

Painting and Decorating
Questions

Asked
and
Answered

By the Editorial Staff of
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of the carpenter's scraps will do. The next step is to try to decide what kind of stain was used on the dark oak. This will be pretty difficult. At any rate, let us suggest that you take one piece of the pine and stain it with an oil stain made by thinning burnt umber with about three-fourths turpentine, one-fourth linseed oil and a little Japan drier. Put the stain on, let it dry half an hour or so, then wipe it off. When dry, finish one end with varnish, the other end with wax and the middle with shellac. Then see if it matches the dark oak. If it does not match, or cannot be matched by making it lighter or darker, take another pine board and make your stain with asphaltum. This is the ordinary asphaltum varnish sold for outside metal work on pipe railings, tin gutter, etc. Thin the asphaltum with benzene, brush it on, let it stand a while and wipe it off. Note the color now by varnishing, waxing and shellacing.

If you have not gained a match by these two experiments, the next one to try is with dry aniline stain powders. You can secure a walnut brown and other browns in this form which, when dissolved in hot water, adding a little sal soda or alcohol, will give you a series of light and dark brown stains which may match the dark oak in question. If this dark oak was finished in a furniture factory, the chances are that it was finished with an aniline water stain.

Keep in mind that the color will get darker with the addition of your varnish, shellac or wax. On this pine no filler will be needed, except that the shellac coat when rubbed down smooth will be a filler. The shellac should be rubbed down smooth and evenly, with the grain—never across; and fine steel wool is probably the best material to rub with.

After your shellac has been rubbed and the job has been made thoroughly clean by wiping it up with benzene and cloth, spread on a coat of first-class interior varnish or cabinet varnish. When the varnish is hard, which will be in about forty-eight hours, rub it, with the grain of the wood, until you remove the gloss and dust nits. This rubbing

may be done with very fine steel wool or with fine pumice stone and water on a felt pad. When the rubbing is done be very careful to keep away from the edges or you will cut through the finish to the bare wood.

Two or three coats of the varnish should give you the finish desired. If you want a dull finish, the last coat should be rubbed with pumice stone and light oil—sewing machine oil will do—instead of with water. Be very careful to clean up the surface after each rubbing. You cannot be too particular in keeping the surface as well as your brushes and pots clean.

Frog-Eyed Paint

HENE is a bothersome problem. It shows that a wrong start makes a hard finish.

Question.—"Regarding paint problems that bother, I have one. A large house painted one coat without any turpentine in the first coat at all. The thinner was linseed oil."

Answer.—"On the second coat the paint 'frog eyes' and pulls. I have heard of using ammonia, about ten drops to a gallon of paint, to keep the second coat from acting this way. I don't know if the paint will stand up and stay on."

Please advise me what to do if you have any remedy to offer."

Answer.—"As we understand it, you have a job of painting upon which one coat has been applied and the paint was mixed entirely with linseed oil. From your description we take it that the first coat has become dry with a high gloss and is a bit tacky. Presume you used raw linseed oil and on a surface which was not very absorbent."

If the linseed oil was pure, the way to proceed with this job so as to put the surface in a condition where the second coat will not creep and crawl, or lift the first coat, is to allow plenty of time for the first coat to dry.

When the first coat is dry and hard, if it still retains a high gloss which will not permit the second coat to take hold, brush on a coat of benzene or wipe the surface over with a cloth wet in ben-

zine. Put the benzene on just ahead of your brushing of the second coat.

The small amount of ammonia you propose putting into the second coat of paint—about ten drops of ammonia per gallon of paint—probably is not enough to do any harm, but on general principles it is best not to use ammonia in or on paint. White enamel and white paint will turn yellow if washed with ammonia.

Painting A Cement Floor White

Question.—"I would like to ask your advice about painting a bathroom floor."

Answer.—"This floor is cement and has been painted with two coats of white lead and oil. After only two months it has worn off in those spots which are subjected to the most wear."

The trouble is that the lady of the house insists that the floor must be white, that it must be washable and withstand at least ordinary wear for a longer period than two months. This seems reasonable, as there are only two in the family."

Answer.—"There is no harder test for paint and a painter's skill than just such a problem you outline. Any material placed upon the floor gets pretty rough treatment from heels, furniture legs and other movables, and when the foundation under the paint is cement, which has not the cushion nature of wood, then the test is doubly severe."

The first coat of paint for use on this cement floor may be made from about one-half zinc oxide and one-half white lead. The first coat should be thinned almost entirely with turpentine, adding just a small amount of first-class floor varnish for a binder, but not enough to give a gloss. The second coat should be the same pigments thinned largely with turpentine, but having a little more varnish in it. The third coat should be the best quality floor varnish you can buy, to which is added just enough of the zinc and lead paint to offset the color of the floor varnish. In other words, you are making an enamel for the last coat. If the floor were

not white, the last coat would be better if it were clear varnish but clear varnish used on white paint would give a yellow hue.

One of the important considerations in a job of this kind is that each coat be allowed to dry thoroughly before the next is put on. And it may be that since you have two or three coats of white paint on this floor that only two coats more are needed for a durable finish.

A floor which is properly painted after the above method should give good service for at least a year, and particularly so if a rug or mat is used over the places which naturally receive the hardest wear.

Dead Oil

Question.—"One of our customers has a contract in which it is specified that some concrete work is to be coated with 'Dead oil' before applying tar or pitch. Please tell us what 'Dead oil' is and where it can be procured."

Answer.—"Dead oil is a product which comes from the distillation of coal tar. It is more commonly called creosole oil, or heavy oil. Its outstanding value is as a preservative of wood and it is commonly used in making shingle stains."

A Theatre Curtain

Question.—"Am decorating a small theatre and the manager wants me to paint a curtain for him. Was wondering if you could tell me where to get the cloth. The curtain is to be ten by seventeen feet."

Answer.—"You should experience no difficulty in securing the cloth drop curtain for a theatre such as you describe. We suggest that you write to one of the following concerns in Chicago, who can probably take care of your needs: Service Studios, 2919 West Van Buren street.

The Illinois Theatre Equipment Co., 2938 Armitage avenue.
United Scenic Studios, Inc., 190 North State street.
Mid-West Theatre Co., 538 South Washash avenue.

From these suggestions we believe that you will be able to work out this problem so as to gain a match in color but, of course, there is no way to match a mahogany grain except by a real job of graining. On the average job the stain is probably spread on over top of the old finish.

A red mahogany stain to be used on top of the old golden oak finish without stripping it off can be made by mixing from four to six ounces of kismark brown to a gallon of denatured alcohol. Mix into this stain, also, a small amount of orange or white shellac and you will have what amounts to a varnish stain. In applying this stain you should do as little brushing as possible, trying to stain the surface evenly with one stroke of the brush and one stroke to lay it off. This stain works like shellac and, of course, you cannot go back to it after it has taken the initial set. The alcohol in this stain will soften up the old varnish a little, which is another reason for brushing the stain as little as possible. Too much brushing will work up the old varnish and golden oak stain and that will make the new stain muddy. The old varnish should, of course, be rubbed down with steel wool to remove the gloss before staining.

Pricing and Estimating—Again

Question.—"Will you please answer me by letter the following questions? How much should I charge per square foot, at the rate of \$10.00 per day, without my profit, for one coat on the following jobs? Wash calcimine from the ceiling? Calcimine the ceiling? Painting the ceiling? Painting the walls? Staining ceilings or walls? For outside house painting?"

Answer.—It is not possible to answer without knowing every detail of your business, including your overhead expense total for the year or per hour of labor employed. You have expenses for rent, light, heat, telephone, insurance, liability, shop man's wages, wear and tear on tools and equipment as well as other items which are indirect charges like cartage or expense occurring like

the maintenance of an automobile truck. All of these expenses are indirect and cannot be charged to any one job, yet a certain proportion of the total of these expenses legitimately should be charged on every job.

The hour of labor unit is the only constant element about a painting contract. It should, therefore, be the element to which you add your overhead expense per job. The way to arrive at this is to take an actual record of all of your indirect expense—your overhead expenses—for the past year and divide this total cost by the total number of hours of journeyman labor paid for. This will give you a figure in cents which should be added to every hour's labor in your estimates on new jobs. In other words, you want to spread this overhead expense evenly over all jobs. If your wage scale is \$1.25 per hour and if your overhead expense amounted to fifteen cents per hour of labor employed, then when figuring an estimate the labor should be included at \$1.40 per hour.

When you figure this way you have four elements in your estimates: labor, cost, overhead expense, material cost and profit. The amount of profit may range from 10 to 40%, it is up to you to decide what percentage is fair in your class of work.

You can readily see that the price which you should charge per square foot, per square yard or per 100 square feet depends upon what your cost is. This cost will vary among contractors in the same city, depending upon how much work each gets out of their men. In Chicago, where the wage rate is \$1.50 per hour, some contractors figure two cents per square foot for calcimine work; where they have to wash the old calcimine and refinish. But your price should be based upon cost. If the surface is in bad condition requiring much stopping up of cracks and holes two cents per square foot is not high enough.

For painting work in this same locality a rate of about six cents per square foot for two coats is about as near as any figure can be; although here again if there are many windows to be trimmed, if the job is more diffi-

Painting Glass

Question.—"Would you kindly inform me if there is any other paint for use on plain window glass than inside flat white? If so, kindly let me know how to mix same."

Answer.—You should experience no difficulty whatever in painting on glass by mixing your paint with white lead and turpentine with whatever color you want to use. If you want a very dark color, then use the regular oil tinting colors made for house painting, thinning them only with turpentine.

In mixing your paint from white lead you may add a little zinc to make a finer texture, and if you want the paint to dry with a gloss add a little first-class interior varnish as well as the turpentine to the last coat of paint.

Refinishing Walnut Furniture

Question.—"I would thank you if you would tell me the very best way to finish black walnut furniture. I can get a good lot to finish and have a whole bedroom suite of my own."

Answer.—"My suite is very old and you might say it is very up to date now. I have it cleaned down to the bare wood and as smooth as it can be."

Answer.—First strip off the old finish and sandpaper the surface to make it perfectly smooth.

It is probable that the wood shows more or less wear in spots. It would be well, therefore, to put on a new coat of stain to even up the color of the old surface and give a more fresh look to it.

No filler will be needed, as it is probable that the old filler remains in the pores of the wood, even if you used a liquid varnish remover to strip off the old finish.

We presume that you will want to finish this furniture in the usual brown American walnut color, and if that is true a water stain is probably best for the purpose. Practically all furniture staining is done with the aniline water stains. You can secure from your paint dealer an American walnut aniline dry powder which, when mixed with hot

water than usual in the amount of scuffs required, and if the cornice or gables are very fancy the rate of six cents is too low. This, too, is a matter which must be taken into consideration by a man making an estimate.

There is only one safe way in estimating and that is to keep records and books which will show exactly what every job cost. And, further than that, you must check back on every job, or at least on many jobs, to learn how your estimate for the job compares with the actual job after it was finished. This will keep you posted as to whether you are figuring too little or too much and what part of the job cost more or less than you estimated.

Filling Worn-Out Floor Patches

Question.—"Kindly advise me of a method for filling in worn out places in floors. Is there some paste or liquid that can be used to fill in these worn places so as to make a floor smooth and even."

Answer.—In asking your question about filling rough places in floors you do not tell us whether they are hardwood or soft wood and just what the nature of the rough places is.

If the roughness of these floors is too great to be filled with ordinary paste filler such as is used on new oak floors it is probable that they can be repaired by using the mixtures commonly used in filling large cracks in pine floors. Such a mixture is made in the form of a knifing putty by adding dry whiting to white lead, ground in oil, just as it comes from the keg. Then a little floor varnish and a few drops of linseed oil will make a putty which will dry very hard when thoroughly mixed. The putty should be forced into the cracks and crevices with an elastic broad putty knife and smoothed up as best you can. Allow plenty of time for drying and then sandpaper smooth. Dry color can be added to make this putty match the floor.

Before using a mixture of this kind on a floor which is to be painted it is well to clean the surface thoroughly and brush on one coat of paint before using the putty.

become chilled in very cold weather. When varnish gets very cold there is a tendency for some of the gum, the oil and the driers in it to solidify and form little hard particles which look like sand or seeds. When varnish gets into this condition it may often be brought back to normal by heating it to 110 degrees F. The heating may be done by placing the can of varnish in a pail of boiling water.

Varnish may become chilled in the winter time during its transportation from manufacturer to painter. In the shop it is a good plan to keep the varnish on a top shelf near the ceiling. If the shop is without heat the varnish should be transferred to a room wherein the temperature is usually about 60 or 70 degrees.

The little particles of solid matter can be strained from the varnish by carefully working it through two or three thicknesses of cheesecloth when the varnish is about 70 degrees in temperature.

Painting Brick

Question.—"I have a brick building to paint red. It has been painted before and the paint is wearing off. What is the best paint to use for the first coat? The last coat is to be a flat red brick color."

"I would like to give the party a job that would last and look well."

Answer.—We cannot, of course, consistently recommend any particular brand of paint for this purpose. There are several classes of materials which will give you a first-class job when properly applied to the surface. White lead thinned with about three-fourths linseed oil and one-fourth turpentine and tinted with Venetian red, to make rather a dark shade, will make a good first coat as will, also, high class prepared paint in the Venetian red colors. The second coat should, of course, be good Venetian red, thinned with half linseed oil and half turpentine—or use a good brand of ready-mixed flat brick red paint.

The principal points to keep in mind about the job is that the whole surface should be carefully cleaned to remove

any loose paint or mortar on it, and then enough oil should be used in your first coat to satisfy the suction in the old paint and the brick.

Sealing Up Soil-Pipe Stains

Question.—"My question is in regard to soil pipes that are exposed in a bathroom. I have to do a bathroom in light blue above and white enamel below. The party wants the pipe to match the light blue. My experience in the past has been that no matter how I go at this the paint I put on always turns a different color and looks like the deuce. If any of my brother painters can tell me something to do that will remedy this, I will very much appreciate it."

Answer.—First remove all of the black pitch you can from the pipes by burning them over with a blow torch and scraping with a steel wire brush. When this has been finished apply a coat of aluminum bronze. On top of the bronze a coat or two of flat paint should give you a surface upon which you can apply your blue tint and enamel with reasonable assurance that the black stain will not come through.

We have known decorators, however, who not only put the aluminum coat on, but also a coat of flat black and a coat of shellac varnish before they apply the enamel and tinted finishing colors. Usually, however, the aluminum coat is sufficient to seal up the pitch.

Painting Weather-Beaten Surfaces

Question.—"Have heard about, but never practiced, the priming of an old job with milk. Now I have a big house that has not been painted since it was built about eight years ago. The body and most of the trim are all cracked and dry chafed. The surface is absolutely bare in some places."

"The painting contract calls for two coats of stain on the roof and two coats of paint on the house and garage. The body color is to be

itory and the trim white, while the roof is to be green. I will use about 600 pounds of lead on the body and trim.

"Now, what I would like to have you tell me is this: What quantity of whitening, milk and so on, should be used for 100 pounds of lead; whether to mix up one batch of it or to mix it daily; if the milk will have a tendency to sour or not, if so will that affect the mixed batch of paint?"

"Should the second, or finishing coat, be all oil or should it contain any turps? Should I put driers in the milk coat or not?"

"In your opinion is this milk coat really good. The trim in the front of the house was painted three years ago and is in pretty fair shape."

"Should I use an ordinary coat of paint upon this good surface or prime throughout with the milk coat?"

Answer.—About repainting the old weatherbeaten house which you describe. In the past twenty years we have probably heard about at least a dozen methods for practicing economy of materials in the repainting of such a job. These methods have been of great variety. From soaking the surface with a garden hose to the use of sour milk, buttermilk, whitening and clay fillers. Frankly, we do not believe that there is any way to paint such a job by so-called economical methods and at the same time produce a job which you can guarantee against cracking and scaling for any reasonable time.

Those who soak the surface with water in order to swell the wood and close the pores long enough to cover them with paint are taking the risk that the hot sun will draw the moisture out of the wood and blister the paint. If the paint happens to be porous enough to permit the water to come through it without blistering, the wood will dry out anyway and the season cracks in the lumber will show up eventually and split the paint film, just as if the wood had not been swelled with water. In other words, wetting the wood is simply a trick which en-

ables the painter to produce a job which looks fine for a few weeks.

The use of sour milk, buttermilk and casein necessarily carries with it more or less water. While these liquids do have a tendency to fill the weather-beaten surface, we doubt that they are sufficiently durable to warrant their use on exteriors.

What you really want to do for this customer is to protect the surface from further deterioration and at the same time give a nice appearing job. It is our judgment that the only way to accomplish these aims is to fill the pores of the wood with good paint in sufficient amount to satisfy the suction of the wood and leave a reasonable amount on the surface.

This brings you to the question as to whether it is wise to use inert pigments, such as barytes, silica, whitening or clay, in the first coat as a filler. These pigments are very valuable for certain purposes in the painting business, but we do not believe that this is a place to use them. If the surface is to be painted with an interior one which would not be subjected to the weather extremes a filler coat would be satisfactory for building up the surface just as is done on carriage, wagon and automobile bodies, which are also protected with many coats of varnish.

Temperature changes, however, cause expansion and contraction of the wood of exterior building surfaces and we believe that a filler coat would not remain in place long without cracking and scaling—hence, our suggestion that the pores of the wood be filled with high class paint and pure linseed oil.

Two coats of paint are not enough to turn out a first-class job on a weather-beaten surface. It is probable that some of the material which was saved in years gone by, by not painting when the surface needed it, will now have to be used before the best kind of a job can be assured. It is probable, however, that with two coats you can do a pretty fair job. That is rather difficult for us to say without actually seeing the surface to be painted.

As to the use of drier in your paint, if you use one of the advertised brands of first-class boiled linseed oil no drier

"I have never finished a floor this way, nor have I ever used ammonia."

Answer.—We see nothing impractical about the floor finishing method you mention proposing the use of liquid ammonia followed by staining, filling and oiling. We do not, however, see any advantage in following this method which is out of the ordinary. Ammonia is a disagreeable material to handle both for the painter and others about the building.

The standard method for doing this class of work, as you know, is a coat of penetrating stain, either oil or spirit stain, followed by filling. Then, if an oil finish is wanted boiled linseed oil and turpentine to which a little beeswax or paraffin oil is added is most suitable for the finish. The beeswax should be dissolved in turpentine before being added to linseed oil. The whole mixture should be made quite hot by placing the pot in a pail of boiling water. Then, apply the oil while hot with mops and wipe up any excess with rags.

Oiled floors are commonly preferred where a great deal of travel of many feet makes varnish or wax unserviceable. Office and factory floors are most commonly given the oil treatment.

Use of Zinc In Lead Paint

Question.—"How much zinc is the correct proportion for 100 pounds of lead for outside painting on the second coat?"

Answer.—As to the use of zinc in the second coat of white lead, we may say that opinions differ among painters and manufacturers as to how much zinc should be included. In pure white paint from 15% to 25% of zinc is added to the white lead for the second coat only, by many painters. For instance, to make up a mixture which contains 20% zinc and 80% of lead use 21 lbs. of zinc and 78 lbs. of lead.

Marbling Tennessee Pink

Question.—"How can I imitate Tennessee pink marble in paint on plaster?"

Answer.—The subject of marbling is

entirely too broad to cover within the short space of a letter. Furthermore, before you are likely to learn to do a good job of marbling you will have to do considerable practice work at the same time making a study of marbling processes.

In your study of this branch of trade you really ought to have a fair size slab of the real marble which you are to reproduce by painting. The next best thing is photographs of such marble and in color, if you can secure them. The only photographs we have seen in Germany, but we have seen many photographs of various marble not in color. These teach the figure characteristics but the colors are equally important.

There is a book on marbling under the title of "Practical Graining and Marbling," by Paul N. Hasluck, publisher David McKay, 610 Washington Square, Philadelphia, Pa. Price \$1.00, also another by the same publisher, "The Standard Grainer, Stainer and Marbler," by A. Ashmun Kelly.

Olive Oil And Enamel Pull

Question.—"Glad the boys are exchanging dope. It is a good practice and ought to be encouraged. I will kick in an old one that may be new to some of our readers: one teaspoonful of olive oil to a gallon of enamel takes out the pull on the brush. Here's another: Flat wall paint stiffened with whitening makes good putty under enamel."

Answer.—The use of olive oil in enamel is new to the Editor and the thought which comes next is as to consequences of such a practice. Wonder if manufacturers of high-class enamel would approve. Generally speaking, it is best to use high-class prepared materials exactly as received in the original packages. If first-class work is to be expected, some manufacturers suggest, of course, that certain materials may be reduced with turpentine, oil or alcohol under special conditions.

Olive oil is a non-drying liquid and if any appreciable quantity were used it would result in a tacky surface. There might also be some discoloration

A teaspoonful is not much, however, and experience is the best guide to determine whether the practice is harmful to any extent or all wise and helpful.

Finishing Hardwood Floors

Question.—"Also I have some hardwood floors to finish. One painter says, fill, shellac and varnish. I say use paste filler and build up the finish with good floor varnish. Shellac makes a pretty floor, but not a durable one. What do you say?"

Answer.—As to the best method for finishing floors. There is, of course, room for differences of opinion, and yet there is no doubt that high-class floor varnish is more durable than shellac. Knowing this it is probable that the most serviceable working method you can pursue is that of using first a penetrating stain, then paste filler, then two or three coats of first-class floor varnish.

A finishing method which has many advocates is that of using a stain, filler and two good coats of wax highly polished.

Squirrel Gray Enamel

Question.—"May I ask you for information? I have a large residence to finish in squirrel gray enamel. What are the proper materials to mix together to make that and the undercoats?"

Answer.—Concerning the interior to be enameled in a squirrel gray, you do not tell us whether this is a new or old job. If it is new work the first operation should be that of cleaning up and smoothing the surface with sandpaper. Next, brush on a coat of white lead thinned with half turpentine and half boiled linseed oil. Tint this coat with oil colors—lampblack and raw umber. When this coat is dry rub it down lightly with No. 00 sandpaper—rub just enough to take off the dirt ribs and dust.

Now, dust off the surface and put on two coats of first-class enamel undercoater or two coats of half white lead and half zinc thinned only with turpentine. When each coat is dry, rub

it down lightly and dust off. These coats should also be tinted a gray to suit. If the gray is very light the oil colors are suitable because only a small quantity will be needed. But if the gray is quite dark it is better to use colors ground in Japan for tinting.

For your finishing operations flow on freely one coat or two coats of first-class enamel, preferably satin finish, although a gloss enamel is suitable if preferred. It is much better to buy a high-class prepared enamel for this purpose than to attempt to mix your own enamel from lead, zinc and mixing varnish. Prepared enamel coats can be tinted to the gray desired by using ivory black and raw umber ground in Japan. A touch of red or blue may be needed to secure just the right shade of gray. The Japan color should be mixed in a clean pot with turpentine until it is about of the right consistency for brushing as paint. Strain the color through cheesecloth before mixing it into the enamel thoroughly.

Vernis Martin Finish

Question.—"We recently had an inquiry regarding Vernis Martin finish. Can you give us any idea how this can be done?"

Answer.—Vernis Martin is the name of a brand of bronze powder used by decorators and furniture manufacturers. That is as much as we could learn for a while. Since then we have found that the furniture manufacturers employ a process for producing what they call a Vernis Martin finish. Briefly, this process is as follows:

An airtight box is constructed which is large enough to hold a piece of furniture such as a chair, picture frames or other articles. In the top of this box an electric fan is placed with the motor outside and the fan wheel inside. One side of this box is a door on hinges. The furniture to be finished is given a coat of thin varnish, which is made for this purpose, or a coat of gold size such as sign painters use. While the varnish or the size is wet the furniture is put in the box. Then a small amount of very fine bronze powder, dry, is dumped in the box, then the door is closed and

Raw Or Boiled Oil

Question.—"Are dealers right in advising raw instead of boiled linseed oil, as some do? In mixing raw oil with white lead for outside painting I have trouble to get it to dry."

Answer.—It is probable that your dealers advise the use of raw oil because sometimes it is easier to secure raw linseed oil which is pure and reliable than to secure boiled oil that is dependable.

In some localities the great majority of painters prefer to use raw linseed oil with a small amount of first-class japan drier, while in other localities they are equally firm in their belief that boiled linseed oil is best.

We have covered this matter of paint oils in the American Painter & Decorator and our conclusions after making a recent study of the problem were that where you are buying oil made by one of the well-known manufacturers it is better to use boiled oil for this reason: Raw oil is just a crude commercial product that is made and handled by all manufacturers. It is largely in the condition which nature prescribed and, as you know, there are considerable variations in linseed oils made from flaxseed grown in different parts of the world. In the United States we make oil from flaxseed grown in our country and also from flaxseed imported from South America and other parts of the world.

As one manufacturer of linseed oil put it, raw linseed oil is just a common commodity while boiled linseed oil is an institution with some of the manufacturers who are building on a quality foundation. The well-known manufacturers of linseed oil pride themselves in the high quality of the boiled linseed oil they make. It is carefully filtered to be free from moisture and fooks as far as that is practical and the quality is always uniform.

To Prevent Sealing

Question.—"I have an outside house job from which the paint of the past has always peeled off. I am using _____ White Lead. How

made a few years ago, to determine the best methods for retarding the chalking of paint, indicated that a second coat which dried absolutely flat made a hard-wearing surface. When the first and third coats were gloss with a flat coat in between the maximum service and minimum chalking resulted.

Cracking And Sealing Paint

Question.—"What about the cracking and sealing of exterior paint?"

Answer.—Your question about the old paint on a house which is cracking and scaling badly. No matter what the cause of the cracking and scaling of paint on the house, we believe that the only way in which you can produce a new job of painting which you can afford to guarantee against future scaling is one done after you have removed all the old paint from the wood. Although it is common practice to burn and scrape off only the patches of paint which are scaling.

The priming coat next to the wood is the most important of all. It is the foundation of your job. The best paint on earth will not permanently adhere to a surface if the foundation coat fails in its attachment to the wood. The editor thinks that you ought to remove all of the old paint by burning and scraping so that your new paint may gain anchorage in the pores of the wood. A gasoline blow torch or the acetylene blow torch can be used for this purpose. The latter works much more rapidly and saves labor and cost.

A great many jobs are refinished without removing the old paint. The loose scales are scraped off and the rough edges are sandpapered down smooth. Such a job may stand well for two or three years, or it may go to pieces within a year. Surely it will scale again some time. If the job is done in this manner you should "lay the cards on the table" and tell the customer that you will do the best you can with good material and methods, but that you cannot guarantee the job against cracking and scaling unless all of the old paint is removed down to the bare wood.

face the more durable the job would be and the less possibility there would be of chalking. That theory probably came down to us from the days when most of the lumber used was white pine and soft porous poplar or other pine woods. Such surfaces naturally required considerable oil to satisfy suction. The lumber being used today is quite different in many sections of the country where yellow pine, more or less filled with pitch, sap or resin and cypress are used. It is apparent that such lumber will not absorb as much oil as white pine and woods of that class.

The editor's opinion is that your first coat on new wood today and the first coat on old painted surfaces which are chalking should contain quite as much oil as has ever been used. From 4 to 5 gallons of linseed oil with from 1/4 to 1 gallon of turpentine to 100 pounds of lead are the quantities needed for the average job. Where prepared paint is used it is probably wise to add from 1 quart to 1/2 gallon of linseed oil to each gallon of mixed paint for the first coat only used on dry, porous surfaces. When the surface is cypress or yellow pine, which are well filled with sap or resin, less oil is needed. From 3 1/2 to 4 gallons of linseed oil with 1 gallon or less of turpentine are sufficient to be used with 100 lbs. of lead, while the prepared mixed paints may be used most advantageously just as they are mixed by the manufacturer without the addition of more oil, although a little turpentine may be an advantage on some surfaces.

The best practice today probably is that which spreads on a priming coat which dries with a full gloss, touching up any flat spots which appear with an additional coat; then, a second coat which will dry flat, meaning that the paint is mixed with about half oil and half turpentine, or even less oil, and a third coat which contains no turpentine unless the weather is very cold and which dries with a full gloss. About 4 gallons of oil to 100 pounds of lead will often be found to be about right. The less oil used the more pigment you will put on the surface and the better the job will be covered. Some experiments which were

the electric fan is started. The dry powder is agitated until the air in the box is completely filled with it and the powder attaches itself to the sticky surface of the furniture. After a few minutes agitation the motor is stopped and the bronze powder is allowed to settle and is recovered from the floor. The piece of furniture is allowed to dry and then all excess bronze, which did not attach itself to the surface, is dusted off.

When the bronze surface is completely dry it may be sprayed with a coat of clear varnish or lacquer or it may first be glazed over with a transparent color which is stippled with a brush or a piece of cheesecloth to give a mottled, blended or polychrome effect. On top of the glaze coat a coat of clear lacquer or varnish is sprayed to finish the job.

Mixing Pumpkin Yellow

Question.—"We have had an inquiry about pumpkin yellow—a color which has been psychologically tested and approved for use in school rooms. Have you any suggestions on this?"

Answer.—Your other question about pumpkin yellow. We have no color card showing the exact shade of a standard pumpkin yellow, but we are familiar with tests made in hospitals which seem to prove that the sunshine colors which are all of the yellows and orange shades are much to be preferred for people suffering from nervous and other mental derangement. It is probable that any of the yellow, buff and cream shades produced by tinting a white with medium chrome yellow or orange yellow will prove satisfactory for the purpose you have in mind in the school rooms.

How Much Oil?

Question.—"How much oil should be used in outside painting?"

Answer.—About your question as to quantity of oil to be used. Previous to the last two or three years most of us believed that the more oil you could get into your paint and on to the sur-

shall I mix it so that it will not scale. It is a close grain wood and is to be painted in white trimmed in black. How much zinc, if any, shall I use?"

Answer.—The kind of paint you mention using is first-class material and it will not scale off if the surface upon which it is to be spread is in first-class condition to receive paint.

The scaling of paint is usually due to the use of material which is too hard and brittle to expand and contract with the wood during temperature changes. Whenever an excessive amount of moisture gets into the wood that, too, will cause any paint to scale. The use of a yellow ochre primer on new wood is responsible for a considerable amount of cracking and scaling of paint which occurs on some of the older houses.

What you are most interested in, we believe, is the best procedure for repainting this job to avoid scaling in the future. If the old paint is only scaling in places and seems to be firmly attached on most of the surface it is necessary simply to scrape off the loose scales of paint, touch up the bare spots with a coat of paint, and then repaint the whole surface with first-class material.

If, however, considerable scaling has occurred and the surface, generally, has paint on it which is scaling, the only safe way to produce a job which is likely to stand up without more scaling in the future is to remove all of the old paint down to the bare wood with a blow torch and knife scrapers. Then paint in the usual manner with first-class material.

If the lumber in this building is yellow pine, which is excessively full of sap, that may be the reason for scaling—that is because the paint could not gain sufficient anchorage over the sap streaks. In painting new pitch pine it is best to add a little benzole (160 degrees solvent naphtha) in the paint for the first coat only. About $\frac{1}{2}$ pint of benzole to each gallon of paint stirred in just before you begin to brush the paint on is sufficient. The benzole is a powerful solvent which softens up the pitch in the wood long enough to allow the paint

to anchor itself. The benzole evaporates completely in a short time.

There is some difference of opinion about the quantity of zinc to be mixed with white lead. Many good painters prefer to use about 15% of zinc mixed in with the last coat only. It is their idea that zinc should not be used in the undercoats. Other painters have used from 20 to 25% of zinc with good results. To make a mixture composed of 20% of zinc and 80% of white lead use 21 lbs. of zinc oxide with 78 lbs. of white lead. There is a difference in the bulking values of the two pigments. 100 lbs. of zinc bulks 4.05 gallons. 100 lbs. of white lead bulks 2.85 gallons. It, therefore, takes more oil for mixing 100 lbs. of zinc than for 100 lbs. of lead.

Casts That Rub

Question.—"What can I put with whitening and water so that when casts are made from it they will not rub off? Would borax help?"

Answer.—As a strengthener for whitening so that it will not rub off in making plaster images, I would suggest gelatine glue, plaster paris or a dextrine.

Brush Marks In Calcimine

Question.—"Please tell me what will retard the setting of large surfaces that have been calcimined so that they will not show brush marks?"

Answer.—The brush marks and laps on the calcimine you mention are caused by the presence of too much glue binder. The remedy is to add whitening.

About Titanium

Question.—"I have cedar siding, old outside surface to paint two coats. Most of the paint is gone. If I used Titanium oxide paint for first coat would any harmful chemical action take place if I used a ready-mixed paint or lead and oil for the second coat?"

"What objections, if any, are there to Titanium oxide?"

"What do you think about using Titanium oxide instead of lithopone for enamel undercoats?"

Answer.—With respect to handling Titanium oxide, you need not worry about any chemical action where used over lead and oil or any standard ready-mixed paint. One objection to Titanium oxide used alone is that in itself it is too soft, but as supplied to the trade it is usually strengthened with harder pigments which overcomes this objection.

Fading Brown Paints

Question.—"I notice that home-mixed browns have a tendency to fade. Ready-mixed browns do not fade, but they are seldom of attractive or pleasing shades, on account of the chrome yellow or red oxide in them. In your opinion, can a good non-fading outside brown be made with lead and umbers, or a good golden brown cream with lead, raw sienna, burnt umber or ochre? I am not bothered about getting the desired shade, but the fading is a problem."

Answer.—The reason you cannot get a warm, pleasing brown which will not fade is that red fades out. A brown which will not fade is made from red oxide or Prussian mineral and this is, of course, not so pleasing in color. There does not seem to be any remedy, except to get plenty of oil into the wood. When the brown paint goes flat it fades more quickly. Also use the best French raw sienna and best Venetian red to brighten up the brown. These are very durable as to color, as are also the umbers.

Titanium oxide may safely be used as an undercoat for enamel, although it is not often so used.

Oil Of Camphor On Furniture

Question.—"I find that by using camphorated oil on furniture that it makes all cracks, mars and scratches disappear. Do you consider that such oil would be injurious to fine furniture? Do you know of any oil that would be better?"

"Can you tell me of a formula for a polish for pianos and fine furniture surfaces that will not be sticky after use and yet do a good job?"

This information will be appreciated as I work only on fine surfaces.

Answer.—It is our understanding that oil of camphor, not the camphorated oil commonly used for medicinal purposes, is the material to be used for filling up scratches on furniture finishes. Furthermore, it is well to add a little very fine pumice or rotten stone to the oil of camphor, and it then actually does all up the scratches level with the surface. Camphorated oil appears to make the scratches disappear, but we doubt if the disappearance is permanent. Oil of camphor and pumice stone makes a permanent job, and is not injurious to a fine varnish finish. It is our understanding that there is no material which will remove scratches in a fine varnish surface, unless an abrasive like pumice stone is used with it.

Now, as to a furniture polish which is good for use on fine furniture like piano finishes: There are, of course, many formulas in circulation for furniture polish, but we believe that you will find a polish made as follows will be best:

3 parts benzine.
3 parts paraffine oil.
1 part denatured alcohol.

There is not enough alcohol in this mixture to injure the varnish, and it will tend to remove the stickiness upon drying. It will be well for you to experiment a little with this polish by varying the proportions of each ingredient a little. In that way you will probably secure a polish which will exactly suit your purpose.

Matching Floors And Trim

Question.—"I want to know how to finish a hardwood floor laid in a room with yellow pine trim so that they will match. The floors are to be either white or red oak, to be finished natural, no varnish, nothing but wax. And they want the wood-work to match exactly."

Answer.—You are up against an almost impossible proposition when it comes to finishing red or white oak floors in natural color and then are expected to finish yellow pine trim exactly to match the floors.

Answer.—We would suggest that you look over your house to see if there are any places where water can get through to the stucco, and if it can, your trouble comes from the water coming in contact with the lime in the stucco and forming a chemical action, which must come to the surface and it forces its way through the paint.

If water is getting into the stucco it should be stopped. Then the hot alkali in the burned through places can be neutralized with a wash of zinc sulphate. Then it will be safe to repaint.

Maple Kitchen Floor

Question.—"What is the best way to finish a hard maple kitchen floor for good wear?"

Answer.—The best way you can finish a hard maple kitchen floor is to brush on two coats of a mixture of one-half hot raw linseed oil and one-half turpentine, applying twenty-four hours apart.

This will give you a floor that will not stain with grease, and if you desire you can wax it with liquid wax or polish it with the usual type of floor mop with the usual type of floor mop.

Finishing Bank Doors

Question.—"I have an exterior bank door to paint that was done unsatisfactorily by another. He shelled the bare door first, then stained it with oil colors. The color ran, then he varnished it with a varnish stain to try and cover the runs. Then he put a coat of varnish on, but as it was a poor job of staining and varnishing they had me refinish it."

"I took the finish all off, then scraped out the stain until the wood was clean and bare. Then I stained it with a penetrating stain, then gave it a tight coat of good exterior varnish. When dry I rubbed it tightly, gave it another coat and then when dry sanded it and gave it another coat. I rubbed this last coat to an eggshell gloss, but now

after four months the door is going bad in spots. Where the finish lets go there appears a small bubble resembling shellac in appearance.

"The door is a white pine door and is finished on both inside and out. The inside looks fine, but the outside is going bad. They do not want it painted. What shall I do with it?"

Answer.—Judging from your letter you have evidently done a very good job on this door and as we see it, some of the stain must have been left in the wood or perhaps the shellac did not come off thoroughly.

The only thing we can suggest is that you take the finish off again with paint and varnish remover and then wash the door thoroughly with gasoline to remove all trace of wax which might remain.

Then apply a coat of penetrating stain and after that seal in the stain with a thin wash coat of white shellac cut fifty per cent with alcohol.

Then put on the balance of your varnish finish and you will have a job that should last indefinitely.

Street Marking

Question.—"I thank you for the formula for the white street marking paint. It was fine. I now want to know how to prepare a paint for marking off parking space and guide lines that would show up in a bright yellow."

Answer.—To make a good yellow street marking paint, use equal parts of yellow ochre and chrome yellow in oil reduced with equal parts of gasoline and japan drier to brushing consistency. If you want a yellow on an orange cast, use deep orange yellow instead of chrome yellow.

Must Get Out All The Wax

Question.—"I have been having some trouble with old waxed floors. They are the best of oak, but they are worn through the wax, and also varnish and shellac in places. I have had trouble to get varnish dry after cleaning these floors. Also

the cleaner I have used seems to darken the floors. What is wrong?"

Answer.—Your trouble undoubtedly comes from the wax not having been thoroughly removed from indentations, seams, nail holes, etc.

You, of course, understand that no varnish will stick if it is applied over a surface from which the wax has not been thoroughly removed.

It is always our suggestion to remove wax and shellac that you scrub the surface with a good strong solution of soap, sal soda and water. Use No. 3 steel wool to scrub with. You can then bleach out the wood by using a saturated solution of oxalic acid in hot water. Apply while hot.

Making Pastel Board

Question.—"I would appreciate it very much if you could give me the details for making pastel board. We are not very satisfied with the board here, but it is not very satisfactory for our purposes. There are two kinds, the one for penic and the fibre."

Answer.—Pastel board is a heavy cardboard about eight or ten ply with a very delicate finish, and three different kinds are manufactured; the fibre, marbled and velvet finish, all sold at any artists' supply house in sizes of twenty inches by twenty-six inches and thirty inches by forty inches. The price ranges from fifty to ninety cents for the smaller and about twice the amount for the larger size.

The simplest way to make the fibre pastel board is to mount light gray charcoal paper on heavy cardboard. For the velvet finish take a water color paper and for the marbled finish coat the heavy cardboard with a medium solution of gum arabic and while the surface is still wet powder it with marbled dust through a fine sieve.

Lettering On Building Paper

Question.—"Please outline the order of procedure and specify the materials to be used for a sign on building paper surface on wood block. When complete, background to be black and letters cream color. Anything that will retain good ap-

pearance for one year will be satisfactory."

Answer.—Paint the entire surface with lampblack in oil (which comes in paste form), which has been reduced to brushing consistency with equal parts of turpentine and japan drier. One coat will probably be enough to seal an ordinary building paper surface, but if it looks as though the paint has soaked in too much, apply a second coat of the same mixture.

For lettering, use a good bulletin color (paste form), reduced with two parts raw linseed oil and one part turpentine. One coat of bulletin color should be enough.

Troublesome Reflection On Window

Question.—"A ground floor auto salesroom fronting east has a window glass ten feet high on the north. This glass reflects a three-story gray stone building on the other side of the street so as to obscure the view of a finely finished car within the showroom near the window. Will the painter's skill avail here?"

Answer.—Glass will reflect anything which is thrown on it strong enough, especially if the background is dark, and no paint will prevent this. Suggest to the auto man that he paint this interior white or put up an awning. This will shut off the reflection.

Silver-Gray On Oak

Question.—"How can I make silver-gray finish on oak?"

Answer.—We assume that you want to know how to mix a silver-gray stain for oak. There are a number of factory mixed gray stains on the market which are most convenient and successful for this finish. A very simple formula is the following: Dissolve four ounces of copperas and four ounces of powdered nutgalls in one quart of hot water and add cold water to make two gallons of stain. This stain should not be handled in metal containers. It is advisable to add about two ounces of

glycerine to each gallon of stain to help keep the grain down.

The first step in the process is to bleach the wood with a saturated solution of oxalic acid crystals in hot water. Put the bleach on hot and let it dry. Next wipe off the white powder left by the bleach with a damp cloth.

Apply the gray stain and let dry. After the stained surface is dry, sand it and apply a thin coat of white shellac and fill with a filler made of white lead or zinc or both and turpentine and japan in equal parts. When the filler has set flat in a few minutes wipe across the grain with a wad of excelsior in order to leave as much as possible of the filler in the pores of the wood.

Silver-gray woodwork looks best in a dull finish. You can varnish and rub to an eggshell gloss, or apply flat varnish, by which you can save the process of rubbing, or apply floor wax and polish with a flannel rag.

Checked Piano Varnish

Question.—"I have a job on a mahogany piano, the varnish finish of which is badly checked or cracked. Can the piano be refinished without the removal of the old varnish?"

Answer.—"It is impossible to revarnish a varnish surface which is checked or cracked, without the checks and cracks showing up very plainly because the function of the varnish is to bring out the texture of the surface to be varnished and as successive coats of varnish are put on the gloss assumes a mirror-like appearance which brings out the finish underneath.

Our first suggestion is that the checked varnish be removed with varnish remover or by sanding and the surface built up then with stain and successive varnish coats.

If the checks and cracks are only on the surface coats of varnish, you can remove them by a thorough job of rubbing with pumice stone and water on a felt pad. Then finish with a coat of piano rubbing varnish, which is also rubbed, and a coat of piano polishing varnish rubbed first with the finest pumice stone and oil, then with rotten

stone on the palm of your hand to finish.

If you do not care to do this, the only thing we could recommend is to cover the checked varnish with a coat of yellow flat ground color, which you can buy in prepared form, and then apply one or two coats of mahogany varnish stain and then put on a finishing coat of clear varnish.

However, in our mind the best possible finish would be obtained by removing the varnish and then building up again.

Painting Metal Ceiling

Question.—"I have a job of a bank interior with a metal ceiling which has been painted twice and both times the paint peeled in spots all over the ceiling. The safe was blown some time ago. Would that have any effect upon the paint? I did not do the work either time so do not know how the surfaces were prepared. I am planning to burn off all old paint; scrape with steel brushes; prime with red lead, oil and drier. Would you recommend that? They want a guaranteed job. If you can recommend a better way I shall be very much obliged."

Answer.—"You mentioned the fact that after each time the ceiling was painted, the paint started to peel off in spots all over the ceiling. This seems to be the best proof that the painting was not done right from the beginning. In going through the stamping process the sheetmetal must pass several machines and each time is handled by greasy hands. This grease or non-drying oil should have been removed with benzine before the priming coat was put on.

Your intention to burn off the old paint and clean with wire brushes is the only solution of the problem, except, of course, a patented paint remover would work faster. Would suggest for your priming coat only a small portion of oil, say one-fourth, and the other three-fourths to be turpentine and japan drier. Give it plenty of time before applying the second coat. It is hard to believe that the pe-

ing of the paint could have been caused by the vibrations of the explosions when the safe was blown. Paint possesses enough flexibility to stand such vibration.

Paint For Street Marking

Question.—"I am painting safety and parking lines on the streets for the city of Dayton and am having difficulty in getting the right sort of paint. The pavements are of three sorts, stone, asphalt and creosote wood block. I have been using white lead, French whitening, gloss oil and benzole and have difficulty in making it stick, but mostly with the creosote wood block pavement. What can you suggest?"

Answer.—"A street marking paint must be above all else a quick drying paint. In fact, it must dry in at least fifteen minutes, as traffic cannot be held up much longer than that time.

This means that a paint must be used in which there is very little linseed oil. Judging from your letter I assume that the white lead you used was white lead in oil. This type of paint containing as it does a large amount of linseed oil, would not only be a very slow drier, but the asphaltum in the creosote blocks would break up the oil and then your paint would peel. We would recommend that you would buy a prepared brand of street marking paint.

Bronze Green For Exterior Doors

Question.—"I have a job that calls for outside doors to be finished in dark green stippled to a bronze finish. I have never done a job of that sort. How should it be done?"

Answer.—"Suggest that you apply as many coats of dark green paint as desired, but when the last one has set up, and is still tacky blow on bronze powder and pounce in such a manner that the bronze becomes worked into the paint.

I would suggest you apply the last green paint coat in sections, completing the bronze, pouncing on one while the

next space is being painted. The powder can be heaped on a board of convenient size to hold in the hand. A wad of cotton can also be used to pat the dry bronze onto the tacky paint.

If you want to preserve the bronze effect in its original lustre coat the entire job when dry with spar varnish. Otherwise the bronze will tarnish. If the finish is to be varnished mix your paint coats with as little oil as possible or the surface will check or alligator in time.

It would be possible to buy a green bronze oil color which would make the powdering operation unnecessary, but such a material is costly, being usually reserved for decorative stencil and stripping work.

Another method is to paint the door with flat green, then coat with copper bronze and glaze over with verdigris green. Varnish to finish.

Lettering On Smooth Glass

Question.—"Kindly tell me what paint to use and how to mix it for lettering a smooth glass plate? I have used drop black, but it does not seem to be opaque enough."

Answer.—"To do black lettering on smooth surfaced glass and to let it perfectly opaque with one application, it is advisable not to use a pigment known as bone black, like drop black or ivory black, but to take lampblack. The two colors mentioned above are more intensive blacks, but do not possess half the covering qualities of lampblack.

A better grade of lampblack ground in japan and mixed with a like quantity of good spar varnish and thinned, if necessary, with turpentine, should make a good one-coat job.

Bronze Tarnish On Tiffany Finish

Question.—"I did a room in Tiffany finish with blue plating color, giving the predominating effect. I used some gilt in the decorations to match the hangings. I spotted, blended and pounced, but besides. Now the spots of gilt are a dirty

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the gloss on a Tiffany blend is to give the wall a coat of starch. The starch also helps to keep the wall clean. This can be washed off any time and given another coat of starch. Ordinary laundry starch should be used. Place the starch in a cup and add a little boiling water. When the starch is cooked it will become transparent. Then put the starch in a pail and add cold or warm water until the mixture is about of the consistency of milk. If you want to color it put in a pinch of dry color. It will be transparent, however, when brushed on the wall.

Furniture Painting

Question.—"I have chairs, tables, beds and other furniture to paint and would like some advice as to colors that harmonize, the kind of paint to use and the methods of work."

Answer.—We are pleased to give you whatever information we can about the painting of furniture. The first operation in this line of work is to rub down the furniture with fine sandpaper or steel wool, just enough to make the surface smooth and to remove the gloss. There is no need to remove the varnish unless it is in very bad condition, and so rough that it would show through the paint.

Having the surface prepared and in good shape the finishing may proceed with one of the prepared furniture paints, many of which are offered by paint manufacturers, or you may give the furniture a coat of white thinned with turpentine and tinted to suit with house tinting colors ground in oil. Be very careful to mix the paint thoroughly, and to strain it through cheesecloth. Two coats of flat paint should be put on and then a third coat of the same mixture to which some first-class interior spar or other varnish, has been added to make the paint dry with a gloss.

Or after the ground coats are dry one or two coats of ready mixed enamel undercoat may be used and the finishing coat may be one of the first-class enamels offered for interior wood trim. These enamels come in white,

gray, ivory, cream, and with some of the brands in several other attractive colors. Some of the automobile enamels are also suitable for this work. If white enamel is used it may be tinted to whatever color you may want by adding tinting colors ground in japan to white.

After each of the undercoats has become thoroughly dry it should be sanded lightly with No. 0 sandpaper, or fine steel wool. The job should then be washed clean to remove any grit or sand on the surface before the next coat is brushed on.

The stencil decorations may be put on with tinting colors ground in oil or in japan to which a little varnish is added for a blinder.

The matter of desirable colors for this furniture is one which ought to be decided by your customer, because it is entirely a matter of personal preference. A good plan to follow is to start with one or more of the colors in the rug, or linoleum, used in the room where the furniture is to be placed. The color may be the same, but lighter or darker, as may be preferred.

Porch Paint Blistered

Question.—"I have a job of a porch of Oregon fir wood that I cannot seem to keep from blistering. It is exposed to hot sun, but nothing has been spilled upon it nor can I see any cause for the blistering. What is wrong?"

Answer.—Oregon fir is not a difficult lumber to paint and it is probable that the reason why the paint on the porch floor in question blistered is that it did not dry thoroughly and hard, or else the lumber contained considerable moisture when painted.

May we suggest that in repainting this floor the first precaution to be taken is to see that the space under the porch floor is thoroughly ventilated. If there are not at least two openings under this floor, which will permit of ventilation permanently, the holes should be made. Next, scrape off all of the loose blisters and sand down the rough edges or burn off the old paint with a blow torch.

When the surface is thoroughly dry brush on a coat of paint which is mixed with about half boiled linseed oil and half turpentine. When this is dry brush on a second coat of paint mixed the same way, but to which you have added about a pint of high-class floor varnish to the gallon of paint. Your first coat should dry flat so that the second coat can be brushed on without any tendency to creep and crawl. If the first coat dries with too much gloss wipe over it with a cloth dampened with benzine just before brushing on the second coat.

Paint blisters because there is moisture or an excessive amount of sap in the wood under it. As long as the moisture is there the blistering will continue. What you want to do when the surface is dry is to brush on a coat of paint which will dry completely and provide a little harder wearing surface than you ordinarily want on the sides of the building.

Painting and Decorating Radiators

Question.—"I have a job painting steam radiators, and am asking if you will tell me how to paint them so that they will stand the heat? The color is to be cream white."

Answer.—Recent tests at the University of Michigan appear to prove that the use of bronze paints on radiators is not the best practice. These tests indicate that a radiator which is painted with ordinary flat wall paint, or white lead paint thinned with turpentine, will radiate about 25 per cent more heat than when bronze paints are used. And an odd thing about the experiment is that you can increase the amount of heat given off by a radiator which has been painted with bronze, by repainting it with flat paint without removing the bronze. Apparently it is the last coat of paint on a radiator which determines its efficiency.

Do not use linseed oil in paint for radiators as the heat has a tendency to turn paint containing linseed oil to a spotty yellow color. If you want a gloss finish you may add a little first-class interior varnish to the paint, or

use a high-class dammar white enamel, or an enamel which is ivory, cream, gray or some other color which you might mix by adding japan tinting color to white enamel.

To answer your question more directly would suggest that you paint these radiators with ordinary flat wall paint, with white lead thinned with turpentine and tinted to suit with raw sienna, or use a first-class interior flat enamel ivory or cream color.

Then, if you want to give an antique effect, when the paint is dry, mix up a little burnt or raw umber, or Vandyke brown ground in oil with turpentine. Brush this glaze color onto the surface in a thin stain, and while wet take a clean wiping rag and wipe the color off down the center of the radiator tubes to make a highlight, leaving the color rather dark on both edges with the ground color showing through in the vertical centers of the tubes. Wipe the color off of the high spots on any decorative scrolls that may be on radiators, leaving the dark brown in the depressions, and allowing the ground coat to show through on the high spots.

Another common decorative treatment is to paint the radiators the same color as the walls, but a little lighter. Then put on the glaze stain in brown, or some other color as described above. While the color is wet take a wad of cheesecloth in the hand and stipple the stain all over, twisting the wrist a little bit here and there to give a more interesting texture to the glaze. In other words, this is a Tiffany mottled and blended job with the glaze color forming an interesting pattern, and the ground color showing through here and there. If you want a rather dark effect stipple over the surface only once. The longer you stipple the lighter the general color will become, because you are wiping off the glaze color as you go.

Painting Blackboards

Question.—"What is the best way to finish a blackboard?"

Answer.—The finishing of blackboards is done in several ways. Before the finish the foundation should be considered. Undoubtedly the very smooth cement-

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cracks in the plaster where the paper breaks. What is wrong?"

Answer.—The way to make paper stick to this wall is to first size the bare wall with a thin coat of wheat flour paste to which you should add half a pint of ordinary black molasses to each gallon of paste. Add the molasses while the paste is very hot, so that all of it will dissolve in the paste.

When this is dry, apply your paper to the walls with the same kind of paste and you should have no trouble.

Be sure you do not size these walls with glue size, because the paste coming in contact with the glue will soften it and then you will have some real trouble.

The White Paint Wasn't White

Question.—"I have trouble in mixing white lead and oil so that it will be snow white, as it looks creamy. What can I do to this, or add to it to make a glossy, pure white?"

Answer.—When white paint is applied to a surface it may appear creamy at first and this is due to the linseed oil in the paint which is, of course, not perfectly white.

However, the paint will bleach out white after it is on the surface a short time so you should have no fears that you will not be able to get a white job with the use of white lead and oil.

Two-Toned French Gray

Question.—"I have to finish over a piece of walnut which is our native black variety and when done it is to have the appearance and color as it did before being finished, that is a flat dull gray or bluish gray. What is the name of this finish and how is it produced?"

Answer.—"What shall I do and use to put the new French walnut finish on our native black walnut as this new French finish is very light. Will I have to bleach the black walnut to get it light enough?"

Answer.—A two-toned French gray

walnut effect is obtained by first removing the old finish right down to the bare wood, then bleach the wood with a hot saturated solution of oxalic acid in water.

Put on a white filler mixed from white lead or zinc oxide in oil paste thinned with equal parts of turpentine and Japan drier. Brush on this filler, let it set a few minutes until it is flat, then wipe off across the grain with excelsior. Allow the filler to remain only in the pores of the wood. Finish with white shellac rubbed dull, several coats, or with flat varnish.

Brine Stains

Question.—"Please tell us what to do with ceiling that has been papered and then brine soaked through the plaster from upstairs and turned the ceiling paper white. What can we put on the plaster to keep the salt from coming through the paper every time the room is papered?"

Answer.—First remove all the paper, then sandpaper the surface to remove any traces of surface salt which might be on the ceiling.

Then apply one or two coats of a good reliable brand of varnish wall size and this should stop the brine from coming through to the new paper.

Enamel On Kitchen Walls

Question.—"Recently my brother and I painted a kitchen from which wallpaper had been removed. As it was to be enameled, we put two coats of undercoat on and then one coat of enamel. All three coats dried duller in some spots than others. The undercoat was a little thick. Would this cause it to dry as it did?"

Answer.—We think the reason the undercoats and the enamel coat dried flat in spots is because there was not enough binder in the undercoat to seal the wall.

Better results would have been obtained if you had first applied a good varnish size or one coat of undercoat and then a coat composed of half un-

with it. The whitest ground ceiling paper that I could find when combined with the imported side wall looked creamy, which made it necessary to treat the wall paper so that it would harmonize with the ceiling.

"Having had fifty years' experience, I knew it would be necessary to first size the paper and then treat for shade and color. In this case I dissolved a small quantity of No. 1 Et. thin cut clear gelatine and allowed it to jelly. I then used a long-bristled four-inch brush and went over the same spot the second time, thus avoiding the blurring or streaking of soft colors.

"When the first coat of gelatine size was perfectly dry I put on the second coat, this time being sure to rub it in so that the wall was thoroughly covered. After this was dry I coated the walls with a single coat of Batavia damar varnish thinned with turpentine. This gave me a waxed finish and toned my side wall ground to the exact shade of the ceiling ground."

(Contributed.)

Frosting Glass

"I have noted an article in the American Painter & Decorator regarding the frosting of window glass, and will add a few comments in the hope of helping the general cause. We tried for a long time to frost the windows of our office and store and get an even finish, but failed to do so. However, one day we accidentally made a discovery while testing out a new filler against two other brands.

"The test was being made to ascertain which of the three fillers was the best in all respects. As a part of the test we applied one coat of these fillers on glass. The next step on this test was to sand the surface, and we noted that in sanding the fillers which had been put on glass that it gave an even frost-like surface on the glass and looked as if it had been treated with hydrofluoric acid."

(Contributed.)

dercoater and half finishing enamel followed by the third coat of finishing enamel.

Now, what we suggest your doing is to patch up the dull spots with a thin coat of the enamel and then put on one more coat of the finishing enamel. This should do the trick.

In regard to new or old plaster, it should always be coated to kill the hot spots.

A good varnish size made by thinning a gallon of good floor varnish with a gallon of turpentine can be used to do this, or use one of the several good ready-made wall sizes on the market.

Painting Over Calcimine

"I agree with you and repeat it, 'Never paint over calcimine if you consider the future of your work.' Some day sooner or later the paint is going to peel and bang goes some painter's reputation.

"I met with such a case. I repainted the interior of a school house, using a high-grade ready-mixed flat paint. The first coat thinned with oil and turps. The old paint seemed to be very sound and in good condition, so I ran two coats over it and in less than a year it was all coming off to the bare wall. An investigation revealed that twenty or twenty-five years ago a local painter put on two coats of oil paint over two coats of calcimine. My investigation clearly proved that some of this old calcimine was still on the wall and had made the trouble for me.

(Contributed.)

Gelatin Size

Regarding the shellacking of wallpaper, about which the painter asks if it is necessary to size the paper before putting on the shellac.

"I recently did a job somewhat along these lines—that is, I had to treat the walls to make them conform with the ceiling. I had a French floral pattern side wall on a pure white ground to hang, and no ceiling paper made to combine