURE A SATISFACTORY PAINT JOB

Paint is one of the most dependable materials of construction known. A very high percentage of all paint jobs give complete satisfaction—probably a higher percentage than is the case with most building materials. A few thousandths of an inch of coating will withstand years of sun, rain, heat, wear, and other misadventures and leave a surface which may be recoated with a minimum of effort and preparation. However, like other materials of construction, paint must be properly used, if it is to give the service which was originally built into it.

Most paint jobs give years of satisfactory performance and there is little or no cause for complaint. Occasionally, however, trouble arises and, for one reason or another, the paint gives less service than the user expects. This is rarely due to "bad" paint, but much more often to the omission of some important step in the preparation of the surface, the use of incorrect paint for the job, or from exposure to conditions for which the paint was not designed.

This circular points out the causes of some of the more common types of unsatisfactory performance, the ways to prevent their occurrence, and, when they occur, the best ways to deal with them.

The problems of blistering and peeling, which result from the accumulation of moisture behind the paint film, are dealt with only briefly in this circular. This is not because they are unimportant, but rather because they require more space than is available here. Scientific Section Circular 763, "Some Construction Defects Which Permit Moisture to Menace Homes" and numerous other publications deal with the causes, prevention, and cure of "sick" paint jobs, and should be consulted when moisture problems are encountered. Repeated investigations have shown that moisture is responsible for a large majority of all complaints of unsatisfactory paint performance, and most cases of peeling of outside paint can be attributed to moisture unless there is positive evidence to the contrary.

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Not all the possible non-moisture related difficulties that may arise in the use of paints are covered here. However, it will be found that most of the problems are considered. A type of failure that is not covered, will in general be unusual and will require inspection by an expert to diagnose the difficulty.

The "Key" (which follows) to the various symptoms should be consulted by the user to determine in which class of troubles his particular problem belongs. Each is treated in more detail on the succeeding pages, where symptoms, causes, prevention, and cure are considered.

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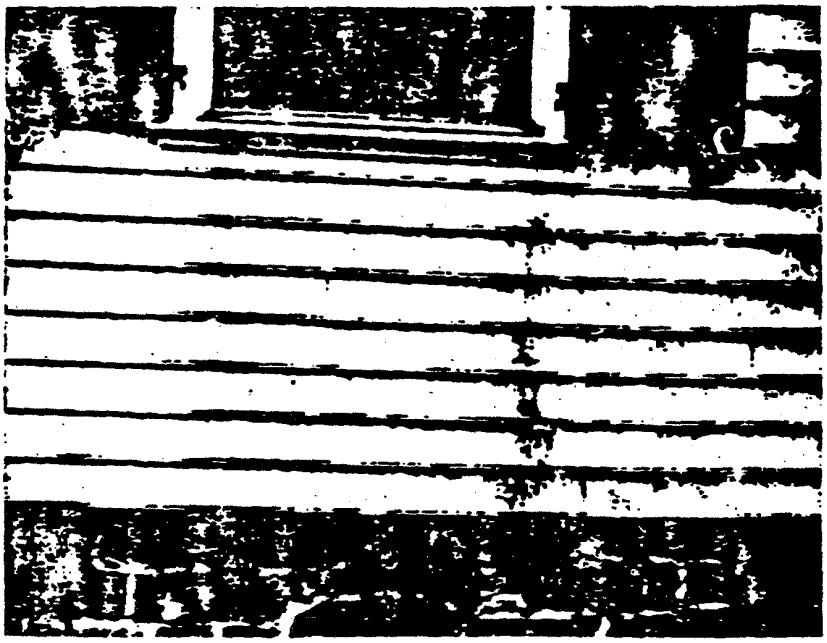
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Detailed Discussions on "How to Assure a Satisfactory Paint Job"

A. 1. a. Brown or Green Stains—Adjacent to Metals:

Symptoms: Stains, usually brown, but sometimes green when caused by copper, occur near and below screens, nail heads, unpainted gutters, or other unprotected metals.



The brownish stain which streaks the paint has come from the copper window screen.

Causes: Corrosion products from iron or steel (rust) and from copper washed-down onto the paint below, which absorbs them. Some paints absorb and hold the stains more tenaciously than others and so stain more seriously. The discoloration is, obviously, more conspicuous and objectionable on white and light-colored paints.

Prevention: All metallic materials exposed to sun and rain including that covered by moldings should be coated with a suitable anti-corrosive primer. After that, the top-coat applied to the rest of the structure may be used. Nail-heads, gutters and down-spouts, screens, braces, and any other iron, steel, or copper objects in contact with or near the paint are examples

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of metals that cause stains. If the original appearance of the metal is desired, as is often the case with copper, a spar or marine varnish may be used, although its life will not be as long as the life of the paint around it and it will therefore need more frequent renewal. Special enamels are available for the protection of iron, copper, or bronze screens. Aluminum and zinc should be coated to preserve their appearance, but they will not stain paint.

Cure: Stained areas may be covered with a fresh coat of paint, they may be sanded or bleached to remove the stain, or the stain may be allowed to weather away. Since the stain is usually very thin, it will disappear in a short time if more stain is not constantly added. No cure will be permanently effective unless the source of the stain is closed off as outlined under "Prevention." Where the metal has already corroded, the rust and other corrosion products on the metal should be removed by sanding or chemical treatment before applying the primer.

A. 1. b. Irregular Brownish Stains: Generally Distributed:

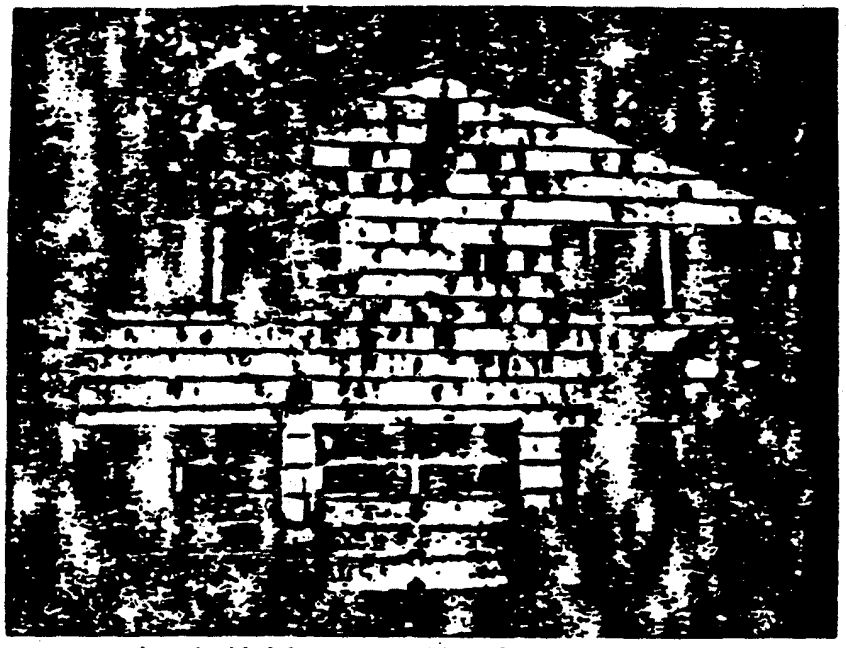
Symptoms: Irregular brownish stains sometimes appear on white or light-colored paints applied over red cedar or redwood. The stains are most common on the rougher types of lumber, such as shingles and shakes, and usually appear after heavy rains. They may be distinguished from metal staining (A. 1. a.), by the fact that they are not, usually, associated with any metallic objects, such as nail heads, and are usually not as intense in one spot.

Cause: Certain woods contain water-soluble compounds which are leached out by water and which stain surfaces brown. Moisture in the wood is necessary to develop the stains. Usually the trouble arises from inadequate sealing of the wood due to thin paint films or irregular application. This allows moisture to penetrate to the wood and extract the dye. It is more common on rough wood, since this is more difficult to seal completely.

Prevention: If water is completely excluded from the wood, the stain cannot be extracted. An adequate thickness of paint is the best way to achieve this. Factory priming is helpful, especially if all surfaces are covered, but the prime coat, in itself, is rarely thick enough to prevent the penetration of moisture, and suitable top coats must be applied. Manifestly the thickness of paint necessary will depend upon the characteristics of the paint. Permeable and "breather-type" paints will require thicker coats than enamels or house paints, and even thicker coats may not be completely effective. Moisture from other sources than the surface, including high humidity in the siding, will also produce staining, particularly if the boards are not protected by vapor barriers such as aluminum foil or similar material.

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Cure: If the source of the dye causing the stain is cut off, the stain will fade rapidly, since its exterior durability is limited. Another coat of paint will cover the stains and will be helpful in sealing the surface if this is needed. Household bleaches or hydrogen peroxide will remove these stains, although the results are rarely worth the effort, since the stain will disappear by itself in a short time. It is, however, nec-



A redwood sided house on which the paint was too thin. The stains come from the wood.

essary to cut off the source of the dye. Otherwise any curative measures will be wasted. If the dye is being leached out by water entering through the face of the siding, additional coats of paint will solve the problem. If the moisture which brings the dye to the surface has some other origin it must be located and cut off. Scientific Section Circular 763, "Some Construction Defects Which Permit Moisture to Menace Homes" gives a number of suggestions as to how this may be done.

A. 1. e. Brown Stains Over Knots

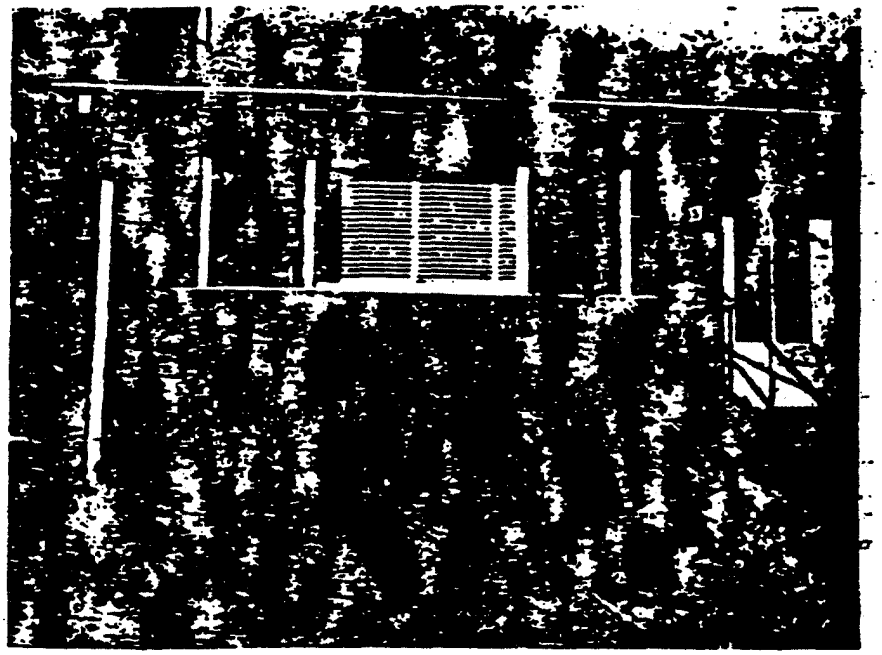
Symptoms: Over knots there is a change in color, later becoming brown and, in extreme cases, followed by exudation of resinous material.

Cause: Some species of wood, particularly pines, contain resinous material, usually concentrated in the knots, but occasionally appearing in other places. Temperature changes

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cause this resin to exude, staining the paint and breaking through the film.

Prevention: The only really satisfactory method of preventing this trouble is the use of top-grade wood, free from knots and pitch pockets, for siding and similar types of construction. If knotty wood is used it will not only give trouble with the paint, but also be a source of weakness in the construction. Knotty wood should always be avoided, except where the decorative effect is desired. The hazards, if knotty lumber is used, can be reduced by coating the knots with a "knot-sealer." Certain proprietary products, such as WP-578, developed by the Western Pine Association, usually give



The knots in this lumber have bled through the brown paint giving characteristic stains.

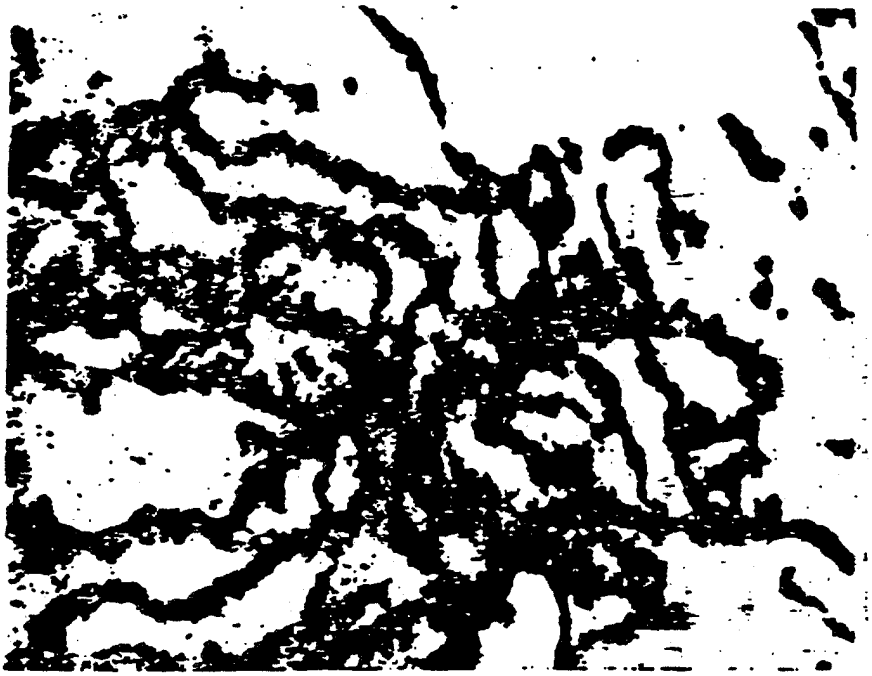
the most satisfactory results, but good sealing may be obtained with shellac or certain aluminum paints.

Cure: Any exuded resin, together with any paint over the area, should be removed. Scraping is usually adequate for this purpose. The knotty area should be covered with a suitable sealer and finished to correspond with the rest of the surface. Burning out the knot or pitchy area with a blow torch is usually effective in serious cases, but may be hazardous unless done by an expert.

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A. 2. a. Black or Gray Stains, Appearing Fibrous Under Magnification

Symptoms: Many cases of "dirty" buildings are actually caused by the growth of molds of one form or another on the surface. These molds are often referred to as "mildew." A luxuriant growth of mildew will also trap dirt, and conversely, a coating of dirt or other foreign matter will often furnish a lodging place for more spores, so these troubles are often found together. If the surface is washed gently with a household bleach, such as sodium hypochlorite, mold will generally lighten perceptibly, while dirt is usually unchanged. Examination under a hand lens or a low power microscope will show filaments when mold is present, while dirt is shown as globules or crystals.



Mold staining magnified several times to show the fibrous shape.

Cause: Mold growth requires infection by the spores of the fungus and also the proper conditions of moisture, food, and temperature, for its growth. These conditions are more commonly found in tropical or subtropical areas, but are common enough in most of the United States that mold infections should be considered whenever "dirty" surfaces are encountered.

Prevention: Paints containing chemicals which kill the mold or prevent its growth are available. These chemicals, often called "mildewcides," are also available separately, to be added to the paint when needed. Paints which provide a hard surface discourage the lodging of mold spores and furnish

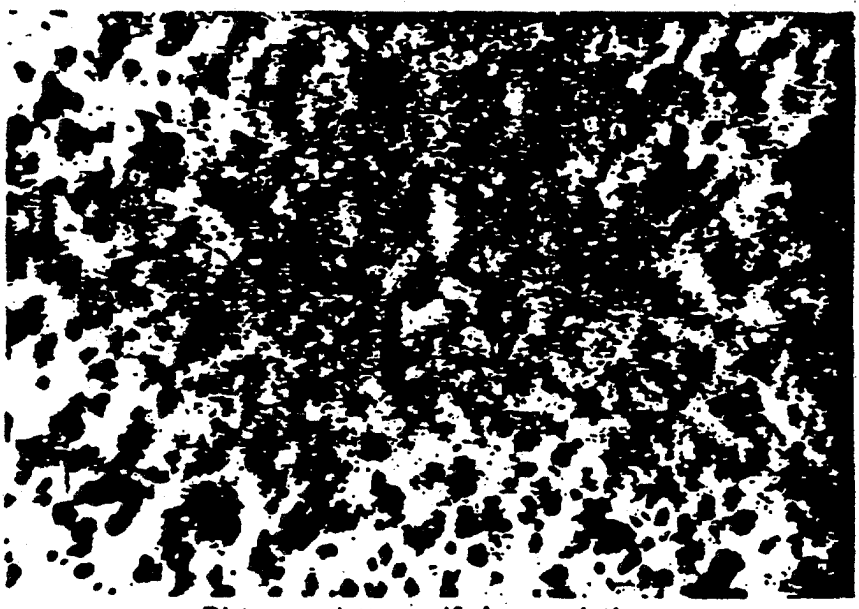
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less food for their growth. Where mold troubles are to be expected, the paint should be chosen with known resistance to infection. Disinfection of the surface before painting with a suitable "mildewcide" will prevent spores already present from infecting the paint.

Cure: Where mildew is already established, it should be removed as far as possible, by scrubbing with a strong detergent in warm water. The remaining spores should then be killed by treating the surface with a household bleach (1 pint per gallon of water), such as sodium hypochlorite, or other suitable disinfectant. Since the presence of mildew indicates that conditions for its growth are favorable, one should repaint with a mildew-resistant paint or add a proprietary fungicide to a standard paint.

A. 2. b. Black or Gray Stains, Appearing Round or Irregular Under Magnification

Symptoms: The symptoms of dirt collection are similar to those of mildew (See A. 2. a.) but, under magnification the particles are seen as round, crystalline, or irregular in shape:



Dirt on paint magnified several times.

Cause: Dirt, soot, dust, and smoke, present in the air, settle on the paint film more rapidly than they are removed by the normal chalking of the paint. This trouble is more common in industrial areas and other places where the concentration of air-borne particles is high.

Prevention: Of course, the only effective measure is to remove the source of the dirt or particulate which causes the dis-

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coloration. This is rarely possible. "Self-Cleaning" paints, which chalk rather freely, will often maintain a clean surface by carrying away the dirt, with the chalk as fast as it accumulates. This is, however, practicable only with white paints.

Cure: Most dirt and similar stains, can be removed by periodic washing with a warm detergent solution and a stiff brush. After all loose dirt is removed and the surface is washed with clean water and dry, the surface may be repainted with a white paint which chalks more freely. However, care must be taken that, with such paints, there is no darker surface, lower on the wall that may be discolored by the chalk. Where this is the case, as with a frame structure above and brick below, washing is the only solution.

A. 2. c. Black or Brown Stains, Showing No Structure Under Magnification and Often Appearing Suddenly

Symptoms: Black or brown stains, often with a metallic lustre and usually generally distributed over the whole painted



Hydrogen sulfide staining. The space between the studs was cooler and moisture condensed on it. This provided better conditions for staining.

surface will often show no structure under magnification. These stains frequently appear suddenly, with a number of buildings in the same locality affected simultaneously.

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Cause: Hydrogen sulfide, a foul-smelling gas which sometimes arises from industrial operations, reacts with lead in the paint to produce lead sulfide. This is a black, lustrous compound, which appears brown in thin layers. Hydrogen sulfide also may come from the decay of sulfur-containing organic matter and is one of the causes of the odors connected with stagnant water in swamps and ditches. In order for the stains to form, conditions of temperature and humidity must be favorable. Stagnant air, of high humidity favors the formation of these stains.

Prevention: Sulfide staining may be prevented by the use of "fume-proof" paints. These contain no pigments or driers which discolor when exposed to hydrogen sulfide. Staining is rarely encountered on dark colored paints.

Cure: When conditions are no longer right for the formation of stains, they will bleach rapidly on exposure to sun and air. Their disappearance may be hastened by the use of hydrogen peroxide or a commercial bleach, but this is rarely worth the trouble. When the conditions favorable to hydrogen sulfide staining return, another attack can be expected unless the surface in the meantime has been repainted with a fume-proof paint.

A. 3. Uneven Changes in Color and Gloss (Flashing)

Symptoms: Uneven areas may be observed early in the life of the paint film. These often follow some underlying pattern in the structure. Color or gloss will be significantly different from that of the rest of the surface. On masonry surfaces, the pattern may follow the mortar lines. On cinder or concrete block individual blocks may appear different from others. Occasionally, the pattern may follow the studs, or other features of wood construction.

Cause: These problems are usually caused by inadequate sealing of the porous surface of the substrate. When the porosity of the surface varies widely, a treatment which is satisfactory for sealing most of it may fail for certain unusually porous areas. Alternatively, most of the surface may be porous but occasionally, areas may be well sealed. Less common causes include condensation of dew or frost on some areas of the surface, and uneven drying due to localized heat. The color and gloss of most paint films are determined in part, by the conditions under which they dry and if adjacent areas dry under widely different conditions of temperature, humidity, film thickness or air circulation, differences in color and gloss may be visible.

Prevention: The prevention of flashing requires the use of accepted practices for good painting. Examples: seal the surface adequately; do not paint when dew is condensing on the surface or rain is likely; do not paint in the direct sun on

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The spots on the paint in the illustration are only differences in gloss. The house was insulated, so the wood over the stud space was cooler than it was over the studs. When the house was painted, it was during the heating season, and moisture condensed on the wet paint over the spaces since they were cooler. This caused tiny dimples in the paint and those had less gloss.

hot days; do not over thin the paint; allow adequate drying time.

Cure: In nearly every case, another coat of paint will solve the problem. If the trouble is due to inadequate sealing an additional coat of paint will, usually, seal the surface. Other causes can be avoided by good painting practices. Flashing should not recur on later coats of paint.

B. 1. Film Intact, But Chalking Excessively, Staining Surfaces Below:

Symptoms: Chalking is the formation of a powder on the surface of the paint. This is brought about by the gradual decay of the film-forming material, releasing pigment particles. In moderation, it is very desirable where permanently white colors are desired, since the chalk, on washing off, carries dirt and discoloration with it. Chalk is objectionable when it washes down over surfaces of a different color beneath the painted area, or when in excess it causes premature disappearance of the film through erosion.

Cause: The amount of chalking from a given paint film is determined entirely by the formulation of the paint and the amount of ultraviolet light to which it is exposed. Many in-

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terior paints, which are not designed for exterior use, will chalk excessively when used outdoors.

Prevention: Chalking can be prevented by the selection of a paint with chalking tendencies appropriate for the intended use. Most colored paints designed for exterior use, chalk very slowly. White paints, intended for use as tint bases, are also slow-chalking. "Self-cleaning" white paints are fairly free chalking and are likely to give trouble when used above a surface, such as brick, on which the chalk will show. A number of manufacturers produce a special paint for use where chalking is objectionable, but the use of these in industrial areas, will result in some dirt collection.



Free chalking paint has caused chalk to wash down on the brick.

Cure: The only effective cure is to recoat with a paint of the proper chalking tendencies. If the chalking is very pronounced, so that a heavy deposit of white powder can be wiped off the surface, the free chalk should be removed by vigorous brushing and when a water thinned paint is used loose chalk should be bound with a "surface conditioner" before repainting. This is particularly important when latex paints are used for repainting. The discoloration of surfaces lower on the wall may frequently be removed by vigorous scrubbing with a good detergent, although this is rather hard work. If the source of the chalk is treated so that the chalk is no longer produced, the discolorations will weather away with time. There is, however, little point in treating the discolored areas if the source of the chalk is not eliminated.

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B. 2. Premature Disappearance of Film:

Symptoms: The film weathers away rapidly without visible cracking or peeling. Usually the brush marks become more apparent, as the thinner film, at the bottom of the valleys, disappears first.

Cause: Chalking and film erosion has proceeded at such a rapid rate that the film has disappeared. This is caused by the use of a paint of composition not adapted for exterior exposure. Sometimes paint designed for interior use will chalk and erode very rapidly on exterior exposure. More common causes, however, are changes in the composition of an otherwise satisfactory paint, produced deliberately or by accident. Excessive thinning of the paint with linseed oil will upset the balance of oil and pigment designed by the manufacturer and



This illustration is taken from the test panel records of a large paint company. It illustrates the harm which results from addition of too much thinner to paint. The top panel and the left one-third of all panels had no thinning, as directed by the label. Reading down the paints on the right two-thirds were thinned with 0, 1, 2, 3, and four pints of turpentine per gallon.

result in a paint which chalks too rapidly. Application of very thin coats, either by excessive brushing, or the use of large amounts of thinner, will result in absorption of oil into the wood, leaving a film with an excess of pigment. This, again, may chalk and erode rapidly.

Prevention: Use a high quality paint, designed for the exposure to be encountered. Follow the manufacturers directions as to thinning and rate of application. These are designed for the particular paint and serious departures from them may produce undesirable results.

Cure: Remove any dirt, chalk, and lose paint by wire-brushing. Apply one or more coats of high-quality paint, following the manufacturers' directions. If erosion has proceeded to the point that there are large areas of bare wood, treat the suface as for new wood.

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C. FILM CRACKED AND PEELING:

Peeling of paint film is characterized by the paint coming off the substrate in flakes or chips of measurable size. Usually flakes can be found which are still attached to the surface but curling away from it, and other areas may be located where the film, though still intact, no longer adheres well and can be removed with little effort. It is important, for diagnosis, to note whether the peeling leaves intact paint on the surface, or whether the peeling goes down to the bare substrate. The cause, prevention, and cure are usually different in the two cases.

C. 1. a. Intercoat Peeling: Chip and Painted Surface Both Smooth and Glossy:

Symptoms: The peeling flakes and the remaining surface are both smooth, with no chalk or deposit on either. Often the peeling is confined to limited areas with the rest of the surface in excellent condition.



The last coat of paint is peeling, because the surface of the old paint was contaminated.

Cause: Something has interfered with the adhesion of the top coat to the undercoat. Frequently this is due to an undercoat which is too smooth and glossy. This condition is frequently encountered under eaves or in other areas where the old paint was protected from normal weathering. Another cause is that some foreign material, such as oil or grease, was not removed from the surface before painting. In this

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case the peeling is usually confined to small areas which were contaminated.

Prevention: Before repainting, smooth hard surfaces should be roughened with steel wool or sandpaper. There are also proprietary products which are effective in preparing glossy surfaces for repainting. Foreign material should be removed by washing with a detergent solution, wiping with a solvent, or sanding.

Cure: All peeling and loose paint should be scraped or sanded off. It is important to remove not only the peeling paint, but all paint in the immediate area since adjacent paint is likely to be loose. If trouble is confined to a single board, all the paint on that board should be removed. The surface should be roughened or cleaned, as needed, rough edges should be feathered down, and the surface should be repainted.

C. 1. b. Intercoat Peeling—Old Surface Chalky:

Symptoms: The back of the chip of peeling paint is usually smooth, but the surface from which the paint has peeled is chalky and powdery.



The old paint on this stucco wall was chalky as can be seen. The new paint failed to adhere.

Cause: Many exterior paints, and particularly latex paints, do not adhere well to chalky surfaces, since they do not penetrate the chalk to establish firm contact with the film underneath. When the new film dries and becomes hard it does not adhere well and peels readily.

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Prevention: When painting over a chalky surface, the best way to avoid this trouble is to remove the chalk before painting. On masonry this can be best done by sandblasting, although this is often not practicable. A number of proprietary "surface conditioners" are available which penetrate this chalk, bind it to the underlying surface, and furnish a satisfactory base for repainting. If there be any doubt concerning the repainting of a chalky surface with water-thinned paint, consult a reliable paint dealer for his recommendation.

Cure: A complete cure of this condition is often difficult, unless all the paint and underlying chalk are removed by scraping or sandblasting. However, satisfactory results are often obtained if the surface is scraped to remove all peeling paint and, also, all paint that is beginning to lose adhesion. Following this, the chalky surface should be treated with surface conditioner to bind the chalk, and then repainted. In many cases this procedure will be satisfactory, but there is always the possibility that other areas may lose adhesion later. Continued peeling is common unless all the old paint in the area of peeling was removed before repainting.

C. 1. c. Intercoat Peeling—Chip and Surface Both Rough:

Symptoms: Both the back of the chip and the underlying surface are rough, with indications that the paint film has split down the middle of a coat, leaving some paint on both



This cementitous post has been painted for decades until the paint thickness was so great it had no flexibility. When some stress occurred, peeling began.

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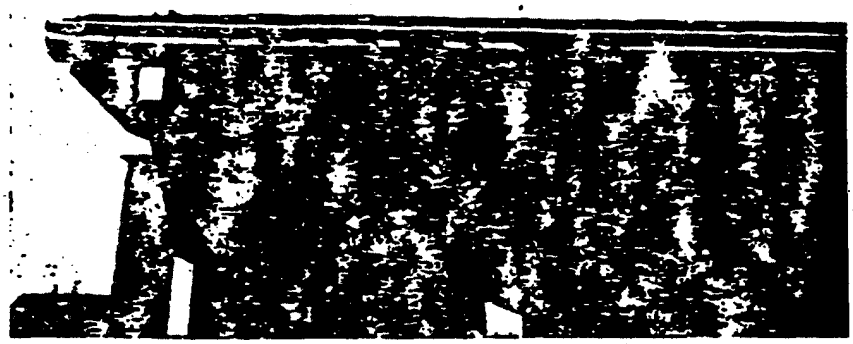
the chip and the painted surface. This condition is rarely encountered except on old surfaces which have received many coats of paint.

Cause: One or more of the old coats of paint is soft, with little strength. Succeeding coats of paint have put strains on it which it is unable to resist and it splits down the middle. Paints which give most trouble in this respect are the old-fashioned "Yellow Ochre" primers and barn paints, many of which did not contain high-grade oils in the vehicles.
Prevention: Avoid the use of low-grade paints.

Cure: There is no effective cure except to remove the old paint with suitable products, and repaint.

C. 2. a. 1. Peeling Leaves Base Bare—Galvanized Steel:

Symptoms: The paint coating peels away from the metal, leaving a bare surface. This often happens in the Spring, following the painting.



Paint peeling from a galvanized gutter.

Cause: Galvanized steel expands and contracts greatly when it is exposed to temperature changes. Unless an appropriate primer or pretreatment is used next to the metal, the dimensional changes in the steel and reaction of the zinc with the paint vehicle destroy the adhesion of the paint. In general, conventional house paints or trim enamels, applied to galvanized steel, without special priming or pretreatment, rarely adhere adequately.

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Prevention: Use a suitable primer or pretreatment, designed for galvanized iron. See "Painting Galvanized Steel," obtainable from the National Paint, Varnish and Lacquer Association.

Cure: Remove the old, lose paint by scraping, sanding, or paint remover and then repaint, following standard procedures for painting galvanized steel.

C. 2. a. 2. Peeling Leaves Base Bare—Iron and Steel:

Symptoms: Paint comes away from the surface, leaving bare metal. This is usually associated with chipping of some kind, and the exposed metal, at first, is clean, although it may rust rapidly after being exposed. (Rusting of the underlying metal, followed by destruction of the paint film is the normal aging cycle of paint over iron and is not discussed here).

Cause: Inadequate adhesion of the base coat of paint to the surface. This may be due to the use of an incorrect primer or no primer at all, or to failure to remove dirt or grease from the surface before priming.

Prevention: An anticorrosive primer, designed for use on metal, should be used as the first coat on all iron and steel surfaces. The particular primer should be selected on the basis of the exposure to be encountered and other factors. All metal surfaces should be cleaned before painting. Wiping with mineral spirits may be adequate if there is little contamination. In more serious cases, detergents or proprietary surface treatments are required.

Cure: Sand the surface to remove dirt and rust, using petroleum solvent if grease is present. Feather the edges of adjacent paint to leave a smooth surface. Apply a suitable anticorrosive primer and finish with the appropriate finish coat, or coats. Where the failure is extensive it may be more simple and more economical in the long run, to remove all the old paint and start over again.

C. 2. b. Peeling Leaves Base Bare—Masonry:

Symptoms: The paint peels away from the surface, often starting at edges or at mortar joints.

Cause: On masonry that is reasonably new, (less than a year) such peeling is nearly always indicative of inadequate alkali resistance of the primer. On older masonry, a moisture problem which brings alkali to the surface, is to be suspected. Occasionally, on old masonry, contamination or efflorescence may cause trouble.

Prevention: Fresh masonry should always be painted with an alkali-resistant primer, the type being determined by the amount of alkali which is likely to be encountered. See booklets on "Painting Asbestos-Cement Products," and "Painting New Plaster," published by the National Paint, Varnish and

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The concrete ceiling of this school building marquee was painted too soon after the concrete was installed. The peeling is caused by reaction of the paint vehicle with the alkali destroying the paint bond.



This new stucco house began to peel before it was occupied. The peeling was due to rotten stucco. The top layer of stucco came off with the paint.

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Lacquer Association. If possible, access of moisture to the masonry should be prevented by proper construction practices. Surfaces should be clean before painting.

Cure: Remove all loose and peeling paint, brush dirt away from the surface, and repaint, using an alkali-resistant primer. If efflorescence, or other indications of moisture, are observed, treat first with a silicone water-repellent.
(NOTE: Occasionally old, unpainted surfaces of stucco, plaster, or asbestos-cement products may have weathered to the point that most of the binder has been lost from the surface, leaving chalk which is very similar to that observed on certain chalking paint surfaces. This problem should be treated as under C. 1. b.).

C. 2. c. Peeling Leaves Base Bare—Wood:

1. Cracks follow grain of the wood, often preceded by blistering.

Symptoms: This type of peeling often starts as a blister, which when fresh, frequently contains water. Further aging produces cracking which, usually follows the grain of the



Water entering the unprotected siding ends, destroyed the adhesion of the paint and peeling resulted.

wood. This is often the first symptom noticed. One characteristic symptom of this trouble is that it does not occur generally on the entire wood or surface, but is usually concentrated in a few areas—around windows, near the ground, or

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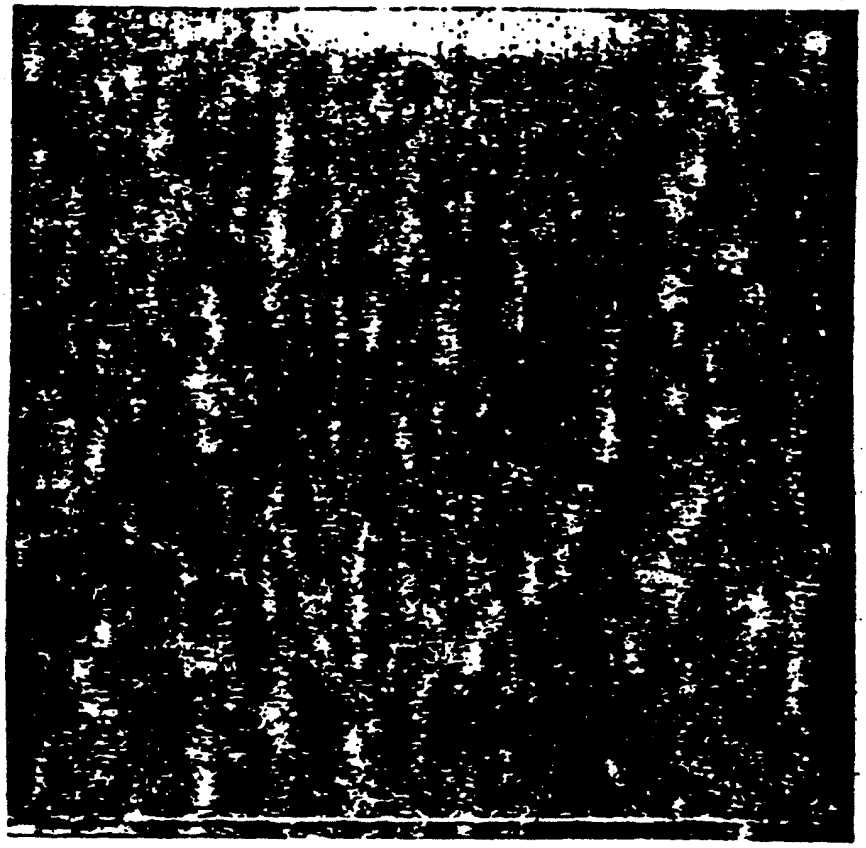
outside of kitchens and bathrooms—while most of the house will be in excellent shape. Individual boards may show this while adjacent boards do not. It does not seem logical, therefore, to ascribe this difficulty to the paint.

Cause: Peeling of this type is almost invariably caused by moisture from some source or other which gets behind the paint film and impairs its adhesion.

Prevention and Cure: The methods of preventing and curing this trouble, which is the greatest single cause of unsatisfactory paint performance, are discussed at length in Circular 763, "Some Construction Defects Which Permit Water to Menace Homes," published by the National Paint, Varnish and Lacquer Association.

2. Cracks across the grain of the wood.

Symptoms: Cracks usually cross the grain of the wood and the film curls away from the crack. Examination of the edge of the film will usually show a very thick film, made up of numerous coats.



This is a 25 year old house which was painted frequently.

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Cause: Repeated painting, without adequate weathering permits excessive thickness of paint to accumulate. The thick film will not accomodate itself to the stresses set up by the swelling and shrinking of the wood, and peeling results. A film thickness of more than 20 mils (thousandths of an inch) is usually sufficient to produce this effect.

Prevention: No more paint than is necessary to restore the desired appearance should be used for repaint jobs, especially on areas, such as those under the eaves and on the north side, where weathering progresses slowly. Paint which is in excellent condition, but dirty, should be washed occasionally, rather than repainted. Areas which have not weathered sufficiently to lose their gloss should be roughened with sandpaper or steel wool or treated with a suitable proprietary product before repainting to give better adhesion and reduce the film thickness.

Cure: The only satisfactory cure is to remove the excessively thick layers by scraping, sanding, burning, or the use of paint removers, followed by standard practices in repainting.

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