

PAINT for EVERY PLACE and PURPOSE

By R. S. MADDOCK

PART I

This is the fifth article in the series of comprehensive building articles—which are really little building manuals in themselves—by authoritative authors, which have been added to COUNTRY LIFE each month. In this series we have endeavored to make an exhaustive research into the subject under consideration and to give our readers the latest and most complete information of practical value about that subject. Thus the first article in our April issue took up the roof and discussed it from every possible angle. In the May issue we treated of stone walls and their construction, in June the various methods of heating the house, in July, windows, in August, mantels and fireplaces, and this month paint. Other articles to come will include "Stairs and Stairways," "Floors and Flooring," "Doors and Doorways," etc.—THE EDITORS.

THIS article has to deal particularly with paints so constructed that they may be used to beautify and protect the structural materials that are used in the building of a residence, and it is our desire to present the subject in such a way that a better and more intimate understanding will be had, both of the making of paint and of its proper use.

The simplest form of oil paint consists of a single pigment mixed with linseed oil to the consistency of thick cream, this mixture being combined by hand with a stick. A small percentage of volatile thinner such as turpentine, is added until the paint is of good brushing consistency. Opposed to this simple mixture of paint are the scientific machine-made paints, the composition of which has been determined by painstaking study and research. It is a proven fact that a worthy machine-made paint will outlive the very best hand-mixed lead-and-oil paint by at least a year, and some even by a full two years. Not less than an average of four years will be the life of a job painted with the properly made machine paint, and more often the life will be extended to five or six years.

On the other hand, experience has determined the life of a job done with the best hand-made paints to be from two to three years at most. It has been found in the instances where hand-made lead-and-oil paints have been used that chalking (surface becoming powdery) takes place often in the second season, but we will assume that the chalking does not take place until the third season. Think of what this difference in length of life means in the cost of paint and re-painting over a period of twelve years.

You will find, after careful study, that the factor of labor cost as it relates to the durability of the paint is so important that you, as the owner, cannot afford to use any but the very best paints available. This is such an important factor that we will explain just what we mean by



A paint skin of three layers of paint. It is like a sheet of rubber when dry, and from 1-1,000th and 1-500th of an inch thick. Thin as it is, this coating when properly made of the right materials, gives complete protection—but only when so made.

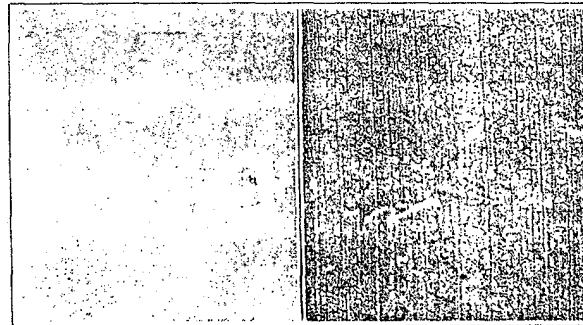
a fair and representative example of of two identical houses, each with about 3,600 square feet, to be covered with coats of paint. In other words, each 7,200 square feet of surface to be painted. In the May issue we treated of stone walls and their construction, in June the various methods of heating the house, in July, windows, in August, mantels and fireplaces, and this month paint. Other articles to come will include "Stairs and Stairways," "Floors and Flooring," "Doors and Doorways," etc.—THE EDITORS.

HOUSE PAINTED WITH MACHINE-MADE PAINT	
12 gallons machine-made paint (two coats) at \$3.75 per gal.	\$ 45.00
17 gallons lead-and-oil paint (two coats) at \$3 per gal.	
Labor cost at \$8 per day . (20 days)	160.00
Total cost to owner for two coats of paint.	\$205.00
Life of the job before re-painting was necessary .	4 years
—which would mean an annual cost to the owner of	\$ 51.25

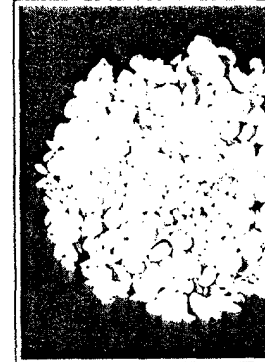
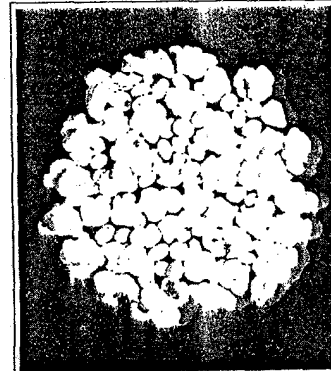
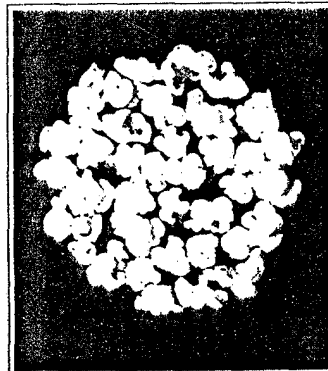
This would mean that over a period of four years, on the basis of the four-year

for the house painted with machine-made paint. On the basis of the three years the cost to the owner painted with the hand-made paint would be \$1,068—a difference lost to the owner on a period of twelve years added disadvantage upon paint too often.

It will be noted that of the machine-made paint the house with two coats that lasted four years still in a receptive condition late more paint. (hand, it required six of hand-made lead-and-oil paint to cover a like house, necessary to repaint within



On the left a surface painted with machine-made paint; on the right one painted with lead and oil paint made by the stick-mixed method. Both paints were applied at the same time and under the same conditions, and were exposed for the same period to the action of the elements



Illustrating by means of popped corn in the first figure, popped corn and beans in the second, and the addition of rice to these two in the third, how the voids between particles in paint are filled up by the various ingredients

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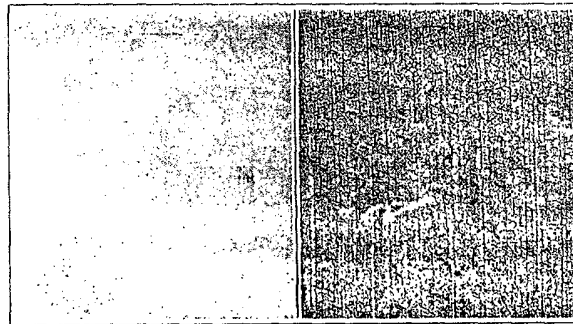


a fair and representative example of the painting of two identical houses, each with a surface of about 3,600 square feet, to be covered with two coats of paint. In other words, each house had 7,200 square feet of surface to be painted. These two houses were painted several years ago and in order to have them painted with present costs in mind, the figures now existing for labor and for paint are employed.

	HOUSE PAINTED WITH MACHINE-MADE PAINT	HOUSE PAINTED WITH HAND-MADE PAINT
12 gallons machine-made paint (two coats) at \$3.75 per gal.	\$ 45.00	
17 gallons lead-and-oil paint (two coats) at \$3 per gal.		\$ 51.00
Labor cost at \$8 per day (20 days)	160.00	216.00
		(longer time required—same rate per day)
Total cost to owner for two coats of paint.	\$205.00	\$267.00
Life of the job before re-painting was necessary	4 years	3 years
which would mean an annual cost to the owner of	\$ 51.25	\$ 89.00

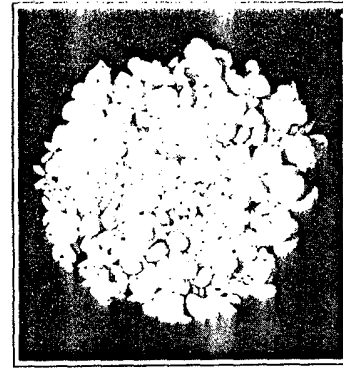
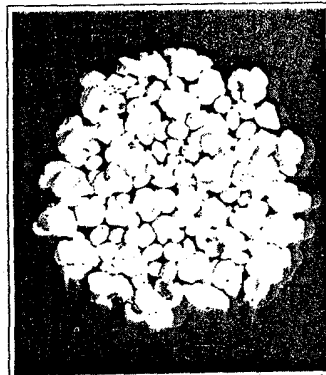
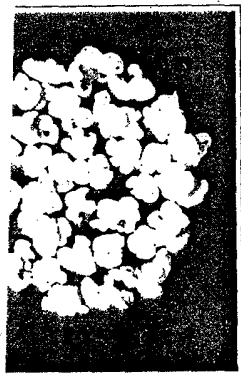
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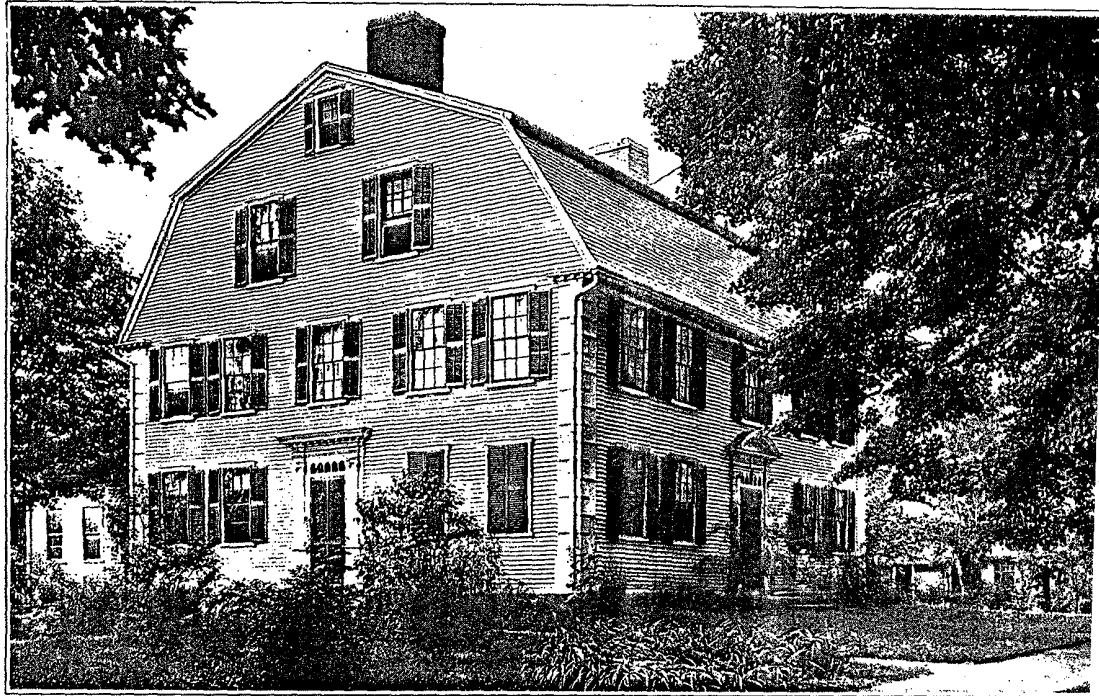


On the left a surface painted with machine-made paint; on the right one painted with lead and oil paint made by the stick-mixed method. Both paints were applied at the same time and under the same conditions, and were exposed for the same period to the action of the elements

This would mean that over a period of twelve years, on the basis of the four-year cycle, the cost for the house painted with the machine-made paint would be \$605. On the basis of the three-year cycle, the cost to the owner for the house painted with the hand-made paint would be \$807—a difference of \$202 lost to the owner on painting, within a period of twelve years, with the added disadvantage of painting paint upon paint too often. It will be noted that twelve gallons of the machine-made paint covered the house with two coats of paint that lasted four years, and it was still in a receptive condition to assimilate more paint. On the other hand, it required seventeen gallons of hand-made lead-and-oil paint to cover a like house, and it was necessary to repaint within the third year



Illustrating by means of popped corn in the first figure, popped corn and beans in the second, and the addition of rice to these two in the third, how the voids between particles in paint are filled up by the various ingredients



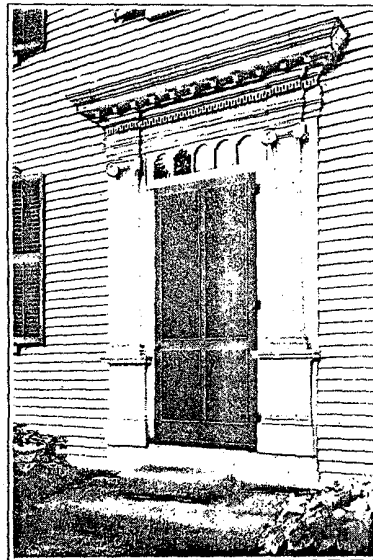
The old Joseph Stebbins house at Deerfield, Mass., is a monument to the preservative power of paint.

in order to apply the new paint on the old paint while it was still in a receptive condition for re-painting. It required seven days longer to apply the hand-made mixture due to the fact that more brushing was necessary to obtain an even surface throughout.

The whole secret of this difference is in the paint making. It makes no difference whether it be Professional Painter or Mr. Average Paint User. A good paint cannot be made by hand that compares in value and service to the good paint made with machinery. The reputable manufacturer realized years ago that in manufacturing a good paint it was and always would be necessary to keep well in mind what is expected of paint, the first essential being determined as its ability to weather-proof the surface to which it is applied. Paint must be so constructed that it will cover the surface completely and keep out moisture. It must also have density or hiding power, uniformity and even covering, spreading capacity, ease of application, drying ability within a reasonable time, and durability.

The paint maker, through painstaking effort, has determined that all materials necessary in the composition of paint have weaknesses, and has come to the belief that a perfect paint is impossible. In fact, it is well established that if an indestructible binder or oil could be found, it would matter little what sort of pigments were used, so long as they gave the necessary hiding power and the desired color effect.

It is safe to state that a layer of dried linseed oil (linoxyn) is probably more resistant to atmospheric influences chemically (not mechanical wear) than any known paint, yet it is not water proof. It is claimed upon good authority that a gallon of linseed oil spread upon 100 square feet of surface will outwear a gallon of the best paint made spread upon the same area of a similar surface—but it will be noted that it will require about three times as many coatings of the oil to use up a gallon as it will of the paint to use it up. Thus it is apparent that pigments must be carefully selected; not only do they supply the necessary covering or hiding properties, and the desired color effect, but also they must thicken the paint and reinforce the paint film.



Detail of doorway of the Stebbins house. Although more than 150 years old every piece of the architectural detail is preserved perfectly. Yet the stone used as a step has been gradually destroyed by the elements until it was necessary to place a small stone on top of the original.

Linseed oil is the life of the paint. Oil in the paint is the binder that grips the wood and holds the selected pigments on. It follows, therefore, that when the binder is dissipated, the pigment powders or chalks off. For this reason great care must be given to the selection of the oil used. In the well-organized paint factory the chemist determines the value of each batch of oil received. It should be absolutely pure and of

certain designated grade. In other words, called pure linseed oil does not necessarily mean that it is a good linseed oil for use in paint.

One manufacturer of a very high-grade linseed oil says that a praiseworthy linseed oil is of a yellow color—brilliant, limpid, dry, and having a rich lustre, and having a pleasant taste. A fair linseed oil "is a yellowish oil with a clear, drying fairly, not very pleasant taste but somewhat bitter." An inferior linseed oil "is of a greenish or dark color, has a certain taste, cloudy, and drying poorly."

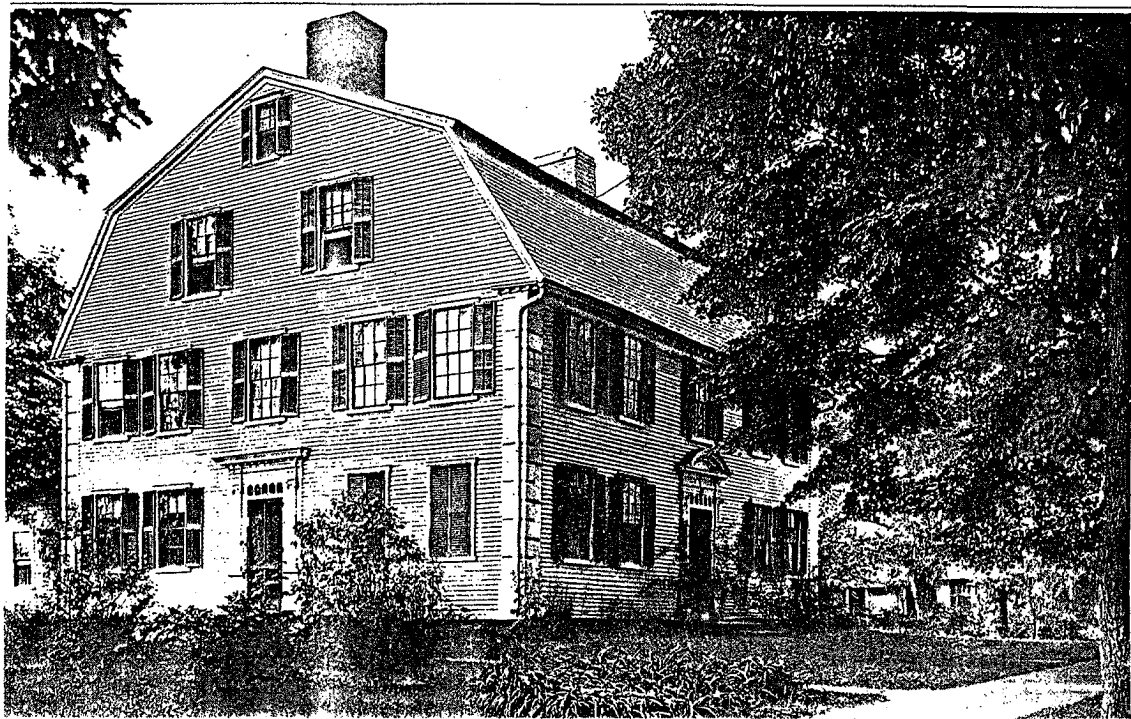
The linseed oil in a good paint shows a certain given amount of oxygen by a certain established fact that it contains oxygen over a period of three or four months after it is dry, and probably does so for the life of the paint.

At this point we want to emphasize that the pigments and oils other than those which enter into the making of paint do not increase or decrease the life of the linseed oil. The scientific paintmakers' exact knowledge of the pigments and oils has been the means of increasing the life of the linseed oil and is the definite reason why a properly made, well-balanced linseed oil paint will live longer than a hand-made paint.

Other liquids should be used in the making of a good linseed oil paint, especially turpentine, or a good turpentine, added in correct amounts, aids the painting out farther over the surface, is able to obtain an even thickness of paint. Turpentine also aids in carrying seed oil into the pores of the wood of new wood) and through previous paint in its use on a previously painted surface.

We mentioned that a good turpentine might be used, but we advise indiscriminate buying of turpentine because it is vitally necessary to use that are safe. There are many others that are not at all safe to use.

Genuine turpentine can be easily distinguished from cheap paint stores and should be used.



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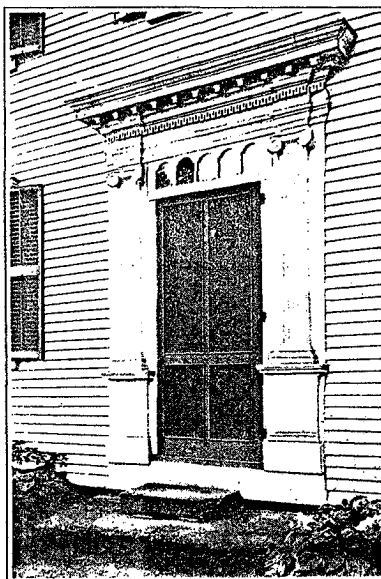
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One manufacturer of a very high-grade paint says that a praiseworthy linseed oil "is of pale yellow color—brilliant, limpid, drying well, with a rich lustre, and having a pleasant nutty taste." A fair linseed oil "is a yellowish oil with a brown hue—clear, drying fairly, not very pleasant to the taste but somewhat bitter." An unsatisfactory linseed oil "is of a greenish or dark color—uncertain taste, cloudy, and drying poorly."

The linseed oil in a good paint should absorb a certain given amount of oxygen by weight. It is an established fact that it continues to take in oxygen over a period of three or four weeks after it is dry, and probably does so during the life of the paint.

At this point we want to emphasize the fact that the pigments and oils other than linseed oil which enter into the making of paint, either increase or decrease the life of the linseed oil. The scientific paintmakers' exact knowledge of pigments and oils has been the means of extending or increasing the life of the linseed oil in paint, and is the definite reason why a properly machine-made, well-balanced linseed oil paint will wear or live longer than a hand-made paint.

Other liquids should be used in the making of a good linseed oil paint, especially if the paint is made for use on wood surfaces. For instance, turpentine, or a good turpentine substitute, added in correct amounts, aids the paint in brushing out farther over the surface, making it possible to obtain an even thickness of film throughout. Turpentine also aids in carrying the linseed oil into the pores of the wood (in the case of new wood) and through previous coats of paint in its use on a previously painted surface.

We mentioned that a good turpentine substitute might be used, but we advise against the indiscriminate buying of turpentine substitutes, because it is vitally necessary to use only those that are safe. There are many on the market that are not at all safe to use.

Genuine turpentine can be easily found at all good paint stores and should be used whenever

thinner is required. Turpentine does not retard the natural drying of linseed oil. In fact, it rather has a tendency to quicken the drying of an oil paint film, but it does not quicken the drying of this film at the expense of the life of the linseed oil. We want to make a point of this characteristic, since we find that the addition of some of the so-called thinners or turpentine substitutes will retard the drying of the paint, and in some cases even prevent the paint from drying hard enough to give good service.

The manufacturer has found it advisable to add a carefully made drier to some oil paints in order that the film of paint will dry free of dust within a reasonable period. In other words, the manufacturer, in order to obtain some shades of linseed oil paint, finds it is necessary to use pigments which have a tendency to retard the normal drying period of linseed oil; and whenever pigments of this nature are used, the necessary amount of dryer is added to counteract the action of the pigment. As a rule no additional drier need be added by the user.

We said before that all materials used in paint have weaknesses. This statement especially applies to the pigment portion of the paints. Each and every pigment lacks or is below par in some one or more of the qualities of the ideal pigment, but it may possess one or more other desirable qualities in a marked degree. One of the most important basic white pigments used by the manufacturer in making a good white paint is white lead. The defect of white lead, however, is its alkaline nature, causing gradual and progressive attack upon the linseed oil and other materials of the paint coating. If the chemical activity of each particle be supported by close contact of the other lead particles, then there occurs an undesirable chemical action of the mass. The addition of a proper amount of reinforcing inert pigments is a great aid in separating the lead particles, and is of decided assistance in lessening the chemical activity.

It may further be said that no one pigment is complete in itself, and the manufacturer, with

his exact knowledge of how to make the virtues of one offset the deficiencies of the other, can secure balance in the relation of pigments to the paint mixture. For instance, lead pigments are soft, but hide the surface well. The zinc pigments are hard but do not hide the surface well. By the addition of zinc and inert materials it is

possible to obtain all the required character necessary in a well-built pigment body.

The most important basic pigments used by the manufacturer in making a good white paint are, in their order of importance, white zinc oxide, sublimed white lead, and litharge. This last named pigment being used chiefly entirely, in paints made for interior use only.

The principal reinforcing pigments or pigments are barytes, siliceous, asbestos, and clay.

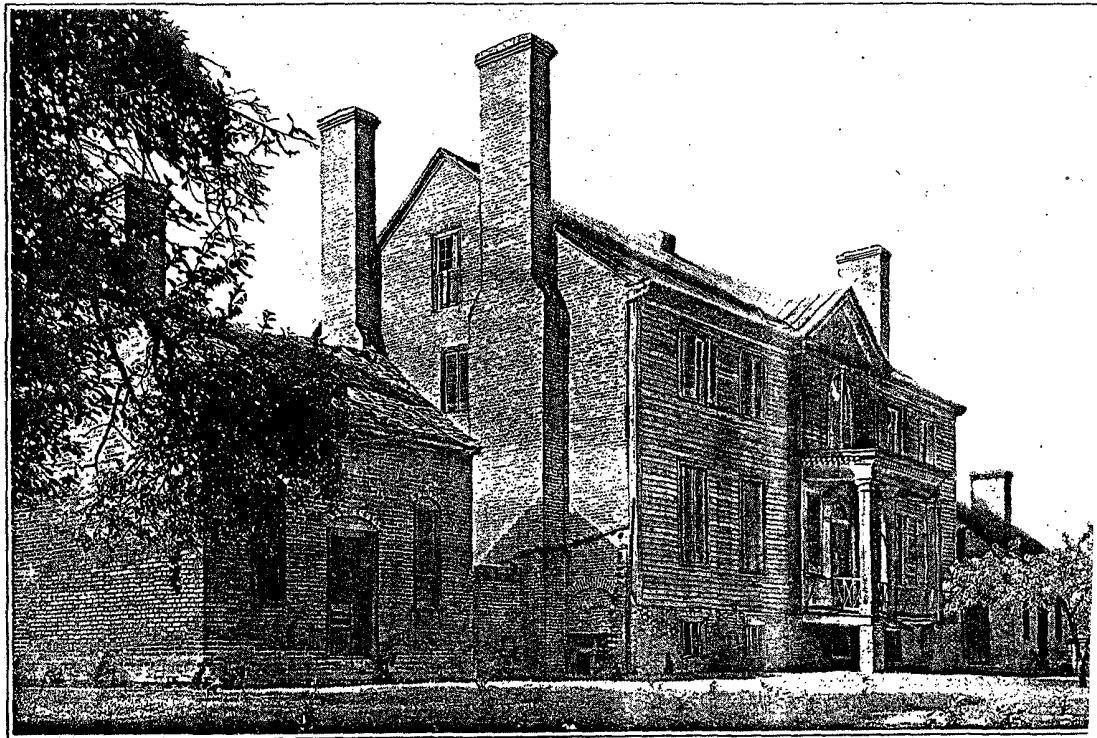
Most of our attention should be given to the white pigments because they not only do the white paint but at the same time controlling factors in the pigment composition of the tints and light colors of most of the paints. The balancing of the pigment in the making of the paint might be better understood by comparing it to the alloy of metal. It is well understood that pure gold is too soft for commercial use. It must be made harder by making an alloy of gold with copper. It is also well understood that a small amount of copper added to pure gold increases its carat value.

All good paints are made on the alloy principle. It is true that the high-grade paints are made upon a lead base, but there should be a direct proportion of zinc and other reinforcing pigments, all so united that the strengthening ingredient serves to offset the weakness of the others. The result is that the pigment well-balanced machine-made paints have, if any, chemical action on the oil, but serve to protect and prolong its life, gradual wear and leaving an excellent surface for repainting.

Some of the pigments used in the making of a high-grade paint group themselves are particles that are quite large, as seen under a microscope. Other pigments group themselves into particles that are quite small, and these groups are not of the same shape or size. If it were possible to lay the particles side by side and they could be



Illustration of painted surface in complete disintegration. The surface was allowed to remain too long before repainting was done, and it was no longer in a receptive condition to assimilate more paint.



An old Southern Colonial mansion built about 1760 which proper painting would have preserved in as good condition as the Stebbins house at Deerfield, Mass.

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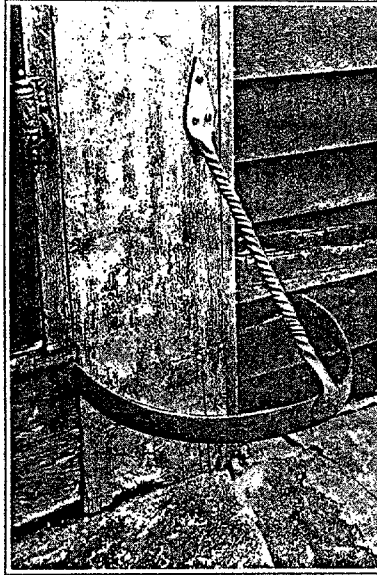
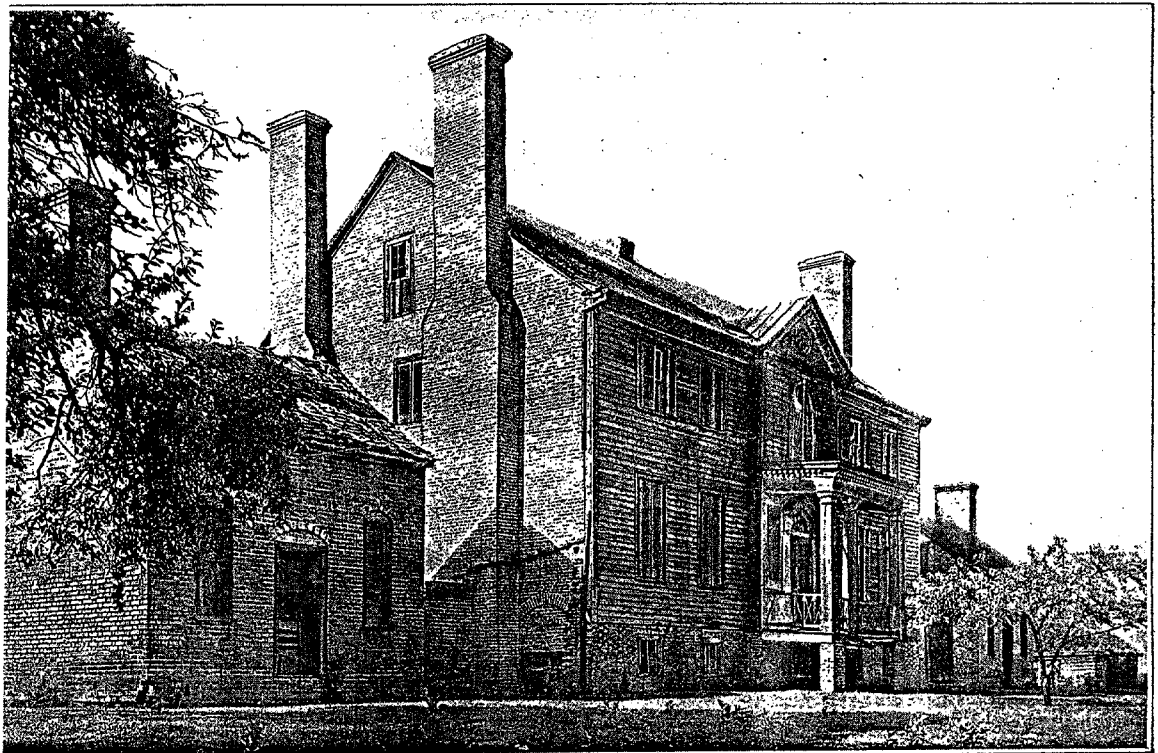
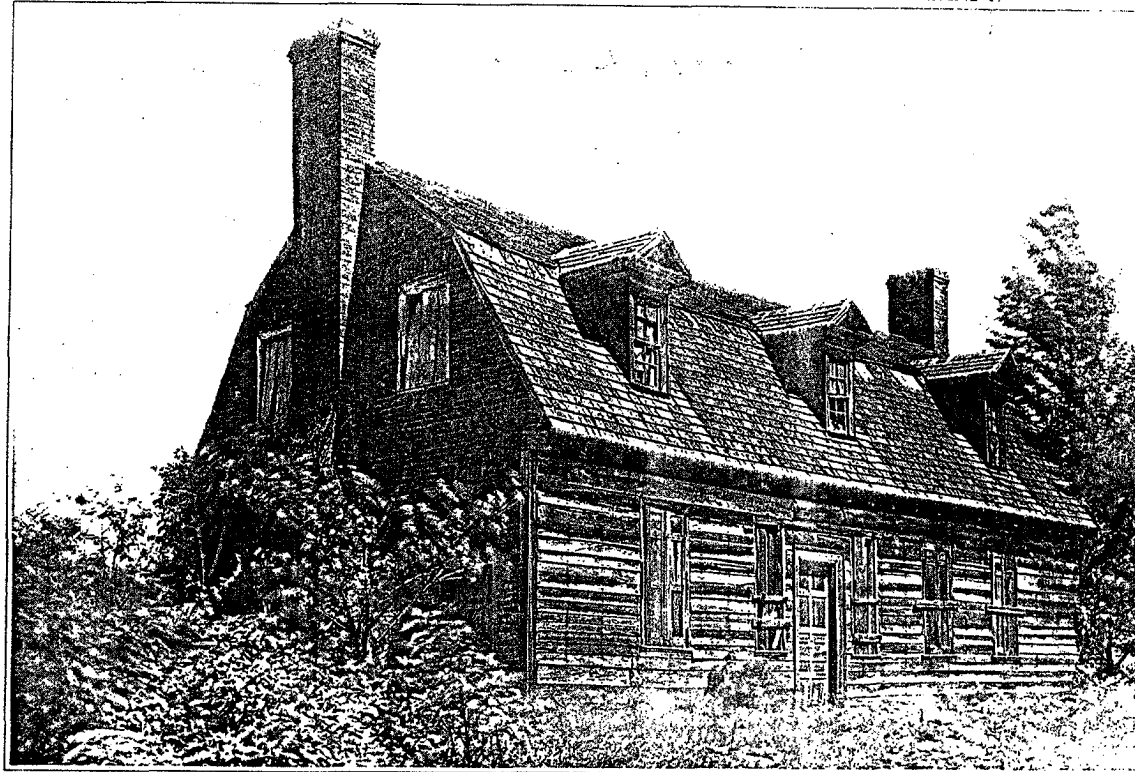


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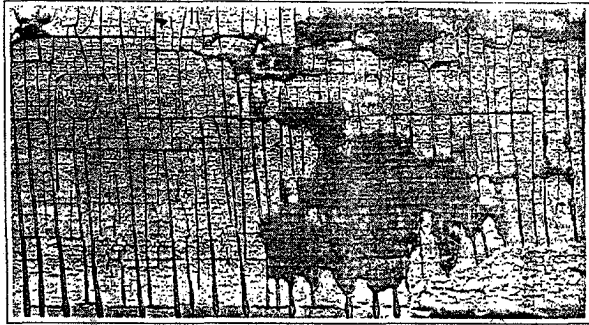


An ancient Maryland farmhouse whose warped and decaying siding is eloquent of neglect to paint and to keep painting

through a powerful lens it would be seen that voids existed—in other words, that spaces were not closed in a thin layer of these pigments. White lead groups itself in particles that are not unlike in appearance to popped corn (see illustration). Oxide of zinc groups itself in particles that are not unlike in appearance to navy beans. A second illustration shows, placed together, the popped corn with navy beans used to close the voids. We find, however, upon close examination, that voids still exist. We will say that the inert pigments, such as barytes and silic, would gather themselves in pigment particles that would closely resemble in appearance grains of rice. The third illustration shows that by addition of rice to the popped corn and navy beans it has been possible to close all voids and to have a perfect covering of the surface upon which this combination of grains has been spread. It has also been possible to level up the thickness of the pigment layer.

The same principle is applied in the making of paints, and it explains why, from a strictly physical standpoint, different characters of pigments should be used in the making of good paint.

UNIFORMITY of product is obtained by the proper understanding of each ingredient used and the best manner of incorporating these into one mass, coupled with the thorough incorporation of the ingredients by powerful grinding and mixing machinery. In other words, the high-grade paint, as now being made by the reputable manufacturers, is the culmination of carefully selected oils and pigments, combined with an exact knowledge of paint-making, together with care used at every step of the process.



Cracked and peeling paint. Conditions of this sort can be avoided by care in applying the priming coat

The paint manufacturer who is building paint with a conscience begins with the white lead ground in oil. This white lead is either received by the manufacturer already ground in oil or he proceeds to grind the lead in oil before it is mulled together with other pigments. He adds to the base lead the other pigments and the necessary oils which are required in the first mixing or mulling of these pigment particles together. When this mixture has been thoroughly mulled together, it is lowered to another mixer (usually on the floor below) and is here further mixed and ground through a series of grinding stones, until the pigment particles are thoroughly broken up into units as small as is practically possible. To illustrate this point, let us suppose that we have a given amount (in weight) of lead shot that is about the size of a small pea. A given weight of this shot, spread on a surface side by side, does not cover nearly so large an area as the same quantity (in weight) of shot of very much smaller size would cover.

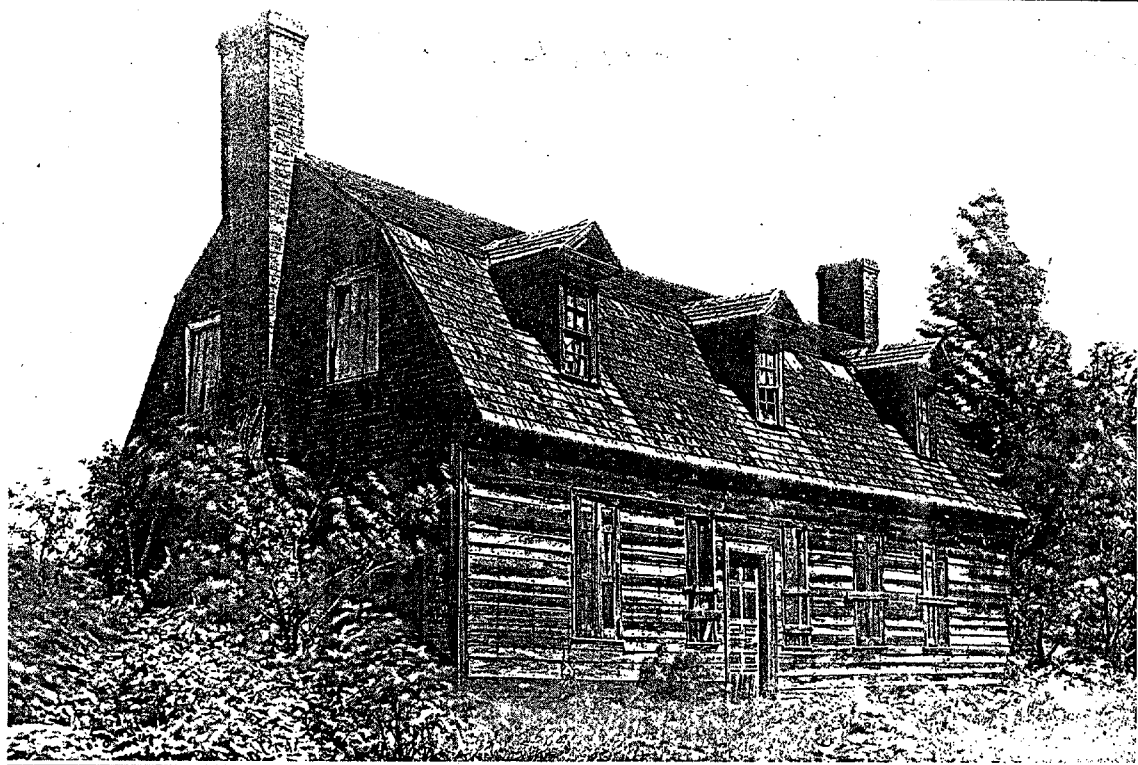
This thorough grinding words, is the reason why the made paint will spread farther and at the same the surface so much better the hand-made lead-and-oil. A further advantage of this grinding is that the fine pigment particles become surrounded by oil.

It will be remembered that the most exacting requirement of a good paint is its ability to completely the surface of to which it is applied. Grinding is one of the essential to accomplish this.

Mixing, double grinding, mixing, plus an exact knowledge of proper pigments, oils, and equals a high quality paint—of paint which assures

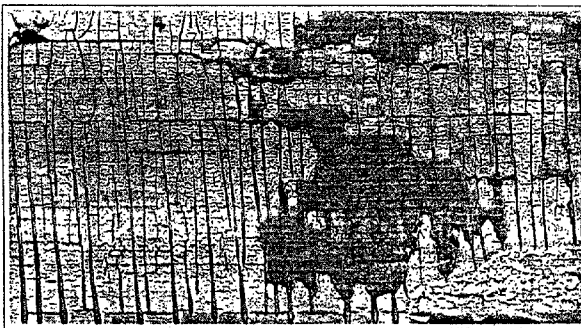
the user. The reputable manufacturer made a special effort, through national and direct sales literature, to prove that his product was a pure paint by virtue that its principal pigment content was white lead combined with a vehicle or linseed. A little later he carefully added necessity for adding a varying quantity of oxide to harden the paint film, thus increasing the life of the paint. As time went on, chemists, through painstaking effort and proved that by the addition of inert pigments in very limited quantities (considered in the total pigment content of lead and life of the paint film or coating could last much longer, to have a better a throughout the period of wear, and to surface in a better condition to receive when repainting became necessary.

After all these years it surely must be the average paint user to understand the conscientious paint manufacturer



An ancient Maryland farmhouse whose warped and decaying siding is eloquent of neglect to paint and to keep painting

powerful lens it would be voids existed—in other it spaces were not closed layer of these pigments. It groups itself in particles or unlike in appearance to it (see illustration). Oxide cups itself in particles that like in appearance to navy second illustration shows, together, the popped corn beans used to close the find, however, upon close on, that voids still exist. It is that the inert pigments, barytes and silic, would themselves in pigment particles would closely resemble in the grains of rice. The third illustration shows that by addition the popped corn and navy has been possible to close and to have a perfect covering of the upon which this combination of grains spread. It has also been possible to be thickness of the pigment layer. The principle is applied in the making of paint, and it explains why, from a strictly standpoint, different characters of should be used in the making of good



Cracked and peeling paint. Conditions of this sort can be avoided by care in applying the priming coat

THE PURITY of product is obtained by the understanding of each ingredient the best manner of incorporating these mass, coupled with the thorough inclusion of the ingredients by powerful grinding machinery. In other words, the paint, as now being made by the manufacturers is the culmination of selected oils and pigments, combined with exact knowledge of paint-making, with care used at every step of the pro-

The paint manufacturer who is building paint with a conscience begins with the white lead ground in oil. This white lead is either received by the manufacturer already ground in oil or he proceeds to grind the lead in oil before it is milled together with other pigments. He adds to the base lead the other pigments and the necessary oils which are required in the first mixing or mulling of these pigment particles together. When this mixture has been thoroughly milled together, it is lowered to another mixer (usually on the floor below) and is here further mixed and ground through a series of grinding stones, until the pigment particles are thoroughly broken up into units as small as is practically possible. To illustrate this point, let us suppose that we have a given amount (in weight) of lead shot that is about the size of a small pea. A given weight of this shot, spread on a surface side by side, does not cover nearly so large an area as the same quantity (in weight) of shot of very much smaller size would cover.

This thorough grinding, in other words, is the reason why the machine-made paint will spread so much farther and at the same time hide the surface so much better than will the hand-made lead-and-oil mixture. A further advantage of this thorough grinding is that the finely divided pigment particles become thoroughly surrounded by oil.

It will be remembered that one of the most exacting requirements made of a good paint is its ability to seal completely the surface of the article to which it is applied. Fineness of grinding is one of the essentials necessary to accomplish this.

Mixing, double grinding, plus more mixing, plus an exact knowledge of proper pigments, oils, and thinners, equals a high quality paint—the quality of paint which assures service to the user.

The reputable manufacturer for years made a special effort, through national advertising and direct sales literature, to prove to the particular product was a pure paint. He stated the fact that its principal pigment content was pure white lead combined with a vehicle of oil of pure linseed. A little later he carefully admitted the necessity for adding a varying quantity of zinc oxide to harden the paint film, thus increasing the life of the paint. As time went on, chemists and physicists, through painstaking effort and research, proved that by the addition of inert pigments in very limited quantities (considered in relation to the total pigment content of lead and zinc) the life of the paint film or coating could be made to last much longer, to have a better appearance throughout the period of wear, and to leave the surface in a better condition to receive paint when repainting became necessary.

After all these years it surely must be hard for the average paint user to understand just why the conscientious paint manufacturer has so

4 Cruises to the 5 Continents

"THE BEST IN TRAVEL"



Rio Centennial Cruise

(Including West Indies)

45 Days from New York to New York. Sailing Feb. 3, 1923 on the new oilburning S. S. "Reliance". A record-breaking Cruise permitting visits to glorious South American cities and including Panama, West Indies and the Brazilian Centennial Exposition. An unique opportunity for pleasure travel or a combined outing and business trip. Rates \$750 upwards—New York to New York. Booklet on request



Mediterranean Cruise

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2 Cruises Round-the-World

125 Days of fascinating travel diversified with the gaieties of ship life and the picturesque delights of the world's most alluring lands. Sailing Jan. 9 and 16, 1923 on the two new, oilburning liners S. S. "Resolute" and "Volendam"—the only ships in 1922-23, (chartered for Round-the-World Cruises) built and equipped especially for both temperate and tropical waters. A pre-eminently generous schedule carefully planned to assure inclusion of everything worthwhile and to afford accommodations for all Cruise members when ashore. Rates \$1050 upwards—New York to New York. Illustrated Booklet upon request



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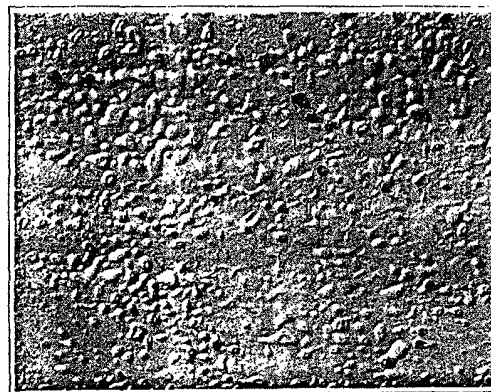
pine at any time require that the priming coat be given at weeks to dry, and a longer time would be better before the second coat is applied. In fact, it is often better to allow these woods to stay in the weather for several weeks before applying the priming coat.

The season of the year affects the consistency that paint should be the right sort of painting. Paint that is right for warm weather is wrong for cold, and an absorbent surface needs a different paint required by a hard surface. In this respect judgment must be used as there can be no absolute rule given. Reliable machine-made paint made to meet average conditions, and in large measure it will stand much time and trouble in having it right and ready for use.

ONE of the first essentials to good painting is the use of a primer for the work being done. Your dealer can aid you in the selection of this brush.

It is also very important that each coat of paint, and especially the priming coat, be well brushed out over the surface—and in the case of its use on new wood. There is always an existing surface of anything to be painted a thin layer of air, and this removed by firmly brushing the paint on to it. If this is not done, this thin film of air will come up and through the paint film, causing minute holes to exist in the film.

For new work not less than three coats of paint should be used. The recommendations for the use of each coat—that is the first coat on new wood, the second or intermediate coat, and the exposed coat—will be found in the color card of the manufacturer's paint you are using. The most important coat is the priming for this it will generally be found that the paint will need some sand. As a rule, if the lumber you are painting is rather sappy, the



Showing blistering caused by heat. The heat may be from without or from within, but the result is the same

a small amount of turpentine—say a pint to a gallon of preparation—in addition to some linseed oil would be advisable. If the paint is not sappy, but is rather dry and soft, the addition of linseed oil would be made to the first coat. The amount could be anywhere from a half gallon of oil to the gallon of well-made paint.

The second coat as a rule should have a very slight amount of turpentine added to it, and unless the wood which is being painted is soft, the further addition of linseed oil to the paint as it is for the second coat will not be necessary. The condition of the surface as it is when the first or priming coat has been applied will determine in large measure what is best to do in this regard. This might be said, however, that the first or priming coat has a tendency to gloss, even slightly, and will not be required. If it penetrated the wood and is absolutely flat when thoroughly dry and hard, the addition of oil as well as turpentine in the second coat might be advisable.

The third or last coat as a rule should be applied as it is for the second coat. And let me again repeat that great care should be taken to brush out each brushful of paint as far as it will go and to get a good appearance on the surface.

On old work, as a rule, two coats of a well-made paint are necessary. It is first necessary to remove all blistered or peeling paint. The surface to be painted should be thoroughly gone over with a brush or a hand scraper, removing all the loose paint possible. Old paint coating is inclined to be powdery, it is advisable to add a quart of good linseed oil to the gallon of paint for the first coat and a greater amount of oil added to the first coat would be better.

If the surface to be painted is hard and brittle, the opposite is true, the addition of from a half pint to a pint of turpentine to the average well-made paint would be safe.

In the second instalment of this article, which will appear in the October issue, the author will discuss in detail painting both indoors and out.—THE EDITOR



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pine at any time require that the priming coat be given at least three weeks to dry, and a longer time would be better before the second coat is applied. In fact, it is often better to allow these woods to stand in the weather for several weeks before applying the priming coat.

The season of the year affects the consistency that paint should be for the right sort of painting. Paint that is right for warm weather may be wrong for cold, and an absorbent surface needs a different paint from that required by a hard surface. In this respect judgment must be exercised, as there can be no absolute rule given. Reliable machine-made paint is made to meet average conditions, and in large measure it will save you much time and trouble in having it right and ready for use.

ONE of the first essentials to good painting is the use of a proper brush for the work being done. Your dealer can aid you in the selection of this brush.

It is also very important that each coat of paint, and especially the priming coat, be well brushed out over the surface—and in fact into it in the case of its use on new wood. There is always existing on the surface of anything to be painted a thin layer of air, and this must be removed by firmly brushing the paint on to it. If this is not done, this thin film of air will come up and through the paint film, as it dries, causing minute holes to exist in the film.

For new work not less than three coats of paint should be used. The recommendations for the use of each coat—that is the first or priming coat on new wood, the second or intermediate coat, and the third or exposed coat—will be found in the color card of the manufacturer whose paint you are using. The most important coat is the priming coat, and for this it will generally be found that the paint will need some thinning. As a rule, if the lumber you are painting is rather sappy, the addition of



Showing blistering caused by heat. The heat may be from without or from within, but the result is the same

a small amount of turpentine—say a pint to a gallon of prepared paint—in addition to some linseed oil would be advisable. If the lumber is not sappy, but is rather dry and soft, the addition of linseed oil should be made to the first coat. The amount could be anywhere from a quart to a half gallon of oil to the gallon of well-made paint.

The second coat as a rule should have a very slight amount of turpentine added to it, and unless the wood which is being painted is very soft, the further addition of linseed oil to the paint as it is found in the can will not be necessary. The condition of the surface as it exists after the first or priming coat has been applied will determine in large measure what is best to do in this regard. This might be said, however: if the first or priming coat has a tendency to gloss, even slightly, additional oil will not be required. If it penetrated the wood and is absolutely dead flat when thoroughly dry and hard, the addition of oil as well as turpentine in the second coat might be advisable.

The third or last coat as a rule should be applied as it is found in the can. And let me again repeat that great care should be taken with every coat to brush out each brushful of paint as far as it will go and still leave a good appearance on the surface.

On old work, as a rule, two coats of a well-made paint will prove satisfactory. It is first necessary to remove all blistered or peeling paint; the surface to be painted should be thoroughly gone over with a wire brush or a hand scraper, removing all the loose paint possible. If the old paint coating is inclined to be powdery, it is advisable to add at least a quart of good linseed oil to the gallon of paint for the first coat. Oftentimes a greater amount of oil added to the first coat would be better.

If the surface to be painted is hard and brittle, the opposite of powdery, the addition of from a half pint to a pint of turpentine to the average well-made paint would be safe.

[In the second instalment of this article, which will appear in the October number, the author will discuss in detail painting both indoors and out.—THE EDITORS.]



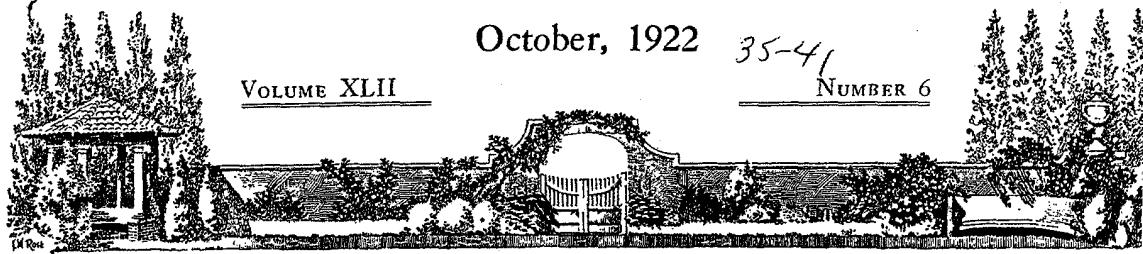
COUNTRY LIFE

October, 1922

35-41

VOLUME XLII

NUMBER 6



PAINT for EVERY PLACE and PURPOSE

By R. S. MADDOCK

Color Illustrations by CHARLES KAISER

PART II

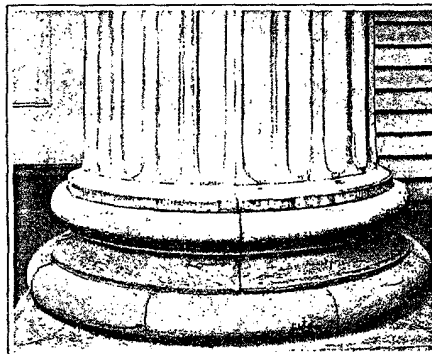
THE first essential to satisfactory results in painting is a receptive surface—that is one that is warm and dry, and entirely free of moisture, dust, or grease. Wood is composed of water extractives like pitch or tannin, lingo-cellulose, and mineral matter. The first two of these constituents are enemies to paint and repellent of it. Paint so made that it will shield wood thoroughly cannot be expected to adhere to lumber or to any surface full of moisture, or covered with dew or frost.

Steel, iron, or tin must be free from scale, grease, and moisture, and fairly warm to receive paint well. All should be painted with a specially made paint, used in accordance with the directions of the manufacturer. Tin should be painted on both sides before using, with a well-ground metallic paint.

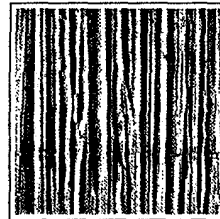
Galvanized iron needs special treatment because of its greasy nature. It should first be washed with good strong—preferably hot—vinegar and allowed to dry or be left exposed to the weather for a long period before painting. The first coat should be a specially made galvanized iron primer, now being furnished for the purpose by all first-class manufacturers. The succeeding coats can be done in the regular way, with paint made for either wood or metal.

Stone, artificial stone, or brick may absorb a great quantity of water within a few hours, and care should be taken that these surfaces are not painted shortly after it has rained, nor during a season of the year in which much moisture is present in the atmosphere.

Concrete and cement should have eight months to dry thoroughly and by natural action transform its free lime into a harmless compound, un-affecting paint. If it is imperative to paint at once, a strong solution of zinc sulphate and water should be liberally brushed over the surface and allowed to dry. When the surface cement



An illustration of checking and peeling. This column shows a painted surface completely disintegrated, the repainting of which will be much more costly than if it had been undertaken sooner.



Showing what is termed a ropy condition of a painted surface.



A highly magnified cross section of several layers of paint representing years of painting, showing the unequal stress—the hills and valleys—of a painted surface left in a ropy condition.



A rather extreme case of cracking. When this condition exists it is necessary to remove the paint either by scraping or by burning and scraping combined.

body is dry, it can then be painted. A hurried method involves some risk of paint peeling, but for the most part satisfactory results are had if care is used in selecting a proper paint for the purpose. There are specially made coating, priming and finishing coats on concrete and cement which can be had from the largest manufacturers. The right paint can be used, however, if desired.

Note that before any paint is applied care should be taken to remove all particles of sand. This is best accomplished by brushing the surface down with a stiff broom, wire brush, or steel s.

The manufacturers of high-grade stains have perfected a splendid stain for bricks, concrete, stucco, and sawed shingles—a material which

dry, closely resembles whitewash in appearance. It has the decided advantage over whitewash in that it sets very hard on the surface, giving a good appearance over a period of years. The best stains contain, among other oils, a percentage of oil, it being an aid in maintaining the life of the

THERE are more failures of paint because of poor painting than from any other cause. The paint is loose from the wood or from the old paint underneath, leaving the surface bare. Peeling will occur in small spots, but rarely over the whole surface. An excess of moisture in the wood, which must come to the surface, is the cause of this trouble, but an excess of moisture in the wood—that is, wood not properly seasoned—may also be the cause.

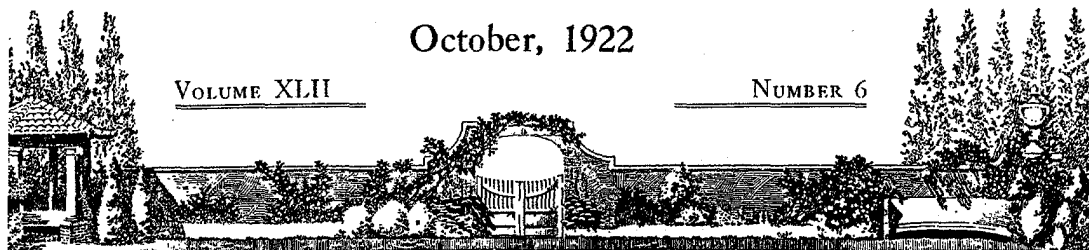
To lessen the risk of a bad paint job, you should never paint the surface until you are certain that it is dry. In the case of a new house, the paint should be dry before painting is started. Some kinds of paint often well to let it stand a year or more, or months, before painting—before to be sure that it

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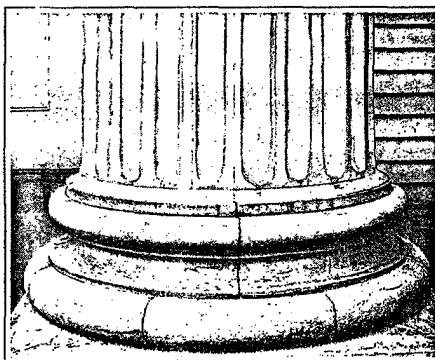
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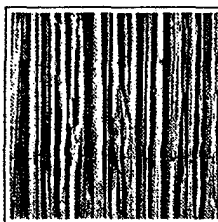
oil, or tin must be free from rust, and moisture, and fairly receive paint well. All should be treated with a specially made paint, in accordance with the directions of the manufacturer. Tin should be painted before using, with a well-ground metallic

galvanized iron needs special treatment because of its nature. It should first be washed with kerosene—preferably hot—vinegar and allowed to dry, then left exposed to the weather for a long time before painting. The first coat should be a made galvanized iron primer, now being sold for the purpose by all first-class manufacturers. The succeeding coats can be done in the regular paint made for either wood or metal. Artificial stone, or brick may require a great quantity of water within a day, and care should be taken that the surfaces are not painted shortly after rain, nor during a season of the year in which much moisture is present in the atmosphere.

For concrete and cement, wait eight months after pouring thoroughly and allow action to transpire free lime into a compound, unpainted. If it is necessary to paint at once, use a strong solution of sulphuric acid and water, and be liberally over the surface and allowed to dry. Then surface cement



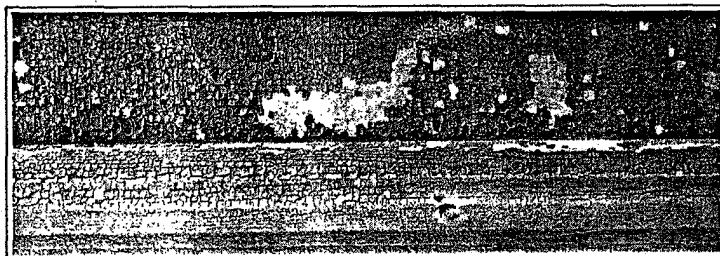
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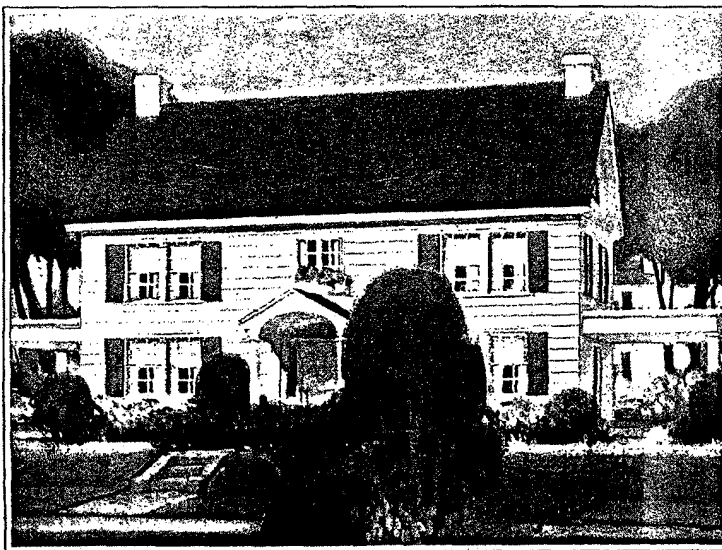
body is dry, it can then be painted. This hurried method involves some risk of paint peeling, but for the most part satisfactory results are had if care is used and a proper paint selected for the work. There are specially made coatings for priming and finishing coats on concrete and cement which can be had from all of the largest manufacturers. The regulation paint can be used, however, if it is desired.

Note that before any paint is applied, care should be taken to remove all loose particles of sand. This is best accomplished by brushing the surface down with a stiff broom, wire brush, or steel scraper.

The manufacturers of high-grade shingle stains have perfected a splendid coating for bricks, concrete, stucco, and rough-sawn shingles—a material which, when dry, closely resembles whitewash in appearance. It has the decided advantage over whitewash however, of setting very hard on the surface, giving a good appearance over a period of years. The best shingle stains contain, among other oils, a percentage of linseed oil, it being an aid in maintaining the life of the color.

THERE are more failures of paint because of peeling than from any other cause. The paint comes loose from the wood or from the old paint under it, leaving the surface bare. Peeling will occur in large or small spots, but rarely over the entire surface. An excess of moisture in the wood, which must come to the surface, is the chief cause of this trouble, but an excess of sap in the wood—that is, wood not properly seasoned—may also be the cause.

To lessen the tendency of good paint to peel, you should never paint the surface unless you are certain that it is dry. In the case of painting a new house, the plaster should be dry before the painting is started. With some kinds of pine it is often well to let the building stand several weeks—or months, for that matter—before painting, to be sure that the water



A dark-colored roof tends to lower the apparent height of a house—always an effect to be desired

or sap is all dried out. Hard yellow pine is full of resin, and if the bare wood is left to season in the air and sunshine, and if plenty of turpentine is added to the priming coat of paint, peeling may generally be avoided. Never use yellow ochre in the priming coat. This is a fertile cause of peeling.

Knots and any spots especially full of resin should be covered with a thin coat of white shellac. Remember that moisture may be present in the wood from rain that fell a day or two before painting. Dew and frost on the surface will require a good warm sunning before it will be safe to apply paint.

Brush the paint out well over the surface. Two good coats of paint brushed out to a very thin layer are far better than one thick layer, for thick layers do not adhere well.

In repainting old work, be sure that the old paint is tight. Never wait until all the oil—which makes it cling to the wood—has been dissipated in the old paint film before repainting. Very often the old paint will let go after the new paint has been applied to it, simply because it has been very hungry for oil and there was not

enough oil in the new paint applied to satisfy the old paint. It will not hold to face with an insufficient amount of oil to a binder.

Peeling occurs most on the south sides of the house, where the sun has effect on the oil and pigment. To avoid new work, special care must be taken in priming coat that it may have a full amount of linseed oil to bind it well to the surface. In old work, if the surface is hard and a little raw linseed oil to your ready-made if the surface is powdery, add oil and a little turpentine. I remember one case where a house had been built many years ago by an old tain continued to give much trouble in the peeling. No matter how the paint was how much care was taken in its application would begin to peel in six to eight months finally asked to make an examination to the cause for this continued peeling. There to be no reasonable explanation, as there external conditions that would cause it, mission was asked to remove some of the boards from the side of the house. When done, it was found that between the ceiling and the interior wall sea grass had been

the belief that it would give warmth in winter and cool in summer. Whenever there was a long period of dampness, grass would gather a great deal of moisture, and then when the sun shone for a long period, it would draw the moisture through the clapboards. The moisture coming would force the paint loose, causing it to peel. The cure condition was found by removing the sea grass. From then on paint adhered perfectly to the surface of those boards.

Blistering is caused principally by water in the wood or grease on the surface to be painted. The same rules for the prevention of peeling can be applied.

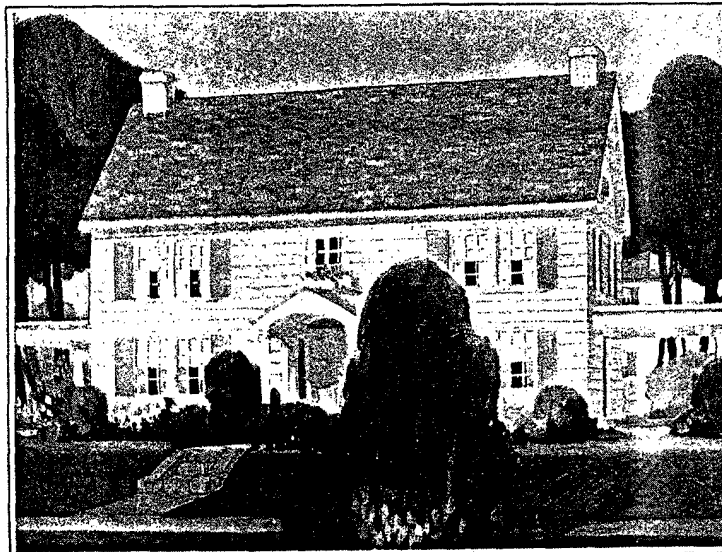
Cracking is due chiefly to unequal stress in the coat applied: for instance, an elastic (full oil priming) undercoat covered with a less elastic (short oil secondary) overcoat. Remember the instructions given earlier about the thinning of the second coats of paint. Never apply a coat of paint until the previous coat has had plenty of time to dry and become hard, for when the sun shines on it, it will move and tear the coat apart, causing it to crack.

Spotting is usually due to the lack of incorporation of all pigment particles in the linseed oil—which rarely occurs if many coats of paint are used. The thorough grinding of the pigments with the oil and the thorough rounding of all pigment particles will prevent it.

Flattening is sometimes called "spottiness," but flattening is chiefly due to porous plaster or wood which have too great absorption, leaving the finished work without gloss. In other words, flat. It is just another insufficient oil in spots.

Roping or a ropy surface is a condition that should be carefully avoided when painting exterior and interior surfaces. It is when found on the interior; and while strictly true of the exterior, it is one of the worst for paint failures. Every little ridge in the film, when a ropy condition exists, holds dirt and soot or dirt. In other words, a ropy surface does not permit the surface to be cleaned down when rained upon, as it should, free of external moisture quickly when it shines on it.

Roping is rarely experienced in the use of ground machine-made paint, as it is the practice of the better manufacturers



A house of simple direct lines looks best painted in one color, depending upon the painting of roof and blinds to break the monotony



A dark-colored roof tends to lower the apparent height of a house—always an effect to be desired

is all dried out. Hard yellow pine is full of resin, and if the wood is left to season in the air and sunshine, and if plenty of time is added to the priming coat of paint, peeling may generally be avoided. Never use yellow ochre in the priming coat. It is a fertile cause of peeling.

Any spots especially full of resin should be covered with a thin coat of white shellac. Remember that moisture may be in the wood from rain that fell a day or two before painting. If frost on the surface will require a good warm sunning before it will be safe to apply paint.

When the paint out well over the surface. Two good coats of paint rushed out to a very thin layer are far better than one thick or thick layers do not adhere well.

When painting old work, be sure that the old paint is tight. Never till all the oil—which makes it cling to the wood—has been removed in the old paint film before repainting. Very often the old paint will let go after the new paint has been applied to it, because it has been very hungry for oil and there was not

enough oil in the new paint applied to supply or satisfy the old paint. It will not hold to the surface with an insufficient amount of oil to act as a binder.

Peeling occurs most on the south and west sides of the house, where the sun has greatest effect on the oil and pigment. To avoid this in new work, special care must be taken with the priming coat that it may have a full amount of linseed oil to bind it well to the surface; and be sure that this coat is given plenty of time to dry. In old work, if the surface is hard add turpentine and a little raw linseed oil to your ready-made paint; if the surface is powdery, add oil and a little turpentine. I remember one case where a house that had been built many years ago by an old sea captain continued to give much trouble in the way of peeling. No matter how the paint was made, or how much care was taken in its application, it would begin to peel in six to eight months. I was finally asked to make an examination to determine the cause for this continued peeling. There seemed to be no reasonable explanation, as there were no external conditions that would cause it, and permission was asked to remove some of the clapboards from the side of the house. When this was done, it was found that between the clapboards and the interior wall sea grass had been placed in the belief that it would give warmth in winter and coolness in summer. Whenever there was a long period of dampness the sea grass would gather a great deal of moisture, and then when the sun shone for a long period, it would draw the moisture from the sea grass through the clapboards. The moisture coming through would force the paint loose, causing it to peel. The cure for this condition was found by removing the sea grass. From that time on paint adhered perfectly to the surface of those boards.

Blistering is caused principally by water in the wood, or spots of grease on the surface to be painted. The same rules that govern the prevention of peeling can be applied.

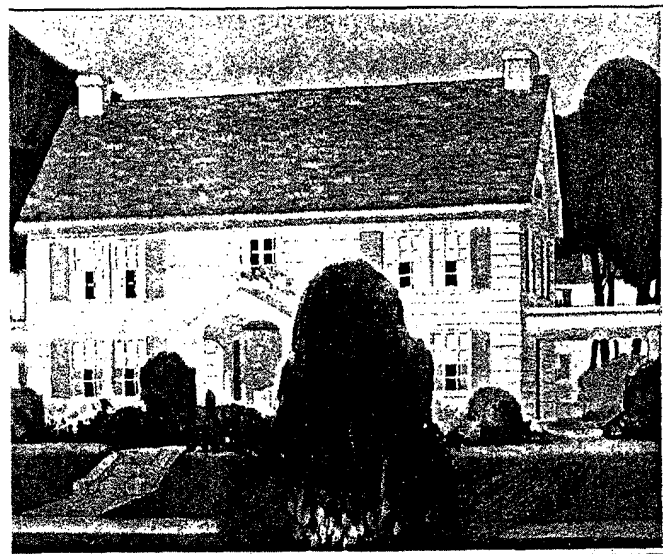
Cracking is due chiefly to unequal stress in the coats of paint applied: for instance, an elastic (full oil priming) under coat, covered with a less elastic (short oil secondary) over coat. Remember the instructions given earlier about the thinning of the first and second coats of paint. Never apply a coat of paint until the previous coat has had plenty of time to dry and become hard, as the soft under coat, when the sun shines on it, will move and tear the top coat apart, causing it to crack.

Spotting is usually due to the lack of thorough incorporation of all pigment particles in sufficient linseed oil—which rarely occurs if machine-made paints are used. The thorough grinding and mixing of the pigments with the oil assures the surrounding of all pigment particles with oil sufficiently to prevent it.

Flatting is sometimes called "spotting." However, flatting is chiefly due to porous places in the wood which have too great absorption of the oil, leaving the finished work without gloss—or in other words, flat. It is just another case of insufficient oil in spots.

Roping or a ropy surface is a condition which should be carefully avoided when painting both exterior and interior surfaces. It is unsightly when found on the interior; and while this is not strictly true of the exterior, it is one of the causes for paint failures. Every little ridge in the paint film, when a ropy condition exists, holds moisture and soot or dirt. In other words, a ropy condition of the surface does not permit the surface to wash down when rained upon, as it should, and become free of external moisture quickly when the sun shines on it.

Roping is rarely experienced in the use of a well-ground machine-made paint, as it is the general practice of the better manufacturers so to treat



A house of simple direct lines looks best painted in one color, depending upon the painting of roof and blinds to break the monotony

their linseed oil that it will flow out evenly after the paint has been brushed out well over the surface. In other words, one of the chief causes for a ropy surface is lack of proper grinding of the pigment particles with the oil.

Mildew or a growth of fungus is sometimes found on the surface of a paint coating, a condition chiefly caused by dampness and insufficient sunlight. Mildew, when it makes its appearance, can be wiped off of the surface with a cloth or can be brushed away with a stiff brush. As a rule, however, it will soon appear again.

IT IS most difficult, if not quite impossible, to advise as to what colors are best adapted to exterior use, as each house has its own individuality, location, size, shape, ornamentation, and its relation to other houses near by being the influencing factors in determining the color scheme. The primary question is always whether to paint a house light or dark? When considering this point and while studying the colors before you, remember that the difference in shade between a light and a dark color when brought together is increased. When a light color is placed next to a dark color, the light color appears lighter than it is, and the dark color appears darker. When red and green are placed side by side, the red appears redder than it actually is, and the green greener. These differences become greater when seen from a little distance. Study the coloring of the houses near by, as this will often explain why the colors of your house look so different from what was expected. Colors may be inharmonious because they are too bright and therefore too harsh; for example, red and orange, blue and green, yellow and crimson, are bad combinations.

Harmony by gradual gradation of color is the most natural method to employ when painting the exterior. The simplest harmony—the point to seek in house painting—is that of tones in one color. For instance, browns in shades from light to dark, buff in varying tints, green in light and dark tones, and other colors similarly used, give most satisfaction.

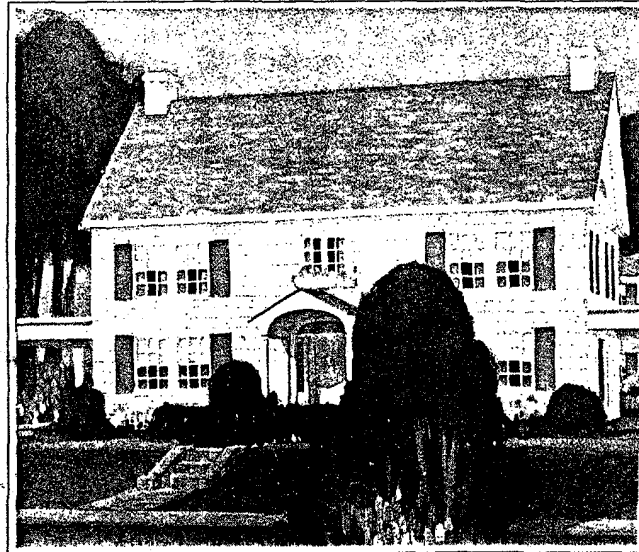
Color schemes in general should not be too positive, too assertive. Vivid colors are always offensive. Strong, dark colors with very bright colors as “trimmers” are to be avoided. Whites, grays, soft greens, and browns of various tones, will always harmonize with nature.

As a rule, when a combination of building materials is used—plaster and shingle, or cement and clapboard—the color for each material should be the same whenever used. And these must harmonize with each other. Windows, doors, blinds, porches, and cornices may be considered as trimmings and treated as such. Doorways and entrances should have marked and dignified recognition in color schemes.

Do not use a color merely because it looks well on some house you have seen. Try it first in the environment where you purpose to use it. The tone of the color to be used depends upon the nature of the light, and the light is influenced by surroundings—trees, shrubbery, shade. In fact, the same color of paint will look quite different in sunlight and in shade, in warm countries and in cold, in woods and on the open plain.

The following rules can be uniformly applied:

1. A trimming color darker than the body color makes a house look smaller.
2. A trimming color lighter than the body color makes a house look larger.
3. A plainly built house as a rule looks best painted in one color, depending upon the painting of roof, sash, and doors to break the monotony of a single color.
4. A large house may be painted in a dark color, while the small house generally should be painted in a light color with lighter trimmings or none at all.
5. Dividing the colors of the house—that is, using a light



A distinctly different effect is given where the blinds contrast instead of harmonize with the roof.

color for the lower story and dark for the upper stories—of making the house seem wider.

6. Avoid the appearance of patchiness. Treat the house as doing any ornaments or useless bric-a-brac by the color portions of one idea should be in one color or tone. For the case of a porch post or column, don't paint the base in one color and the shaft in another. From top to bottom column and should be treated as such. In fact, the whole idea and should be painted in one color.
7. Don't change the color of the painting every few years. painted the right color at the start, and it has proved harmonious part of the picture surrounding it, continue throughout the years, whenever repainting is necessary.

IN THE painting of both walls and woodwork in the house, conditions are radically different from met on the exterior which is exposed to the weather. on the interior is exposed neither to the extreme heat of sun nor to the action of rain and frost, as is the case with used outdoors. In fact, any paint will last for a much longer



In selecting paints, a point to be remembered is that the difference in shade between a light color and a dark one is accentuated when they are used in juxtaposition.

seed oil that it will flow out evenly after it has been brushed out well over the surface. In other words, one of the chief causes for surface is lack of proper grinding of the particles with the oil.

Now or a growth of fungus is sometimes found on the surface of a paint coating, a condition caused by dampness and insufficient sunlight. Mildew, when it makes its appearance, is wiped off of the surface with a cloth or can be shed away with a stiff brush. As a rule, if it will soon appear again.

Most difficult, if not quite impossible, to decide as to what colors are best adapted to a house, as each house has its own individual location, size, shape, ornamentation, and its relation to other houses near by being the influences in determining the color scheme. The question is always whether to paint a light or dark? When considering this point while studying the colors before you, remember the difference in shade between a light and a dark color when brought together is increased. When a light color is placed next to a dark color, the light color appears lighter than it is, and the dark color appears darker. When red and green are placed side by side, the red appears redder than it actually is, and the green greener. These differences are greater when seen from a little distance. Study the coloring of houses near by, as this will often explain why the colors of your house look so different from what was expected. Colors may be monotonous because they are too bright and therefore too harsh: sample, red and orange, blue and green, yellow and crimson, and combinations.

Harmony by gradual gradation of color is the most natural method to employ when painting the exterior. The simplest harmony—point to seek in house painting—is that of tones in one color. For instance, browns in shades from light to dark, buff in varying shades, green in light and dark tones, and other colors similarly used, will give most satisfaction.

Color schemes in general should not be too positive, too assertive. Colors are always offensive. Strong, dark colors with very bright colors as "trimmers" are to be avoided. Whites, grays, soft greens, browns of various tones, will always harmonize with nature. As a rule, when a combination of building materials is used—as cedar and shingle, or cement and clapboard—the color for each material should be the same when used. And these must harmonize with each other. Windows, doors, blinds, porches, and fences may be considered as trimmings and treated as such. Doorways and entrances should be marked and dignified recognition in color schemes.

Do not use a color merely because it looks well on some house you have seen. Try it first in the environment where you purpose to use it. The effect of the color to be used depends upon the nature of the light, and the light is influenced by surroundings—trees, shrubbery, shade. In fact, the same color of paint will look quite different in sunlight and in shade, in warm countries and in cold, in woods and on the open plain.

The following rules can be uniformly applied:
A trimming color darker than the body color makes a house look smaller.
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A plainly built house as a rule looks best painted in one color, depending upon the painting of roof, sash, and doors to break the monotony of a single color.
A large house may be painted in a dark color, while the small house generally should be painted in a light color with lighter trimmings or none at all.
Dividing the colors of the house—that is, using a light

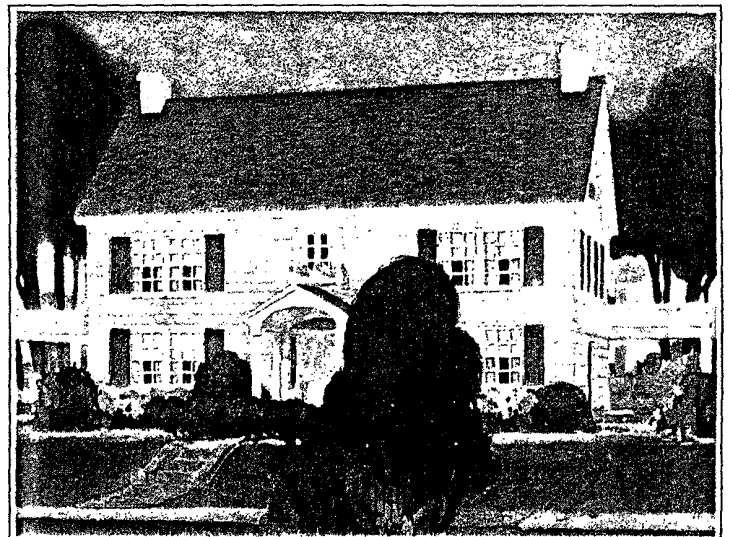


A distinctly different effect is given where the blinds contrast instead of harmonize with the roof color

color for the lower story and dark for the upper stories—has the effect of making the house seem wider.

6. Avoid the appearance of patchiness. Treat the house as a unit, subduing any ornaments or useless bric-a-brac by the color scheme. All portions of one idea should be in one color or tone. For instance: in the case of a porch post or column, don't paint the base and the cap in one color and the shaft in another. From top to bottom it is a column and should be treated as such. In fact, the whole porch is one idea and should be painted in one color.
7. Don't change the color of the painting every few years. If a house is painted the right color at the start, and it has proved restful and a harmonious part of the picture surrounding it, continue the same color throughout the years, whenever repainting is necessary.

IN THE painting of both walls and woodwork in the interior of the house, conditions are radically different from those to be met on the exterior which is exposed to the weather. The surface on the interior is exposed neither to the extreme heat of the summer sun nor to the action of rain and frost, as is the case with the paint used outdoors. In fact, any paint will last for a much longer period



In selecting paints, a point to be remembered is that the difference in shade between a light color and a dark one is accentuated when they are used in juxtaposition

on the interior than can be expected of it when used on surfaces outside.

The main purpose of paint for exterior use is to insure against decay of the surface to which it is applied. The primary reason for painting the interior is to give the surface character from the standpoint of color; and the main point in the selection of paint for interior work is to choose one which will cover well the article to be painted and which contains colors that are more or less permanent in value.

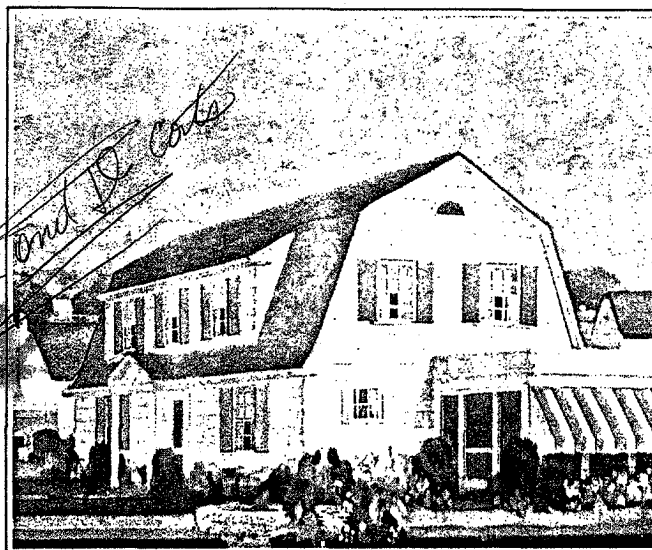
It is hardly necessary to discuss the method of manufacturing paints for interior use, because it has been generally recognized for many years past that the manufacturers have been supplying the very best paints that could possibly be made for this purpose. Neither the painter nor the home maker attempts to make paint for interior use, because the manufacturer has found ways and means of doing it very much better.

The average wall paints that are made in such a way that they are washable and at the same time will dry with a dull lustre or an entirely flat surface are made with a pigment base of lithophone and an oil vehicle so carefully prepared that it permits the easy application of the paint to the wall by the use of a large brush, and further allows the paint to float or flow together after it is applied, and to dry hard. The surface, when dry and hard, does not gather dirt or grease easily, and can be washed with a neutral soap and water—if carefully done—without injury.

These flat oil paints are made up in a range of colors and tints that will meet every reasonable need. The colors can be mixed with white, and for this reason any degree of tint can be secured. Most of the colors that are used in this class of flat wall paint are fast to light, and in large measure will prove fast to sunlight and wear well over a long period of years.

If flat oil paints are used on your walls it is not necessary to remove the paint when repainting of the surface is desired. It is only necessary carefully to wash the walls down with a mixture of household ammonia and water, as strong as the hands will bear, and let the surface become thoroughly dry, when repainting can be done.

With new walls—walls that have never had any kind of finish on them—it is best to apply first a coat of oil paint. In fact, the same character of paint used on the exterior of your building is the



A color scheme which seems especially appropriate for the summer cottage and the seashore.

best kind to use on a new wall as a foundation for future flat oil paint. Select a color that is near the final color of your wall. When this coat is thoroughly dry and hard (which will require at least a week, although two weeks allowed for better), apply a mixture of one third oil paint to two thirds flat oil paint, and apply this mixture to the surface. A second coat of paint is thoroughly dry and hard (which will require at least four days—a week would be better) the final coat of paint can be applied as it is found in the can.

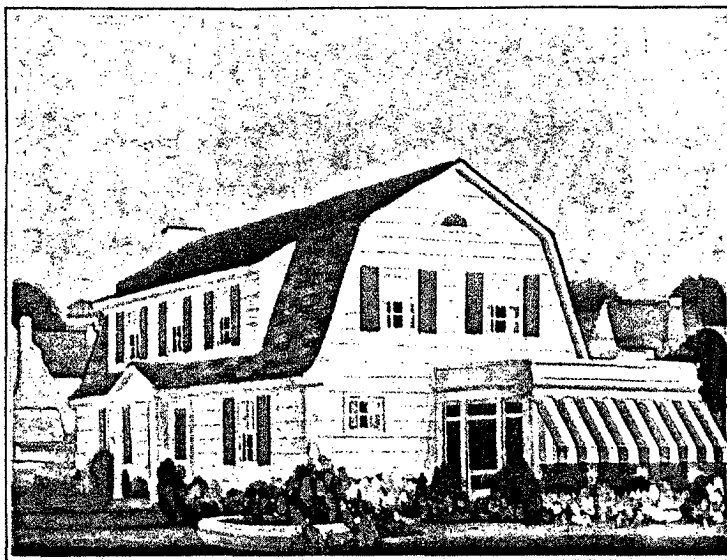
If time does not permit devoting the number of days for drying in the above recommendation, you can apply as a varnish size for new walls a good varnish size (not gloss) with it a small amount of the flat wall paint. One quart flat wall paint to three quarts of the varnish size is about the proper proportion.

For this size a good varnish should be used thinned with turpentine or imitation turpentine to such an extent that when applied to the wall it will not be shiny. A small spot on the wall should be tried before the entire wall is coated. This will be impressed upon those who are attempting to do their own work, because a gloss varnish surface prevents the proper adhesion of coats of paint, and will cause much chipping, peeling, and crazing in the paint surface.

After the varnish size has become dry (which will require at least two days) a second coat can be applied. This coat can be thinned with a slight addition of boiled linseed oil mixed in it. About a pint of oil to the quart of flat wall paint is a good average, thorough and incorporating it before applying to the wall. When this coat is dry and hard (which will require about two days) the third or final coat of paint can be applied, using the paint as it is found in the package.

If permanence and thoroughly satisfactory results are sought for interior wall painting, the specification offered above is the very best that can be given uniform satisfaction over a long period of years, as a rule. The second specification is only where time is a factor in the selection of the paint.

If cost is the greatest factor and it is desired to reduce the application time still further, it is possible to apply directly to the new wall flat oil paint which has had added to it



In this type of house—a modified Dutch Colonial—the long sweep of the gambrel roof gives much the effect of a house painted in two colors.

interior than can be expected of it when on surfaces outside.

The main purpose of paint for exterior use is to protect against decay of the surface to which it is applied. The primary reason for painting the exterior is to give the surface character from the point of color; and the main point in the selection of paint for interior work is to choose one which will cover well the article to be painted and contains colors that are more or less permanent in value.

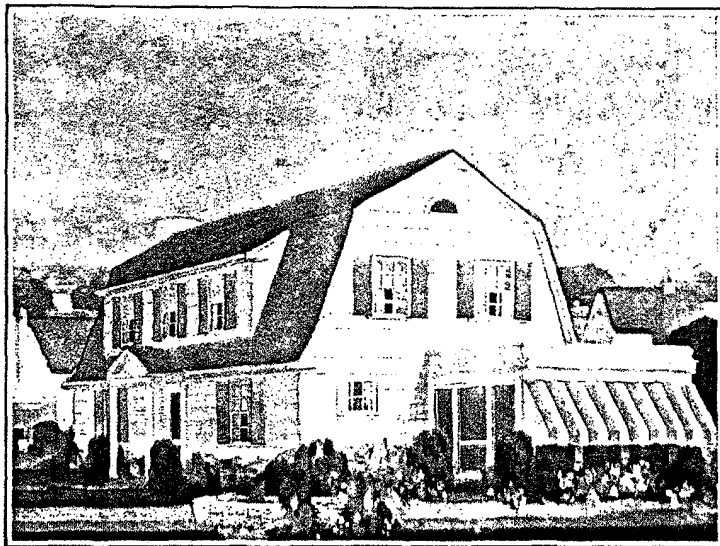
It is hardly necessary to discuss the method of selecting paints for interior use, because it is generally recognized for many years past that the manufacturers have been supplying the best paints that could possibly be made for the purpose. Neither the painter nor the home owner attempts to make paint for interior use, but the manufacturer has found ways and means of doing it very much better.

The average wall paints that are made in such a way that they are washable and at the same time have a dull lustre or an entirely flat surface are made with a pigment base of lithophone in an oil vehicle so carefully prepared that it permits easy application of the paint to the wall by means of a large brush, and further allows the paint to float or flow together after it is applied, and to dry hard. The surface, when dry and hard, does not gather dirt, grease, easily, and can be washed with a neutral soap and water if carefully done—without injury.

The flat oil paints are made up in a range of colors and tints that meet every reasonable need. The colors can be mixed to suit, and for this reason any degree of tint can be secured. The colors that are used in this class of flat wall paint are light, and in large measure will prove fast to sunlight and will last over a long period of years.

When oil paints are used on your walls it is not necessary to remove the paint when repainting of the surface is desired. It is necessary carefully to wash the walls down with a mixture of cold ammonia and water, as strong as the hands will bear, until the surface becomes thoroughly dry, when repainting can be

done on new walls—walls that have never had any kind of finish—it is best to apply first a coat of oil paint. In fact, the character of paint used on the exterior of your building is the



A color scheme which seems especially appropriate for the summer cottage and the seashore

best kind to use on a new wall as a foundation for future coats of flat oil paint. Select a color that is near the final color desired for your wall. When this coat is thoroughly dry and hard (which will require at least a week, although two weeks allowed for drying is better), apply a mixture of one third oil paint to two thirds of the flat oil paint, and apply this mixture to the surface. When the second coat of paint is thoroughly dry and hard (which will require at least four days—a week would be better) the final coat of wall paint can be applied as it is found in the can.

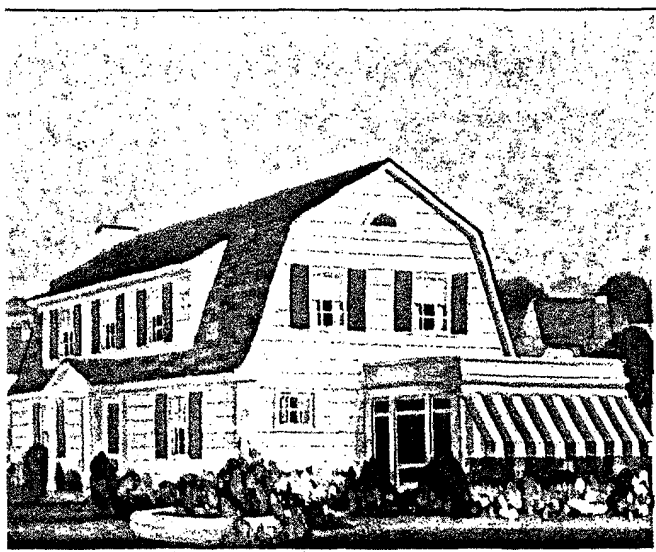
If time does not permit devoting the number of days required for drying in the above recommendation, you can apply as a foundation coat for new walls a good varnish size (not gloss oil) mixing with it a small amount of the flat wall paint. One quart of the flat wall paint to three quarts of the varnish size is about the right proportion.

For this size a good varnish should be used thinned with turpentine or imitation turpentine to such an extent that when dry on the wall it will not be shiny. A small spot on the wall should be tested before the entire wall is coated. This point must be impressed upon those who are attempting to do their own work, because a gloss varnish wall surface prevents the proper adhesion of future coats of paint, and will cause much trouble by chipping, peeling, and crazing in the painted wall surface.

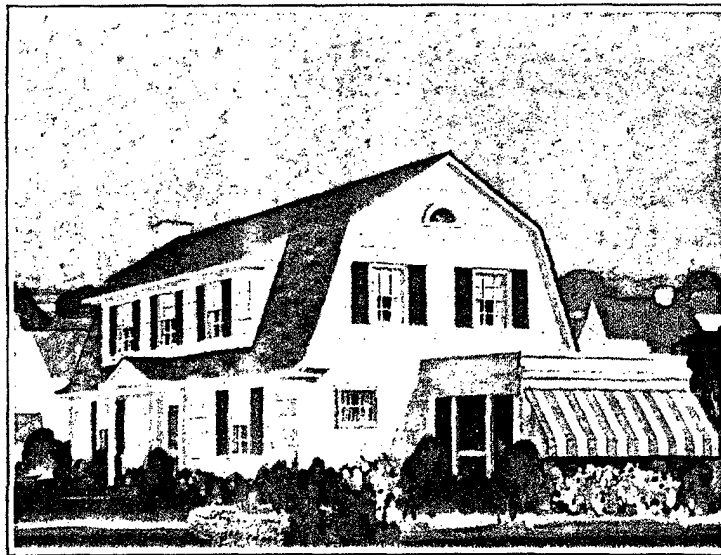
After the varnish size has become dry and hard (which will require at least two days) the second coat can be applied. This coat can be the flat wall paint with a slight addition of boiled linseed oil mixed in it. About a pint of oil to the gallon of flat wall paint is a good average, thoroughly mixing and incorporating it before applying to the wall. When this coat is dry and hard (which will require about two days) the third or final coat can be applied, using the paint as it is found in the package.

If permanence and thoroughly satisfactory results are sought for interior wall painting, the first specification offered above is the very best, and will give uniform satisfaction over a long period of years, as a rule. The second specification is advised only where time is a factor in the application of the paint.

If cost is the greatest factor and it is necessary to reduce the application time still further, it is possible to apply directly to the new wall a coat of flat oil paint which has had added to it a quart of



In this type of house—a modified Dutch Colonial—the long sweep of the gambrel roof gives much the effect of a house painted in two colors



A better color scheme for the year-round home than the one shown at the top of the preceding page

boiled linseed oil to the gallon. Apply this mixture to the wall and allow at least two days for drying. When the surface is dry and hard, apply to it a very thin coat of glue size made with any good ground hide stock glue, allowing the ground glue to soak up cold water in a bucket until it becomes soft, and then scalding it with boiling water. Use about half a pound of glue to three-quarters of a bucket of water. The bucket mentioned for use is the ordinary galvanized iron bucket used about the home.

The glue, when cool, may be brushed evenly over the wall, and it is better to have it too thin than too thick or stocky. It will appear, when brushing the glue over the wall, that you are applying nothing more nor less than water, but thin as it is, it will aid, when dry, to stop the suction and will cause the wall to become more uniform in holding up the second and final coat of paint.

This method, as is apparent, calls for two coats of paint and one thin coat of glue size between coats. It is not, however, recommended for general use, but is merely an economical expedient and is not considered safe from a practical point of view. It is never to be recommended when permanent satisfaction is expected from the use of paint upon walls.

This lithophone or flat oil paint is not satisfactory for use on exteriors, as it will not wear. It is designed exclusively for interior use and can be used with satisfaction upon both walls and woodwork. Some of the better grades now manufactured are in fact ground so carefully that they prove to be an excellent foundation for enamel when used on standing woodwork. However, all lithophone paints are not ground finely enough to be recommended for undercoatings on woodwork where enamel is to follow.

It is unwise to use a pure white lithophone paint on walls or woodwork where strong sunlight will touch it. Some white lithophones do not give trouble, but it has been found that many of them turn gray where strong sunlight touches them. Especially is this true where moisture or dampness is prevalent in the atmosphere.

CALCIMINE paints, the so-called water paints, in which no oil or expensive lead or zinc pigments are used and which are therefore much cheaper than oil paints, fast only fairly well on walls and should never be used on standing woodwork. They cannot be successfully washed, as water when applied will wash the calcimine from the wall.

The first cost of application is less than of a flat oil paint, but when considered in connection with the ultimate cost of painting repainting over a period of years to keep appearing well, the flat oil paints are much economical and more satisfactory from every view.

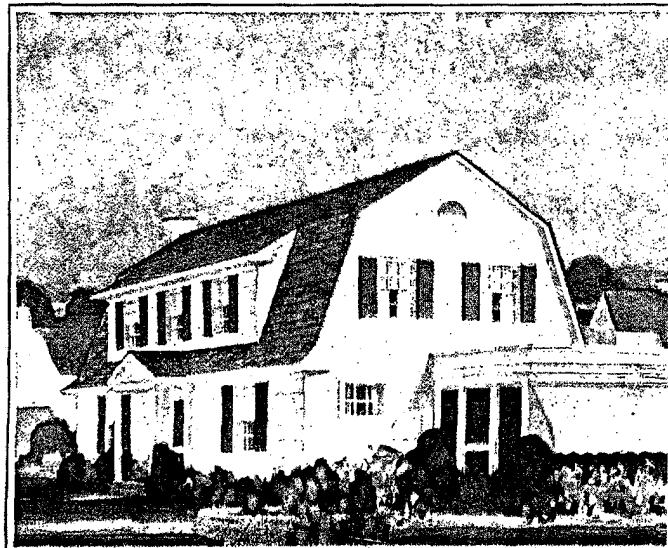
When painting a new wall with calcimine is first necessary to secure a uniform surface by applying to the wall a coat of glue size in the same manner described above, except that it should be a little stronger in glue. The calcimine can then be applied to the wall as directed on the package. The manner of application is much the same as with flat oil paint. A brush should be used—one that is not less than six inches wide, with long bristles, and still is preferable if used in hands that are strong enough to handle the brush when full of liquid.

In using these flat paints the best method to apply the paint in a semicircle to the wall and then brush in straight movements across the wall, laying it off in the opposite direction to the motion taken in applying. This suggestion for application can be better understood by referring to the illustration on page 47.

It is necessary to work fast in using flat oil or calcimine paints, applying the paint to the wall and laying each brushful off as quickly as possible. Do not go back over the surface after the area painted has been laid off. Keep moving across the ceiling from one wall to the other away from the surface already painted until the ceiling is completed. Then paint down each unit of the wall in the same manner until your room is completed.

ONE of the outstanding questions in the matter of interior painting is the relation of the ceiling color to the wall color. It has been found most practical, when using dark colors on the wall, to take one part of the wall color to eight parts of white and apply this mixture to the ceiling as the ceiling color. When light colors on the wall, mix one part of the wall color with eight parts of white and apply this mixture to the ceiling. If these are followed, you will find that when artificial light is used at night or during dark periods, the wall color will hold true with the artificial light and carry much the same hue as it has with the daylight.

The next best suggestion for ceiling color is to use a very light color.



If a house is painted the right color at the beginning, and it has proved restful and a harmonious part of its environment, it is best to continue the same color throughout the years whenever repainting is needed.



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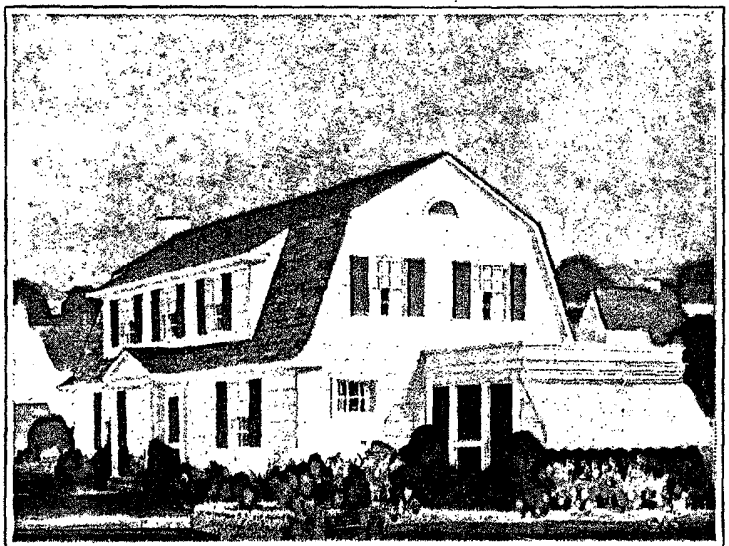
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six inches wide, with long bristles, and still wider
is preferable if used in hands that are strong
enough to handle the brush when full of liquid.

In using these flat paints the best method is
to apply the paint in a semicircle to the wall, and
then brush in straight movements across the paint,
laying it off in the opposite direction to the direc-
tion taken in applying. This suggestion for ap-
plication can be better understood by referring to
the illustration on page 41.

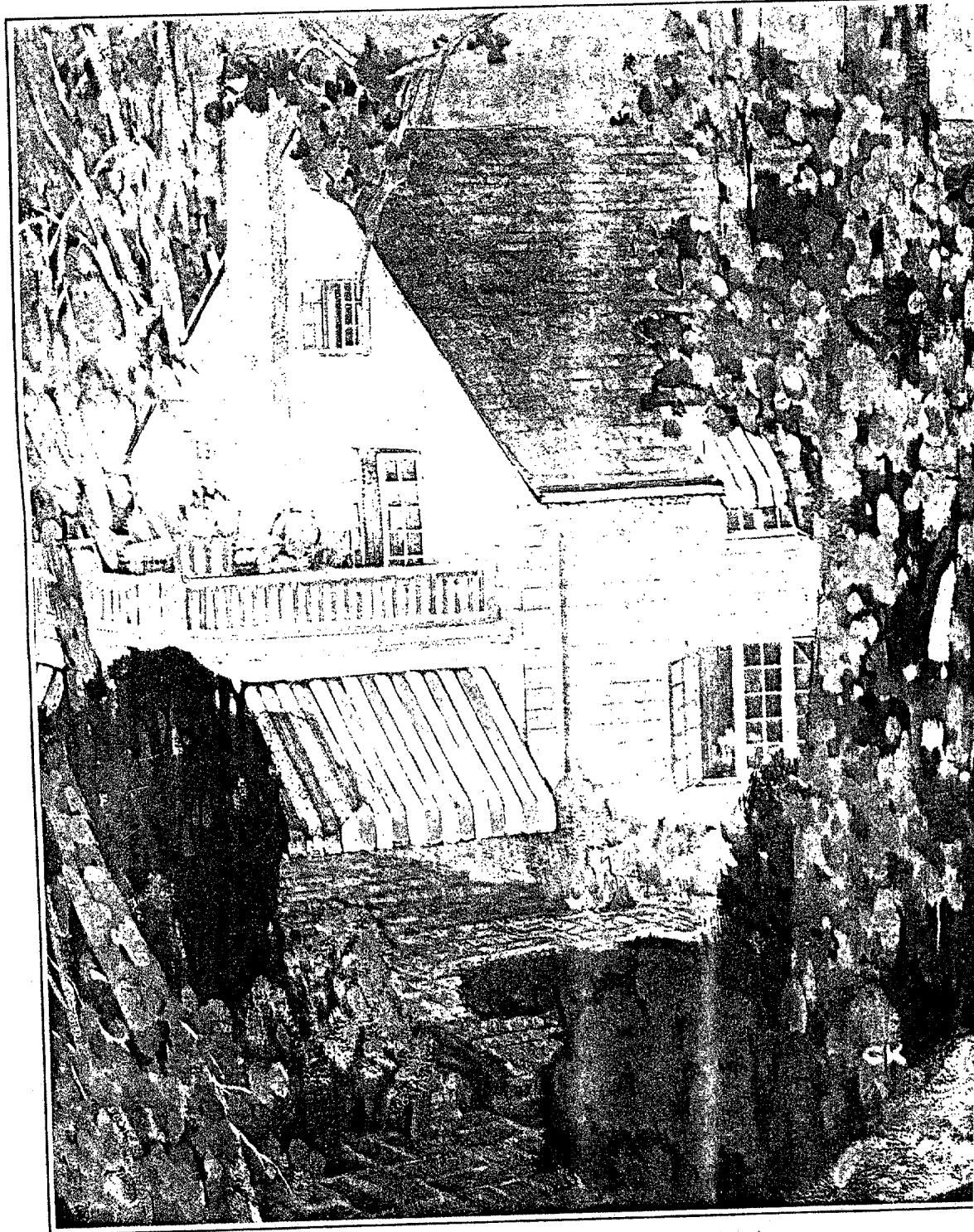
It is necessary to work fast in using flat oil and
calcimine paints, applying the paint to the wall
and laying each brushful off as quickly as possible. Do not work
back over the surface after the area painted has been laid off.
Keep moving across the ceiling from one wall to the other, and
away from the surface already painted until the ceiling is com-
pleted. Then paint down each unit of the wall in the same man-
ner until your room is completed.

ONE of the outstanding questions in the matter of interior
painting is the relation of the ceiling color to the wall. It
has been found most practical, when using dark colors on the wall,
to take one part of the wall color to eight parts of white, and
apply this mixture to the ceiling as the ceiling color. When using
light colors on the wall, mix one part of the wall color with four
parts of white and apply this mixture to the ceiling. If these rules
are followed, you will find that when artificial light is used at night
or during dark periods, the wall color will hold true with the artificial
light and carry much the same hue as it has with the daylight.

The next best suggestion for ceiling color is to use a very light



If a house is painted the right color at the beginning, and it has proved restful and a harmonious part of the environment, it is best to continue the same color throughout the years whenever repainting is necessary



Country Life Print

Vivid colors and those offering strong contrasts are to be avoided, for color schemes in general should be not too assertive. Harmony is attained by employing tones of one color, as here

tint of ivory or cream that is just a degree or two off white.

THE proper care of brushes is most important. There are many ways suggested for their cleaning and preservation, but the simplest and most practical are as follows:

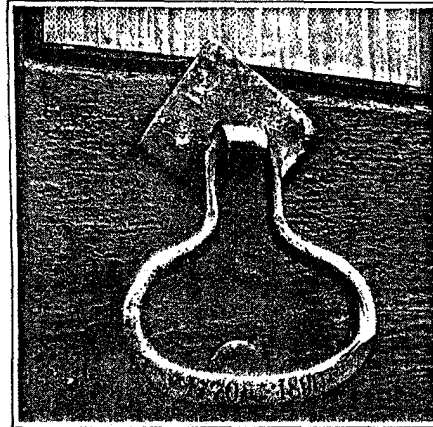
When the brush is in use and you are setting it away for the night expecting to use it again the next day, it is advisable to place the brush in a pot of water or raw linseed oil, securing it to the pot in some manner so that the bristles do not touch the bottom of the container. A hole through the handle of the brush, with a wire placed from one side of the pot to the other, is one of the best means of accomplishing this.

In the morning when you are ready to use the brush again, remove it from the water, and placing the ends of the bristles on a piece of cardboard or paper, scrape down from the ferrule to the tip of the brush with a flat board or scraping knife, using all the pressure possible, scraping away both the water and the paint that was left in the brush. Then wash the brush in benzine or turpentine, shake it out well—in fact, beat it against a board if one is handy—until it is as dry as possible. Then place your brush in the paint, work it around until it has accumulated a fairly uniform

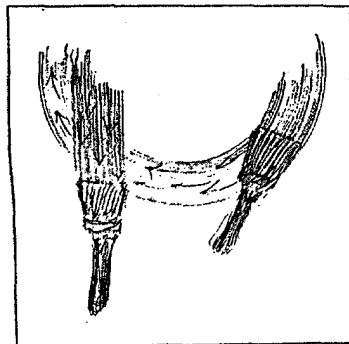
amount of color, and it is ready for use.

When you are through with the brush for the present and want to set it aside for future use, scrape out as much of the paint as possible in the manner described above. Then wash the brush first in a little linseed oil in a pot, pulling out the color as much as is possible, and scraping the bristles against the side of the pot to help free them of the paint. Again scrape them with a board or scraper, and then wash the brush in benzine. When this is done, shake all of the benzine possible from the brush, and then wash it in warm soap suds. When it is thoroughly washed, rinse many times in warm water, then again in benzine. This last washing in benzine will remove the bristles from any soap suds that have remained. The brush can then be left up to dry and will be in good condition for the next job.

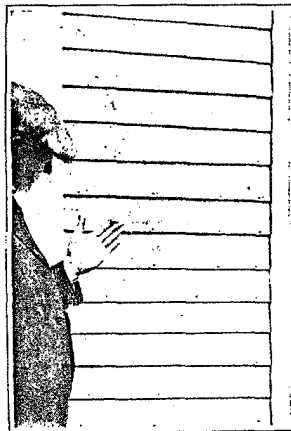
It is good practice to work with the bristles when putting a brush aside. This will keep it in most excellent condition over a long period of years, and prevent drying out. If you do this, however, be necessary, before you use it again, move the varnish with hot water, and working out with benzine any oil still remain.



An old door on the Bonny Rigg Farm which shows the result of paint that has been applied and left in a ropy condition, in time becoming a very unsightly surface

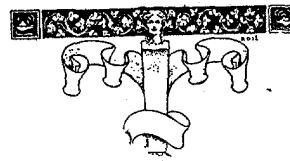


Illustrating method of applying flat paints. The arrows indicate the direction of the stroke



An old church at the top of the Mohawk Trail with paint badly powdered so that it can be rubbed off on the fingers

In this siding can be noted paint peeling from the boards as the result of moisture back of the paint

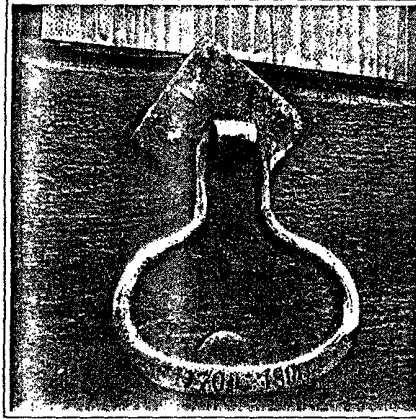


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off white.

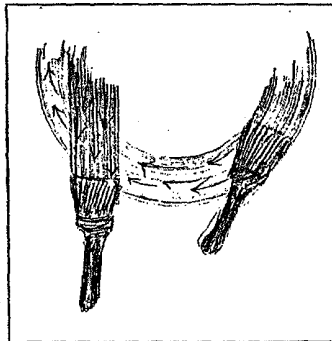
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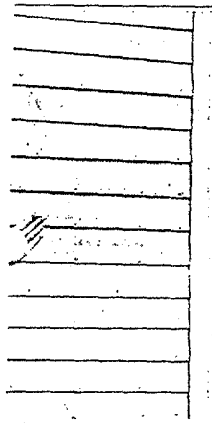
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Illustrating method of applying flat paints. The arrows indicate the direction of the stroke

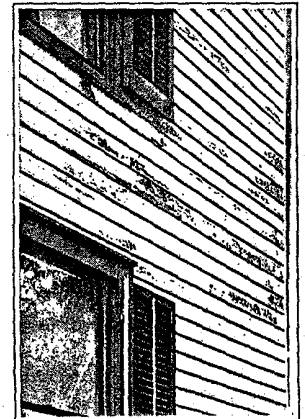


An old church at the top of the Mohawk Trail with paint badly powdered so that it can be rubbed off on the fingers

amount of color, and it is ready for use.

When you are through with the brush for the present and want to set it away for future use, scrape out as much of the paint as possible in the manner described above. Then wash the brush first in a little linseed oil in a pot, working out the color as much as is possible, and scraping the bristles against the side of the pot to help free them from the paint. Again scrape them down with a board or scraper, and then wash the brush in benzine. When this is done, shake all of the benzine possible out of the brush, and then wash it in good warm soap suds. When it has been thoroughly washed, rinse many times in warm water, then again in benzine. This last washing in benzine will free the bristles from any soap suds that may have remained. The brush can then be hung up to dry and will be in good condition for the next job.

It is good practice to work vaseline into the bristles when putting a brush away. This will keep it in most excellent condition over a long period of years, and prevent its drying out. If you do this, however, it will be necessary, before you use it again to remove the vaseline with hot water, thoroughly working out with benzine any which may still remain.



In this siding can be noted paint peeling from the boards as the result of moisture back of the paint

