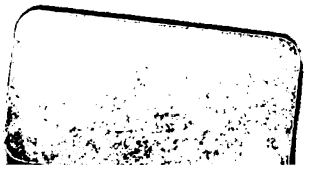
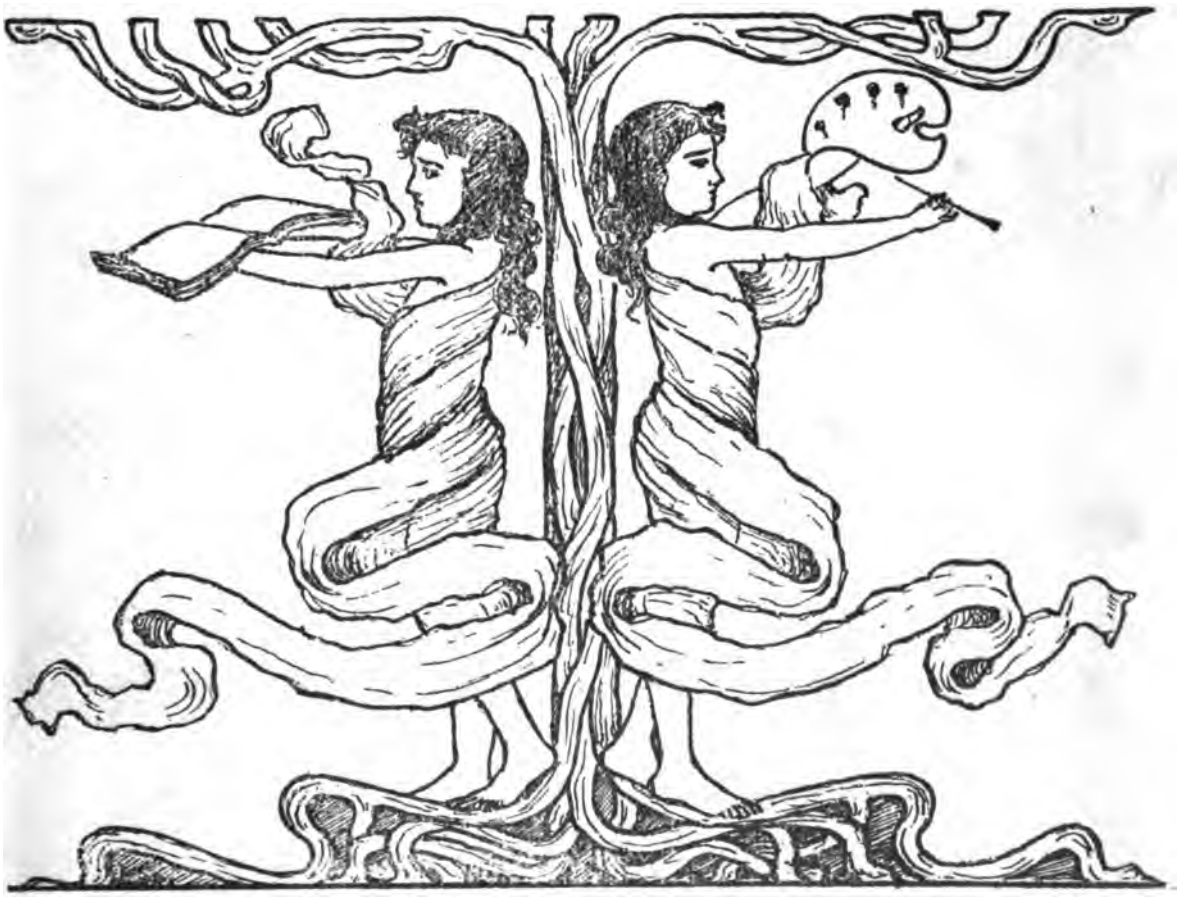


Vol. XII SEPTEMBER, 1907 No. 6

THE MASTER PAINTER



AN ILLUSTRATED MONTHLY MAGAZINE FOR PAINTERS and DECORATORS
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A monthly journal that has come to be a medium of exchange between

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Sign Writers,
Sign Carvers,
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THE MASTER PAINTER

Vol. XII SEPTEMBER, 1907 No. 6

The Sunbeam's Message to Painters.

By A. Ashmun Kelly.

(*Continued from August number.*)

The theory which explains "Successive Contrast" will not acocunt for the effect given by placing colors side by side, this effect being a simultaneous contrast of colors; but the effect is of the same kind, namely, contrasted colors are increased in brightness, but it results from the equal action of both colors upon the eye at the same time. As has been stated in this series, surfaces reflect to the eye rays of other colors besides those which appear. No surface can or does either absorb or reflect all of any color of the white light that falls upon it. So that when we look upon red we see not a perfect red, but a red with some of the opposite colors mingling with it are present. And so of green. If we could avoid these vitiating rays of other colors our red and green would be vastly improved in color, and this is actually done when we place the two colors side by side, producing "simultaneous contrast." The active vitiating colors that influence the red and green when the latter are viewed separately seem to be cast out in some way when the two are viewed together, and the complementary of each is thrown upon the other.

Now, we have seen that certain combinations of colors help each other, and this being so, it is easy to understand how certain other combinations may do just the contrary. Colors most contrasted help each other. Hence colors most nearly alike injure each other. Place yellow beside violet, its complement, and the yellow appears brighter. Now place violet beside green and the green is moved from its position on the chromatic scale toward yellow. Its hue will be that of yellowish-green. Violet beside orange changes the latter to yellowish orange. In like manner violet stains blue a greenish hue, and red it changes to scarlet. In other words, the color balance of these colors is altered. This is the law of the mutual influence of colors: *A color placed beside another tends to make that color as different as possible from itself.* The complementary of any color cast upon another makes it more unlike, or increases the difference between them.

Now we come to *contrast of tone,* demonstrated in the viewing of black and white together. If we take a few slips of paper, each painted a certain shade of gray, say, in successive gradations of that color, and place them closely side by side, each strip will appear lighter on its edge nearest its lighter neighbor, and darker where it joins its darker neighbor. This makes the strips appear rounded or fluted, whereas, in fact each slip is of course evenly colored. View them side by side, then cover all but any one slip, and you get the slip as it actually is. This is so of the different tones of any color shaded with black or tinted with white. Two tones of the same color placed together always alter each other's intensity. The dark tone will make the adjacent one appear lighter, and the light tone will make the dark tone apparently darker. The reason for this is, probably, that the absence of light in the dark color renders the eye more sensitive to the white light of the lighter color, and on the contrary the dark color appears darker because the white light of the lighter color destroys the effect of the small amount of white light reflected on the other. Thus, if we place a dark red beside a light rose color, or a deep yellow in contact with a straw color, they will, as it were, push each other further apart, the light tone in both cases appearing lighter, and the deep ones

deeper, so as to deceive the eye in regard to the real depths of their colors.—Youmans.

Thus for tones as well as hues Chevreul's law holds good: "In the case where the eye sees at the same time two contiguous colors, they will appear as dissimilar as possible, both in their optical composition, and the height of their tone."

(Continued next month.)

House Painters' Notes of Hand.

—Hard maple floors hould have two or three coats of pale shellac varnish, and be rubbed smooth. Make the first coat very thin. Use sandpaper freely on the wood before varnishing it.

—Oxide of iron paint used to be regarded as the ideal paint for iron, but it has lost its favor in recent years. Red lead is considered the best paint for iron, but red and white lead combined also give good results.

—The best glazing putty is made from best bolted gilders' whiting and raw linseed oil; in the proportions of 15 pounds of oil to 85 pounds of whiting. To make putty it is necessary to mix and then pound it well, adding the whiting until quite stiff; then lay aside for two or three days, to sweat; then knead and pound again. For quick-drying putty add boiled oil, and one pound of dry white lead to every nine pounds of whiting.

—Shellac varnish must not be kept in metal vessels, for the metal will blacken the varnish. Keep it in glass or earthenware vessel. An acid in the shellac acts on the metal.

—Cypress is known as a bad paint receiver. The prime coat should be of white lead mixed with raw oil and some turpentine, and with very little driers, for the paint must be kept from drying on the surface until it has soaked into the wood. Make the paint rather stiff, and brush it well into the wood. The second coat may be made in the usual way.

—For holes and cracks in a floor that is subject to water, make a mixture of five parts by measure of cottage cheese and one part by measure of air-slaked lime, which knead together to a stiff dough. This may be colored to suit any particular wood or painted surface. It becomes stone hard and will resist the action of water.

—To revarnish a floor, first see that all the shoe marks and scratches are removed; try them with oil, and if this hides them you may safely apply the varnish; but if the marks remain, then sandpaper them until they are removed.

—Many of the paint and varnish removers are dependent for their action on the presence of carbolic acid, united with an emulsion. Crude carbolic acid may be used, and is usually mixed with common glycerine, to give it body. But soft soap may be used instead, and indeed when so used the soap seems to be more effective than the acid. But soap raises the grain of the wood, while the acid mixture does not. Carbolic acid is not the most satisfactory remover, because it penetrates the wood too deeply, is hard on the hands, and smells very vile.

—To make white lead paint dry to a perfectly dead flat on walls add a very little clear water to the paint and mix well with it. Beat up the lead as it comes from the keg, stir in the water until it combines with the lead, add color and driers, then thin with turpentine. The water does no harm to the paint.

Blistering of Paint.

By James Kitchener.

How many times have each one of us been obliged to suffer the loss of money, customer and temper from causes which we could not control, in this painting business, and one of the many causes of trouble is the blistering of paint, which is nearly always attributed to the rascally painter, who sometimes is almost accused of adultering his paint with blisters. It is well known that there are various causes for the blistering of paint. I shall mention only some of these.

First we shall mention is the priming of poorly seasoned wood, for wood containing moisture or sap to any degree is sure to cause trouble. It seems to be the rule that woodwork shall be primed just as soon as placed in position by the carpenter, the result being in many cases that all moisture in the wood is sealed up, only to be drawn out in blisters when exposed to sun or heat of any kind. The remedy is obvious. Some architects are

exceptions to the rule in this respect, and do not insist that the woodwork be primed immediately, but will allow, during the dry season, exterior work to remain some time before painting.

Another cause of trouble is priming with yellow ochre without any admixture of white lead. This is frequently done and always causes trouble for the painter in the future. Blistering is sometimes caused by the application of too heavy a coat of primer, in short, most of the causes of blistering can be traced to faulty priming. Priming should be used quite thin, for the vital and indispensable element in a primer is the liquid, that part that goes into the wood and grips any good material placed over it. In my opinion the best primer should contain no other pigment than white lead. The first coat is the all-important coat, although some do not seem to think so, for how often this work is given to the youngest apprentice or the handy man around the shop. The idea prevails, in some places, that any old truck will do for priming, so that even the paint derived from boiled up paint skins thinned with benzine makes excellent primer. This is almost criminal, and certainly quite unpardonable.

Work painted too frequently will blister owing to the under coatings not having hardened before fresh paint is put on. The fault again is sometimes with the material, and no master painter who is honest and values his reputation can afford to have anything to do with cheap or poor material. Nearly all deep colors will blister, particularly bronze greens, when exposed to the sun's rays or excessive heat.

The cracking of paint is caused principally through the placing of a quick hard-drying coat over a soft and elastic coat. When necessary to paint over such surfaces it is always best to burn off or remove the previous coatings.

With regard to the causes of the cracking of varnish let me first say that this part of the subject is rather a difficult one, for I believe varnish to be the most annoying and delusive of all the materials we are called upon to use. The intelligent painter knows that all varnish ultimately cracks, no matter over what surface it is laid. Light, heat and oxygen, the agencies which unite to harden varnishes, also constitute the elements which operate to destroy it. The hardening process continues until elasticity is eliminated or brittleness ensues, caused by high temperature and causing cracks. There are other agencies, of course, in addition to those I have mentioned which more or less contribute to the cracking of varnish. Unseasoned wood is responsible for no small amount of varnish cracking, for this wood in warm weather will shrink, whereas varnish in warm, dry, sunshiny weather will expand, and these contrary operations result in cracking and alligatoring. A coat of quick, hard-drying varnish over an elastic coat will also result in a picture of the alligator's hide.

A Chapter on Painting.

By Walter J. Pearce.

Roughly speaking, paint possesses in several degrees various qualities, the chief of which are ease in working, (2) quickness in drying, and (3) durability. Though the vehicle at the disposal of the painter are few, it will be conceded generally that many painters do not concern themselves much with their ualities, various characteristics, and effects following their use. Take, for instance, the simplest. These are raw oil, boiled oil, turps, and varnish. Each of these materials possesses certain qualities which render each best adapted for use under certain conditions.

One of the first things a painter concerns himself most about in a paint is its covering power. This feature largely depends upon the nature of the pigments or solid matter from which paint is made. Few pigments, if any, possess the characteristics of white lead, namely, of becoming completely incorporated with oil.

The standing qualities of most paint depends largely upon the vehicles with which they are mixed. In the matter of covering power, the use of turps and raw oil come into use. They both possess the characteristics of holding in suspense a comparatively large body of solid pigment, and allowing it to be deposited on a surface. For this reason their use is most suitable for work, under cover, where the end aimed at is to cover a sur-

face evenly and give a surface which will dry hard and appear solid in tint.

Turps has the quality of evaporating. It has no protective value. Its end is served when it evaporates after the color is applied.

Any oil which would mix equally as readily and evaporate would serve its purpose, such, for instance, as petroleum or kerosene, which, upon occasions, will be found to serve all the purposes of tupsr, and but for its objectionable odor, would no doubt be more commonly used than it is.

Oil and varnish possess durability, because they present to the atmosphere a smooth, glossy surface, which is impervious for a considerable time to water, etc.

In most parts of Australia raw linseed oil finds most favor. It is clear, works freely, and in white lead paint on outside work requires the addition of little driers. It allows a paint to cover well, and is durable. Mixed in raw oil only a paint dries with a glossy surface, which is a factor of durability.

Boiled oil, on the other hand, is for white lead paints, less satisfactory than raw. Though a paint mixed with it may go further, it does not cover so well, is apt to discolor light tints, is harder to spread, less durable, and a constant source of blistering. Where the use of boiled oil comes in is in mixing dark colors for outside work, such as Brunswick green, Indian red, bronze green, and such colors, obtained by the painter in a dry state. The comparatively thick condition of boiled oil assures a better gloss under these circumstances, and assures their drying under ordinary conditions without the addition of driers.

The requirements for paint for inside and outside work differ greatly. For outside a color may be oily, because there it is continually subjected to atmospheric conditions which destroy its life. For inside use, paint requires less oil. The quicker and harder it dries the better.

The various requirements for inside and outside purposes are well understood by varnish makers. Reputable firms supply varnish manufactured in degrees of durability varving with the circumstances under which the varnish is intended to be used. The various kinds are labelled with descriptive titles ranging from durable oak to hard spirit varnish. If used under other conditions than those for which they are intended, they are likely to cause trouble. A durable outside varnish would not be a safe one to use inside, say, on a church seat, and a hard-drying varnish intended for the latter purpose if used outside, in exposed positions, would quickly perish. In the first case a quick hard-drying varnish is what is desired. On the other hand, for outside work the longer a varnish retains its elasticity the more durable it will prove. In paint and varnish, as a rule, slow drying means durability, because the process of drying is identical with that of perishing. A naturally quick-drier, when that feature is accelerated by exposure to air and sunshine, soon perishes. In interior work paint and varnish are not subjected to the same danger of perishing as they are in situations where they are exposed to extremes of temperature.—*Decorators' and Painters' Magazine, London.*

Lettering on Wire Gauze.

For painting wire gauze, lay the gauze on a flat, lean table, and with a large stencil or other square ended brush, pounce the color on sparingly, not with up and down strokes, which fill the meshes. The color, which must be thin, is mixed with turps, driers, and boiled oil; two coats are required. To dry, suspend the blind. Color made with turps and a little gold size is also recommended. Any space to be gilded should be filled up with dry white lead, mixed with gold size and turps. A little dry whiting dusted on the gauze will prevent the gold leaf sticking. For writing on wire blinds, so as to get clear, sharp-edged letters, the paint used should be mixed very thick, and should possess good covering properties. The paint is generally mixed with equal parts of gold size, turpentine and boiled oil, and should be applied very sparingly, otherwise it will run down the wire. Some workers use a mixture of weak glue and whiting for filling it. A simple and reliable way is to paste stiff paper on the back of the wire; when the letters have thoroughly dried, the paper may be easily removed by moistening with warm water. Flat lining brushes are generally

used for this purpose. Lines, corners and writing would all be arranged as in ordinary work of the kind. For the corners, it is better to have a stencil, as by this means the corners can be done cleaner and quicker. If it is desired to do away with the traces of the wire, so that the work will be left smooth, it will be necessary to go over the lettering several times with the filling-in medium. The raised effect of gold letters in relief is obtained by gesso treatment, generally with the aid of stencil plates, cut from millboards. Alabastine would probably be the safest material for the beginner to use, although the relief may be produced by a mixture of plaster-of-paris and weak size. Of course, the surface must be rubbed down and prepared in the usual manner with gold size before gilding. Another method of obtaining letters in high relief is to take two-thirds whiting and one-third white lead and mix to the consistency of varnish. This may be thinned with turpentine for use. Another way is to add 1½ ounces of alum to a pint of water. Thin plaster-of-paris with this medium and apply. When dry, glue-size the letters before gold-sizing them. The latter way will require considerable dexterity.

Zinc Oxide vs. White Lead.

A PAPER SUBMITTED IN COMPETITION, TO THE NEW JERSEY ZINC CO.

By Hugo Hillig, Hamburg, Germany.

White lead is the oldest known pigment used in connection with coloring and painting in general. We learn from the writings of the ancients that it was used in the earliest times. Almost as old as the knowledge of its use, is the recognition of the fact that white lead is a poison to be dreaded—to be dreaded and feared by those who casually come in contact with it in small quantities, but much more so by those whose daily work constantly exposes them to its poisonous influences. Instances of lead poisoning are, therefore, common and most serious in the case of those engaged in the manufacture of compounds of lead.

In several countries laws have been passed prohibiting altogether or limiting the use of lead salts, but, while doubtless a step in the right direction,, their influence has so far been but limited and the evil of lead poisoning only partially checked. Compounds of lead are most dangerous when used in a finely powdered form, for in this comminuted state their poisonous action is most vigorous. Statistics in these cases show figures most appalling, and the development of some measure to guard against lead poisoning is no longer an æsthetic or philosophic problem, but rather a social, hygienic and economic necessity. This evil has been only partially remedied by the laws so far enacted, as for instance, the regulations in force in Germany* or those of France, Austria, Belgium and Switzerland, which wholly or partially prohibit the use of lead colors. Experience has shown that the only sure safeguard against the lead poisoning evil is to discard entirely the use of white lead and substitute in its place some non-poisonous pigment.

What then are the non-poisonous materials from which we may make our choice?

First of these is zinc oxide or zinc white. While this pigment has not been known as long as white lead, our experience with it has been sufficient to prove that it can in many cases replace white lead to advantage. One of the advantages of zinc white is that it is chemically inert towards the oil of the vehicle. Its oxidizing action on linseed oil is only slight and it is no more than a very weak drier. Zinc oxide is simply a pigment in fine powdered form, the particles of which are surrounded and cemented together by the oxidized linseed oil. White lead, on the contrary, is by no means inert, and when incorporated with the oil there is not, as in the case of the zinc, a simple mechanical mixture, but, on the other hand, a true chemical combination with the oil. This chemical action mentioned has, in fact, been considered a most valuable property on the part of the white lead, as the lead itself acts to a considerable extent as an oxidizing agent or drier of the oil, thereby causing the rapid drying of the oil film.

This oxidizing action of the lead, however, does not stop with the proper drying of the oil film, but continues with the result that decomposition of the oil takes

*Verordnung des Bundesrats, V. 27, Juni, 1905.

place, and when the paint coat is exposed to atmospheric moisture the oil saponifies and is thus rendered soluble. The oil acts no longer as a protective covering and when acted upon by water, becomes brittle and washes off. This saponification in the case of iron coated with a white lead paint, for instance, allows of the penetration of moisture through the protective coating, with the resulting corrosion underneath. In the case of this disintegration, which always takes place when a white lead-in-linseed oil paint is submitted to the elements, the paint has wholly lost its usefulness as a weather and water proof coating, and, in the face of this failure to perform its proper duties as a protective agent, the advantages of white lead as a quick drying agent count as naught.

It is for this reason, described above, that white lead does not make a water-proof, weather-proof, rustless coating. This destructive action upon the oil is not confined to white lead alone, but is the same in the case of other lead pigments. Red lead, for instance, does not deserve the reputation it has for a rustless coating. Mr. Toch has plainly shown how little white lead and red lead can be considered of value as a protective coating when exposed to moisture.*

In the case of zinc this saponifying action upon the oil is imposisble. It is perhaps a tenable theory that zinc oxide when not protected from the air can absorb carbonic acid and thus increase its volume, but as oxidized linseed oil itself is not entirely impenetrable to gases, it is quite possible that this absorption of carbonic acid may take place in the pigment when incorporated in the oil and thus cause an increase in volume. Should any such increase in volume take place, however, it would be trifling and insignificant and without effect, since the film of an oil paint where zinc is used as a pigment retains for a long time its elasticity and could thus fully accommodate itself to any such small increase in volume. The effect of zinc oxide on the oil, therefore, is negligable. This property of variation in volume, especially in the case of variation in temperature, is, to be sure, common to all other pigments, as well as to zinc, and no point is indestructible.

When the only possible chemical action on the oil is a slight oxidation, such injurious effects as occur when white lead is present are imposisble. Zinc does not cause saponification of the oil, and therefore a zinc paint retains its water and weather-proof properties. Another important property of zinc which is in its favor is its property of taking up a very large amount of linseed oil (much more, in fact, than white lead) and thus producing a covering of great elasticity and therefore durability, and, should the zinc, which is almost inconceivable, take up carbonic acid to any considerable extent, the increase in volume would be compensated for by this elasticity of the film. Zinc takes up about seventy-five per cent. of its weight in oil, while white lead takes only twenty-five per cent. These figures indicate the difference in durability and price of these two pigments.

The quality of the oil is of greatest importance in the first as well as in the final coat; the question of pigment is of secondary consideration. It is possible to prepare a very excellent coating paint out of mineral pigment or other inert materials, such as soap stone, graphite, mica, coal, etc., as all these have no deleterious action upon the oil. The durability of the paint coat depends principally upon the power of the oil to unite the particles into a good even layer and attach them to the surface. The less the oil has been attacked by the pigment, the better will be the coating. The more oil a pigment carries, the nearer it approaches the ideal coating, although, of course, no one would say that pure oil alone would be serviceable. Experience shows that the proportion between pigment and oil in a zinc paint is good, as good, in fact, as that between ochre and oil, which is indisputably excellent.

(*Continuation next month.*)

*Society of Chemical Industry, New York, 1902 and 1905.

—A shellac brush may be freed from its hard gum by soaking in alcohol. The better plan is either to keep it in a covered vessel in shellac, or to wash it out in alcohol when done with it. This latter is the best plan.

HARD WOOD FINISHING

—White spots on a varnished surface may be due to the presence of rosin in the varnish, and which is easily affected by water, or dampness. There is no remedy but to re-varnish over it.

—If your pulverized pumice scratches it is likely due to its not being the right sort. The imported Italian is the best, and that from Utah is not good for good work.

—Silver white and pulverized silica are so much alike in appearance that it is difficult to distinguish them apart. Silver white is a white silicious earth, with much the same atomical or molecular formation as silex. It is much used for making fillers.

—Aniline stains have nearly supplanted the vegetable stains and earth stains formerly in use, and this because they are so easily prepared and are so penetrating and give good color. Some are only soluble in oil or turpentine, some in water, and others in alcohol. In any case the medium should be warm or hot.

—An ounce of aniline dye to three quarts of of hot water is the usual formula for making satin. The water must be boiling hot. Turpentine is a good solvent for its class of dyes, but it is better to mix oil and turpentine together, as it dissolves the dye better than either alone.

—To give a brighter appearance to a stained surface use this formula: Nitric acid, one ounce; muriatic acid, quarter ounce; tin, in grains, quarter ounce; rain water, two ounces. Place these in a bottle and shake, let stand several days before ready for use. Use as a wash over satin, to brighten it.

—Hard wood filler should set in from fifteen to twenty minutes, and hence must not contain too much oil. Thin with turpentine.

—Good sandpaper will allow of the dividing of the paper by layers, but poor cheap paper will not. It is sometimes useful to divide paper thus in order to make it thin enough to get into the small beads. etc.

—To make shellac varnish, digest three and one-half pounds of orange gum shellac in one gallon of alcohol. In cold weather put the mixture in a warm place. Shake occasionally to quicken the digesting of the gum. For white shellac use one-fourth pound of gum less to the gallon. Keep in an earthen or glass vessel.

—In varnishing it is necessary to get the right amount of the material onto the surface, for if too thinly applied the job will have a thin look, whilst if too heavy it is apt to crack, owing to the drying of the varnish on the top before the under part is dry.

—While rubbing is done in oil and water with pulverized pumice stone, water is safest, especially in the hands of an inexpert. If you allow oil to remain on the varnished surface too long it will soften the varnish, and this will rub off in spots. Water, on the contrary, tends to harden the varnish.

—What is known as rubbing oil is a petroleum oil, something like machine oil in smell, and is cheaper than linseed oil, and not gummy, like the latter.

—A quick polish may be produced as follows: Mix sweet oil and alcohol, half and half, together, and dip a wad of raw cotton in this and rub the varnished surface with a circular motion.

—French polishing is simply the filling of wood with shellac varnish and the application of several coats of the same, each being well rubbed to a fine polish.

—Oil polishing consists in oiling the wood, then rubbing it with felt; let the oil have a few days to dry in, then rub again. Then more oil and more rub, thus for a month or two, if it is desirable to get a first-class job.

—Wax polishing requires first a filling of the wood with shellac varnish, then a coat of prepared wax, then rubbing with a dry woolen cloth until a dull luster appears.

—A good golden oak filler is made by adding one-fourth pound of burnt umber and one-half pint of pure asphaltum varnish to ten pounds of plain paste filler.

—To make a good liquid filler, take a

gallon of inside coach varnish and add to it four pounds of silex paste filler, mix well together, then thin down to the consistency of varnish with turpentine.

—Liquid filler does better over paste filling than varnish, as it seals the pores better.

—If your shellac has become too thick, by evaporation, or has deteriorated through being left unstopped, losing its strength of alcohol, and by which it has absorved water from the atmosphere, alcohol having great affinity for water, just add a little turpentine to it, and this will counteract the effects of the water in the alcohol.

—It will cause the wood to discolor to first-coat it with oil. The varnish applied over an oiled surface never dries right, and soon becomes discolored and lusterless.

Graining the Front Door to Imitate Quartered Oak.

By William E. Wall.

When the front door has been properly prepared for oak graining the graining color is prepared by mixing about equal parts of raw sienna and burnt umber. This, when properly thinned, will make a medium shade of oak color. If a lighter shade is desired add more raw sienna or some bolted whiting and thinners. If it is desired to make the color darker, add more burnt umber or a little black.

The thinners for oil color should be mixed as follows: One quart raw linseed oil, two quarts turpentine and a half pint of liquid dryer. A little melted beeswax may be added or some bolted whiting may be stirred into the color to give it more body.

When the desired shade of color has been produced, spread the graining color carefully on the work, using a soft bristle brush. Care must be taken to lay the color evenly. Not too freely, nor yet rubbed out too sparingly. The color is then ready for combing. The rubber comb, with teeth about ten to the inch, is drawn through the color and a medium or fine steel comb is drawn over the lines made by the rubber comb. The object of using the steel comb is to break up the continuous lines made by the rubber comb and cause them to represent the dark pores of the wood. Practice and a careful study of the grains of quartered oak will determine the most effective method of treatment to produce the woody appearance. The figures of the quartered grains may be produced by wiping off the graining color with a soft cotton rag folded over the thumb nail or the darker figures may be represented by using a small bristle fitch tool or liner dipped in some of the darker color and applied directly to the combed work and blended with the dry rubbing-in brush. These grains can also be successfully imitated by allowing the combed work to dry and placing the figures on the dry color. Some varieties of quartered oak show very bold figures and the grainer is often tempted to make his work of that character. It is well to consider that an imitation should not be too conspicuous as it immediately challenges attention and is often discovered. It is far better to err on the side of modesty and keep the character and figures subdued and avoid acute contrasts of color on intersecting stiles or rails and the general appearance of the work will be improved.

The door is more frequently judged by its general effect than by the excellence of any particular piece of work. If the workman is not an expert grainer, he would be wise to refrain from spectacular effects in his work. The oak color cleanly applied or combed plain and left without any quartered figures would be preferable to many of the attempts at graining frequently seen on the streets. It is useless for a man to attempt to write a story for publication if he does not know how to spell or is ignorant of the simplest rules of grammar. The attempts at graining frequently placed before the public, on the streets of any large city, are enough to discourage its use by any intelligent man and prevent him from considering graining as a decorative possibility in any building over which he might have charge. On the other hand, graining is frequently so well done that it attracts the attention of intelligent people and appeals to them because of its close resemblance to nature. Such work is worthy of commendation and so long as workmen can be found competent to execute it, grain-

Mr. Paintor and Docorator

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Wall Paper Vogue

Notes on Interior Decorating.

A very pleasing effect in the decorating of a reception room may be obtained by the use of harmonizing tints of olive and cream.

Greenish ecru walls may be provided with a frieze of light sage, the cornice light sage and ecru, and the ceiling all ecru. The upholstering should be gray and pale flesh tints.

A suggestion for the parlor or bedroom, where the furniture is of white enamel and gold, is a wall hanging of yellow shirred silk, the picture railing being in white enamel, and the general woodwork the same finish. If silk be too costly the wall may be tinted to the same shade, or matty paper of a buff tone may be employed instead.

The furnishing and decorating of a house should be planned as a whole before one article is purchased. The color scheme, the groundwork in fact, should be laid in just as an artist might mass his colors on the canvas to obtain the complete impression of what his painting will be when finished, before giving a thought to the finer details.

The practical value of a dado is sometimes overlooked by householders. It has a certain scope in decoration and its indiscriminate use is bad, but in the nursery or in children's bedrooms the dado will save many a finger mark. Above a dark dado a more cheerful paper may be laid, and that will give to the room the necessary lightness and cheeriness. The dado is again useful in the dining room, and indeed anywhere it may save the wall.

Ceilings done in water-color—the painter calls it kalsomine, and our English cousins whitewash—are deservedly popular. When done in the right tints, and perhaps with a small bit of delicate stencil work, the effect is very satisfactory to the eye. But the surface must first be made quite smooth and free from any blemish, a painted wall in good condition being the ideal surface on which to do good kalsomining.

Raw linseed oil, tinted with some one of the transparent pigments, like sienna, raw and burnt, burnt umber, Vandyke brown, etc., applied to white pine and just before becoming quite dry rubbed well with a rag or piece of burlap, makes a very nice stained effect, showing up the grain of the wood, from which the stain is mostly removed by the rubbing; while it sinks into the softer parts, the lights and shades make a very beautiful mottled effect. It is not the intention here to imitate any particular kind of wood, and any transparent kind of color will do.

Never apply two coats of any satin, as this will give to the wood a too solid effect, like paint, which of course is not desired, and would so cloud the wood as to destroy the natural beauty of its markings.

In using pretty flowered French papers, for city bedroom walls, they are far more effective when used without a frieze. They should run straight from the baseboard to the ceiling, finishing at the top with a narrow moulding.

Burlaps are particularly useful on old walls, where they hide any cracks or other defects, and for partitions also they are good. It is urged against this form of wall covering that it is not cleanly, but it is quite as much so as paper. Burlaps need a brushing, or a damp cloth may be used to rid it of dust.

Flower garlands are very appropriate for friezes, as they afford an opportunity for the introduction of many colors, and in no floral representation is a mastery of color more apparent.

Gold on ordinary wall papers, when perfectly flat, is not always very pleasant to look upon, for the true glory of gold refuses to express itself except on undulating surfaces, where its metallic luster is developed.

In criticising wall paper designs it must be remembered that the maker has to consider the popular taste, and cannot, excepting in the very highest grade of goods, follow his own ideas, either in form or coloring. When a design becomes a great

success it is usual to run it for several years, first, perhaps, as a hand-printed paper, afterwards in machine goods and pulps.

Papers expressly representing tapestry are as velvety and rich in appearance as old rugs, possessing all the subdued softness of tone and tint seen in those long-woven oriental goods. The groundwork of some of these texture papers is checkered over, in fine lines, or indexed to imitate the canvas on which the figures and garlands are worked. All the varying wood tints, reds, russett-reds, and forest greens blend and harmonize in the patterns. Even the rare old Gobelin tapestry has been imitated very closely.

Grayish tones of red and pink are cool and restful, but beware of orange, save in a little dark den of a winter house.

Bedrooms should be papered in medium tones of colors, neither light enough to make a glare in summer, nor dark enough to absorb the pale gleams of winter.

A decided pattern in the paper is sometimes necessary to increase the apparent size of the room. Fine vertical lines do this, whereas, any large detached patterns have the opposite effect.

Avoid the design which makes fifty different patterns—diamonds, squares, hexagons, interlacing circles and the like, or where the repeat is so carefully hidden that to follow it is distraction, yet an imperative necessity.

Where the walls are of orange, or a reddish orange, the frieze should be of a deeper shade, the cornice of warm yellows and yellowish red, the ceiling of light buff, the upholsterings of a heavier shade of all these colors, and the draperies should be of a quiet gray-green.

A Nice Dining Room Effect.

Hang embossed leather paper as high as the head, say about six feet, the paper leather color, which bronze and lacquer until it shines; above this hang a plain felt paper, resembling the leather paper in color, but a trifle lighter. Let this run up to the cornice, which may be tinted almost as dark as the plain paper, and of the same color; then gild the beaded members of the cornice. The rail separating the two papers may be a dark oak.

The high wainscoting lends dignity and character to the room, and affords a good background for heavy dining room furniture. The plain paper makes a good background for the pictures, which may be paintings, engravings or etchings.

Instead of the leather paper you may use canvas, rough imitating burlaps, or printed lincrusta, flocks, matting, which may be stained any color, and felt papers; the leather can be painted. The imported Japanese papers are also good.

The Boston Master Painters' Outing.

The annual outing of the Master House Painters' Association of Boston, Mass., occurred August 14, at Canobie Lake, N. H. Locals throughout the State sent delegates, and the result was that seventy ladies and gentlemen left Boston at 8.30 a. m., on a special car, for Lawrence, where electric cars were taken for the Lake. At Lawrence, delegates from Lowell and Lawrence joined the party. Dinner was served at 12 m., to which 100 sat down, in the large dining pavilion. President George W. Brooks, of the Boston Association, welcomed the guests, but no set speeches were made. After dinner the painters and travelling salesmen engaged in a deadly tussel of base ball, the painters winning, of course; score, 33 to 16. After the base ball game came a foot race, won by William Sundell. We note that Secretary Wall pitched for the painters. That explains. Representatives were present from Cambridge, Somerville, East Boston, Haverhill, Lowell, Fitchburg, Reading, Newton, Newburyport, Hyde Park, Lawrence, Rockland, Braintree, Quincy and East Milton. The committee having charge of the outing consisted of G. F. W. Hanson, Geo. B. Agnew, Wm. Sundell, N. B. Sylvester, Jr., H. Kelly and J. F. Allen. Ex-President W. A. Houston, of Lawrence, assisted the committee.

—The State House at Dover, Del., is being repainted at a contract cost of $3,450, including repairs. J. F. Owens, a Dover contractor, does the work.

Some Remarks on Varnishing Paperhangings.

By Alex. C. Menzie.

"Please send me twenty-four pieces No. 3481, varnished if possible, as my customer does not like the varnishing to be done in the house," is a very common kind of request received by the wallpaper factor. The point to remark here is the subtle touch, "varnished if possible," showing a sort of lingering doubt in the mind of the writer that it is possible No. 3481 cannot be obtained in a varnished state. Such doubtfulnes may imply one of two things; either that the paper may not varnish satisfactorily after being hung, or the client may not like the paper so well after the varnishing process.

If we assert that no paper improves in color after varnishing, we advance a proposition, and if the proposition is accepted, one is further tempted to inquire, why are some papers varnished finally and others not? We take it the primary reason for varnishing paper is to enamel it, or apply a skin to the paper, in order that fingering will not soil it and that moisture will not affect the surface.

For this reason, therefore, passage papers, where the traffic is heavy, are varnished, and likewise bath-room, kitchen, and scullery papers are invariably varnished to resist prevailing vapour and moisture. Since the introduction of tiles, tile imitations and relief decorations, however, the use and consumption of varnished papers is slowly but surely on the downward grade.

There is, notwithstanding, an enormous quantity of English manufactured papers of the cheap sanitary class with which no foreign manufacturer is able to compete. The number of such cheap sanitary papers sold in the course of an ordinary season would reach millions. These are capable of being sized and varnished, but strangely enough it is just here where they are not always so treated, because the additional cost of labor and material would add considerably to the cost price of the paper. In fact, in practice it will be found cheaper to supply and hang a cheap sanitary only, than to size and varnish the paper alone. Therefore, from a monetary point of view, the decorator must ask himself the question, "Before sizing and varnishing is it good enough, or is it only sacrificing time and labor on a trumpery paper?"

As varnishing a paper protects the colors in the same way as glass does a painting, from a decorator's point of view it is therefore not a desirable recommendation. The present desire for perpetual change and novelty in wall decorations suits him much better, and of course if he has the option he will exercise it, and not varnish a staircase if he can possibly help it. However, there are some who insist upon varnishing a hall and staircase as inexorably as the law of the Medes and Persians, and it is when this is required to be done that we have to exercise caution in the paper chosen.

Any paper will size and varnish to start with, but all papers will not necessarily be improved in the operation; and again, it is not everyone who would go to the expense of sizing a delicate paper with, say, white of egg. There is reason in all things, but when we are asked if a drawing-room paper can be varnished, or if a Tekko or Satinnette paper can be machine-sized for varnishing afterwards, we are sorely tempted to become sarcastic.

A ready method of finding out whether a paper is capable of varnishing is to pass a clean white handkerchief roughly over the surface to see how much of the color is loose. If the handkerchief is much affected the paper is hopeless, and it can only be made a success if machine-sized, and sometimes even then it may prove a failure. If the color seems fairly fast, wet the tip of the finger and see how the color rubs. If it does not move one may safely size and varnish.

But as an ounce of practice is worth a pound of theory, the safest and best way is to size a piece about a yard in length, and watch how the result dries out. If the color is still soft, it will be safe to conclude that the paper is not one that lends itself to varnishing.

As a rule the hanging of a paper, already varnished, is not so satisfactory as the hanging of an unvarnished paper, and sizing and varnishing after hanging. The nature of the varnished paper makes it liable to buckle and crack, and dry out

unevenly on the wall, although from the tenant's point of view the absence of the odor of the sizing is a recommendation.

In practice the sizing and varnishing of the paper after it has been hung is somewhat comparable to the practice of being measured and fitted for a suit of clothes, as against buying the ready-made article that only fits where it touches. There is, further, always present the danger of the ready-varnished paper opening at the butted points. The decorator, therefore, will be always well-advised to size and varnish in all cases after hanging, not only on the score of economy, but upon that of satisfactory workmanship as well.

There is one thing, however, to be said on the subject, and this is very important. Everyone who has much to do with sanitary papers knows that the value of the color scheme is very much altered after varnishing, and therefore a client who has seen a paper before varnishing may not recognize it again after it has been glazed. The reds become blacker as well as the blues, the white turns cream, and the cream asumes a brownish cast. Thus the paper may be condemned accordingly. So that before hanging a sanitary paper at any time, it is always worth while to enquire whether, say, the hall and staircase paper is to be varnished eventually or not, as it will be advisable to explain sometimes, in order to save disappointment afterwards, that the effect of varnishing is to tone down all coloring matter.

The effect of varnishing a fine block printed paper, for example, is utterly to ruin the effect of the hand-work from an artistic point of view, but for all that it is ordered sometimes by the gentleman who has his staircase done once in every twenty-five years, because his grandfather had it done that way, and he will have nothing else but a hand-worked marble paper at 12s. 6d. per piece; and, of course, as it has to last twenty-five years, in very self-preservation it has to be sized and varnished, although the marble impression was much finer before the application of the glaze.

We all know that marble hall, but we would like the job to come oftener than once in a quarter of a century.—*The Decorators' and Painters' Magazine, London.*

Old-time Graining.

As there may be some of my younger readers interested in the beautiful art of graining, it may not be amiss to compare old methods with the new.

Many years ago it was not possible to obtain the many combs which are so common to-day. Grainers had to make their own from pieces of cork, india-rubber, &c. Nor were there those very excellent rollers supplied by the brush people. The grainers of to-day have many more advantages than those of thirty years since.

Yet the work done now, with very few exceptions, is not nearly so good. Graining having gone almost entirely out of fashion, it seems to me that young men think it is not at all necessary to study the art. But that is a mistake, for it is possible that it will again become all the rage, and then a really good grainer might demand almost any wage he likes.

The majority of us know the rapidity with which "graining" is done on two coats of paint. The instructions from one of the earliest books in the trade for graining oak are very painstaking and elaborate, but are nevertheless of some interest. We are told that the graining color is spread very thinly over the whole surface to be grained, and for this megilp, as it was then called, used in the oil, &c., the student had to take eight ounces of sugar of lead and eight ounces of rottenstone, and grind them together as stiffly as possible in linseed oil. Then take sixteen ounces of white wax and melt it gradually in an earthen vessel, and when fluid pour in eight ounces of spirits of turpentine. Mix this well with the wax, and then pour the contents on the grinding stone to get cold. When cold grind the rottenstone and sugar of lead with the wax and turpentine, and it will form an excellent megilp. It will interest the younger readers of this magazine to know that this has been proved to be an excellent composition.

From this it will be seen how some of the old grainers worked, and even now, I am told, there is grained work in existence which has stood well for over forty years, and which is very occasionally carefully cleaned and varnished.

Much of the information in modern works on graining has been derived from

a careful study of some of the old-timers, for here you have advice constantly repeated as to what the painter desirous of learning graining has to study. In oak, and, indeed, in all fancy woods, he must find out the lightest part. In oak the lightest color is the ground, or the flowers or markings, and that ground must be well gotten up and perfectly smooth.

There was in days long ago much time spent in getting up work for graining, much filling up and rubbing down, and then filling up again. The modern rush of competition, however, seems to have put an end to all this. Still, it may be of much practical benefit to many to go through the old methods of imitating woods and marbles, &c., for many useful hints will be found from time to time.—*The Decorator* (London).

Flaking a Paint From Galvanized Iron.

It has been variously stated by practical men that electricity exercises an injurious effect upon paint when applied to galvanized iron. Although it is a well-established fact that flaking of paint from zinc and galvanized iron is very common, and a source of much concern to painters generally, yet it is not clearly demonstrated that it is due to electrical action. All metal has an affinity for electricity, and the relative conductivity of metals is: Silver, 136; copper, 100; gold, 74; zinc, 28; iron and steel, 16; tin, 15; lead, 8.

It has been very clearly demonstrated that there is such a thing as electrolysis, which not only is possibly injurious to paint, but actually chips out great flakes of metal from water pipes underground, and in some instances weakening them to such an extent as to render them unserviceable. It has been demonstrated that steel structures of all kinds are good conductors of electricity and for this reason are seldom ever struck by lightning, the explanation of which is that the metal permits a gradual discharge of electricity, thus preventing the accumulation of a sufficient quantity to cause an explosion, which is just the contrary with wooden buildings.

It is stated by some writers on technical subjects that the scaling of paint from galvanized iron is due to electricity, and that the white powder found beneath the paint on galvanized iron is simply zinc oxide, caused by electricity. This may or may not be true, but just here an incident that occurred in our experience will possibly in a measure either prove or disprove the electric theory. In painting the galvanized iron hoods on certain cars, it was found to be very difficult to prevent the paint from scaling, and later in order to counteract the effect of cinders, the hoods were painted with thick paint and sanded, which had the effect of preventing further scaling. Just what part the sand played in the matter is not altogether clear, unless it afforded a means of escape for the electricity, as it is apparent that the damage to paint caused by electricity, is due to the fact that it has no means of escape.

Of the various articles that compose the painter's cabinet none posseses as much affinity for electricity as amber gum when excited by friction. Other bodies possessing the same qualities, are: Agates or jet, diamond, sapphire, carbuncle, rock-crystal, opal, amethyst, vincertina or Bristol stone, berl, glass, paste for false gems, glass of antimony, slags, belemnites, sulphur, gum-mastic sealing-wax of lac, hard resin, arsenic, rock salt, mica and alum.

Electricity plays a most important part in the affairs of the universe, its effect upon organic life seems to be much better understood than upon the inorganic; so far as it relates to the latter in respect to painting, it is a matter worthy of investigation, and it is for the purpose of provoking discussion on this important subject that we present this article, hoping that it may lead to tangible conclusions, and invite our readers to join in the discussion.—*Railway Master Mechanic.*

—Flatting varnish may be made from varnish to which some bees wax has been added. But a hard surface dead varnish is made by treating the gum used with caustic soda, the precipitate then being thoroughly washed and dried, after which it is dissolved in turpentine, in the usual way, this giving a varnish that makes a hard dull finish. Such a flatting varnish may be bought.

QUESTIONS ANSWERED

"He that questioneth much shall learn much"—Bacon.

CRAWLING OF PAINT.—We have received from Mr. Wall another cure for the crawling of paint, this remedy being the cold weather. Mr. Wall says: "An unfailing remedy for the crawling of paint or varnish in the coldest weather is to first go over the work with a clean brush dipped in benzine. In a moment or so the benzine evaporates, but the crawling is effectually prevented wherever a drop of benzine touches the work. This process leaves the surface of the work in exactly the proper condition without the addition of any deleterious ingredients." Mr. Wall wrote the foregoing while attending the Canada convention, at London, Canada, where the same question arose and was referred to him for answer. After arriving home he wrote again, adding: "I have never before heard of using vinegar for preventing the crawling of paint, and would not like to use it, on account of adding the extra amount of acid to white lead, which contains already more or less carbonic acid, so detrimental to linseed oil. The merit of the benzine process consists in part of the fact that it does not have to be added to the paint, but is applied to the surface that is to be painted, and leaves the surface in its former condition, excepting that the paint or varnish will not crawl."

FILLER FOR IRON SAFE.—I have an iron safe to repaint, and have taken off all the old paint and filler, as the same had cracked and peeled. I have plenty of dry filler, but want to know how to mix a suitable filler in paste form.

Not knowing what kind of dry filler material you have, we venture to offer this formula, the same being used by some makers of iron fillers: Keystone filler, six parts; whiting, three parts; lead in oil, three parts; pulverized silex, six parts; made to a paste with a liquid composed of three parts rubbing varnish, two parts of coach japan, and one part of turpentine (all parts in above list of ingredients to be by weight). Mix to a stiff paste and run through a paint mill. Fill the surface level with this, and when hard-dry smooth with sandpaper. Add lampblack if desired darker. Then the filler may be thinned and applied as a paint, one or two coats; sandpaper smooth, after which it may be finished.

PAINTING OVER KALSOMINE.—"Can a person paint with oil paint over new whiting kalsomine walls without sizing? If they must be sized, what kind of size should be used, and how should it be prepared?" The kalsomine will have to be sized with some sort of varnish size to stop suction. You may use gloss oil or cheap varnish, made very thin with benzine; or oil, turps and japan, the object being to get a hard surface on the walls. But you will not get a very nice job of oil painting over such a surface, for the kalsomine will show up its roughness under oil paint, however smooth it may appear before that. You had better remove the kalsomine before painting it over.

RENOVATING STAINED FURNITURE.—In the August number of THE MASTER PAINTER, in this department, we answered a question under the above title, which we will reproduce here: "Will you tell me how to remove some stains from furniture that had been packed in a case and mice got in the same and built nests there, staining the wood a kind of blue; part of the furniture is weathered oak stained, and some golden oak. Is there any way of removing the stain without at the same time removing the finish?" To which we replied that the finish would have to be removed about the injured parts and the stains be thus removed, the work being then worked up from the foundation, removing the finish from a whole part, as a panel, for instance, in order to prevent the treated spot from showing. We have received a letter from a correspondent, who resides in the State of Washington, and he says: "I followed your directions in regard to repairing the injured parts

of the furniture, and with excellent results. I don't think any one could tell that the chairs were ever injured at all." He had not told us in his first letter that the furniture was chairs. If he had it would have been an easier one to answer. Which reminds us to ask correspondents to always take time and trouble enough to let us know as much of the particulars of a case as they can.

TRANSFER ORNAMENTS WANTED.—We have an inquiry for some small transfer ornaments for the inside of the bell of an Edison phonograph, some small cousters on roses. Who sells such things? The inquirer resides in Tennessee, and invites us down to hear his machine and its 148 records. Beg to be excused would go many a mile out of our way to escape a phonograph.

TO MAKE A DURABLE WHITEWASH.—A Massachusetts man expects to go into the whitewashing businuess, and asks whether it is worth while to boil the wash before using on exterior work, as on boards will it hold better than cold wash? Says he has whitewashed a number of barns outside with cold wash, and it wears reasonably well. But a tight board fence which he whitewashed failed in two months, the wash all came off. It was applied cold. To which we would say that boiling the lime would not increase its wearing qualities. When lime slakes, if the thing is properly done, with hot water and a cover over the vessel, it will boil fiercely, and as soon as the slaking is done the wash should be used. If some tallow be added to the boiling lime it will make a wash that will wear like paint. Salt tends to harden the lime, and is useful for doing damp places. Then there are two sorts of lime, the magnesian lime being the proper one for whitewashing purposes.

REMOVAL OF MATCH MARKS.—"I have a number of rooms in a hotel to do, and in some the one coat of white will not cever the marks made by matches struck on the paint is there any way of removing same without injuring the paint? If so, I would like to know, as it will save me a lot of time and expense." If you will get some lemons from the bar man and cut in half same (not the man) and rub the cut side of the lemon over the match marks, after which rub with damp whiting, or even with the dry whiting if there is lemon juice enough on the place to give some moisture, and which is the better plan, finishing with a wash of white soap and water, you will find the marks gone.

QUICK PAINT FOR MUSLIN SIGN.—Use japan colors and thin with benzine. You can use best dry color, work into paste in japan and thin with benzine or turpentine, this giving a cheaper form of paint, and one less excellent only because it will not be as finely ground as the prepared japan color. For large jobs this last way will be best. A little boiled oil may be added, and this will increase the durability of the sign, but care must be taken to not get too much oil in.

WASHING CHAMOIS SKIN.—What we call chamois skin is really better called wash leather, for it is no longer chamois but young goat skin. However, this is unimportant, your question being how can the skin be made clean after long use? It should not be washed out in cold water, which tends to harden it, but in tepid or warm water, using some good soap, say castile, the American grade, and after well washing rinse out in clear warm water, smooth out, but do not stretch, and hang on a line to dry.

BRIGHT INTERIOR GILDING.—You will find this recipe excellent for gilding on wood surface of interior work: Mix together a little white wax and a very little soap with Venice turpentine; apply in the usual way as a size, and in an hour you may apply the gold leaf, and finish as usual. This is said to give a fine burnished effect, where oil or japan size fails.

DOES OIL PAINT INJURE RUBBER HOSE?—This question is asked in connection with use of the spray machine, and in reply we would say that mineral or vegetable fats do injure rubber, all rubber being more or less attacked by fats, and in contact with them it softens and becomes to a certain extent dissolved. Rubber which has lost its elasticity under the in-

fluence of heat may regain part of its original properties by being washed in weak ammonia water, but it will not be as good as before. Keep the machine and hose clean, wash well after use, with benzine, which may be recovered and used again. Keep the hose in a damp cool place, say a cellar; light as well as heat affects rubber.

WHAT IS GLOSS OIL?—"In reading your magazine I notice that you often mention gloss oil and rosin oil; I am young at the trade, and have many things to learn. What are gloss oil and rosin oil?" If you live till you die (and who knows whether you will or not?) you will doubtless become better acquainted with these things. Gloss oil is simply rosin varnish, made from common rosin and benzine. It is cheap, and for some purposes very useful. Few carriage painters use it for finishing high-grade work, but furniture finishers—perhaps we had better not. It does for sizing damp walls, and may be prepared by adding powdered rosin to benzine, cold, or the rosin may be melted and taken away from the fire and the benzine added.

PAINTING ON A PLASTERED WALL.—If you wish a strictly first-class job apply a priming coat of equal parts of red and white lead, mixed with boiled oil; make it quite thin, so that it can easily enter the pores of the wall or plaster. This priming gives a good, solid foundation, upon which any desired paint may be applied.

IMITATION WINE COLOR.—You can get a very good imitation of wine color by adding a little vermilion to carriage part lake. One coat of this and a coat of color and varnish will cover nicely without any ground coat.

TO FILTER OIL.—A good filter for your purpose can be made with two tin cans, and some cotton wicking. Place the cans on different levels, filling the upper one with the oil that is to be filtered. Saturate the wicking with clean oil and suspend it over the edge of the upper can, forming a capillary syphon. The end of the wicking should be allowed to touch or lie on the bottom of the upper can. You may regulate the size of the cans by the amount of oil the be filtered.

RAW OIL FOR SHINGLES.—"I am going to dip 18,000 shingles in raw linseed oil; would it be better to use paint, and how much paint would it take for so many shingles?" You will make a mistake if you dip in oil or paint, especially paint. Why not use Cabot's shingle stain, which will be fully as economical and ever so much more satisfactory, both in wear and looks? We do not know just how much paint it will require for 18,000 shingles, but would guess about fifty gallons, rather more, perhaps. You had better apply the paint on the roof, for it will be a mess to dip them. Hot oil will be better than cold for dipping.

TROUBLE WITH THE PUTTY.—The reason for the putty not drying for so long a time is found doubtless in the probability that it was mixed with "putty oil," or deodorized mineral oil, which some putty makers use in place of the more expensive linseed oil. To make a putty harden quickly add dry red lead to it, or for a somewhat slower putty add dry white lead. The putty made and sold as a first-class article is apt to be all right.

Perfectly Pure Pigments.

We do not likely have perfectly pure colors in pigments, but the aniline dyes, vermilion, emerald, and Hoffman's violet BB come very near it, says the *Scientific American*. A correspondent asks whether we posses pigments that reflect only those lengths of waves which would give the color sensations of red, green, etc. And further, in the case of intermediate colors, such as orange or violet, have we pigments which would give waves of nearly one length, or with the orange pigment a reflection of waves confined between the red and green, etc. The reply in part is given at the head of this item. Any pigment may be a combination of two or more pigments, and give a color corresponding very closely to a color in light which has but one wave length. A compound color may appear just like a simple color until it is analyzed.

Editorial Department

THE MASTER PAINTER

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Vol. XII SEPTEMBER, 1907 No. 4

By reference to this little square YOU will know the date on which your subscription expired.

Editorial Notes.

—The July MASTER PAINTER has been especially helpful to me with its advice and information; I could not get along without it.—L. B., Santa Ana, Cal.

—The letter-head of an Iowa subscriber has this endorsement printed upon it: "Mr. —— has just finished my new house. I deem his effort a specimen of good workmanship. I recommend him to anyone needing his services." Signed by a prominent citizen of the town.

—We have just received advice from the Cleveland Varnish Company announcing the death of their Vice-President, Elijah VanCamp, which occurred July 2. Mr. VanCamp was one of the founders of the company.

—One of our subscribers has this on his letter heads: C. S. FORD is a good PAINTER AND DECORATOR; caters to those who are particular. No man is rich enough to buy a poor job of painting from me. Twenty-eight years experience.

—Don't forget the twenty-fourth annual convention of the International Association next February, at New Orleans. Be thar.

—In Germany thirty cents carries 110 pounds by post to the farthest corner of Austria or Italy, more than 1000 miles. A package may be mailed from Berlin to Seattle, 7000 miles, at less expense to the sender, than our great free country asks for sending the same package from Philadelphia to Chester, twelve miles below the Quaker city, on the Delaware River.

—A St. Louis man is advertising to teach the noble art of sign painting and show-card writing, combined, for one dollar. We invested a dollar for his system and got a real pretty little book, which we have added to our collection of curios.

—If you are a sign maker of any sort, you are missing a whole lot if you are not getting *The Signs of the Times* regularly. The cost is one dollar a year, and address 416 Elm Street, Cincinnati.

Our New Cover Design.

Our new cover design is the work of a Brooklyn fresco and decorative artist, who has been one of our subscribers for several years, Mr. L. Leitner. The design symbolizes knowledge, or education, and painting, and the idea of the artist is a very happy one in this connection. The mission of THE MASTER PAINTER is to disseminate knowledge of the art of industrial painting, among the more than twenty thousand master painters and decorators of our country, and that it is successfully performing its mission the growing subscription list of this magazine abundantly attests. This list has increased fifty per cent in the past two years, and this ratio is advancing.

Mr. Leitner, our designer, was until a very few years ago, master painter for the Plant System of railroads, but, having talent for art, took up a course of study at the Brooklyn Institute and became a successful decorative artist. He has done some very fine frescoing in various cities here in the east, and is always busy. He has surely been the architect of his own fortunes, and has given us an example of which many a bright young man might well take notice, and instead of plodding away at the bottom, get to the top.

Twenty-Fourth Annual Convention.

We have received from Secretary Wall a copy of the program for the twenty-fourth annual convention of the International Association Master House Painters and Decorators of the U. S. A. and Canada, to be held at New Orleans, February 18, 19, 20, 21, 1908. The following is the program's main features:

The position of the master painter of to-day through Association work. Paper by C. E. VanSycle, New Jersey.

Report of committees on grading varnishes.

Physical tests of varnishes, a paper by James Roach, Detroit.

Report of committee on protection in prices of materials.

Up-to-date methods of staining woodwork, a paper by J. C. Norton, of Chicago.

Report of apprenticeship committee.

Report of committee on trade schools.

Practical talk on the combination of pigments.

Report of committee on sponges.

Linseed oil as we find it, a paper by W. J. Edwards, Massachusetts.

What constitutes fixed charges as applied to the painting and decorating business? A paper by F. H. McCausland, Toronto.

Report of committee on paint legislation.

The necessity of liability insurance, a paper by John Dewar.

Is the present method of voting in our association on strike questions or other important matters fair or the best that can be obtained? A paper by Mack Wellman, Shreveport, La.

In announcing this, the twenty-fourth convention of this association, the editor expresses the wish that all who can will attend it and partake of its benefits, which are many. We assisted at the birth of this now great organization, some twenty-three years ago, and have watched its subsequent progress with interest and good wishes. In spite of obstacles, moss backs, cranks, talking machines and other like cattle, the association has grown to a vigorous young manhood, and let us hope it may live to a serene and still more useful old age. It has done a great amount of good for the trade it stands for, and should have the support of every boss painter in the countries it represents.

A German Painter on White Lead.

The New Jersey Zinc Company, who offered prizes to the amount of $500 for the best article on the subject of zinc vs. white lead, a year ago, have sent us for publication one of the papers offered in the competition, and though this one failed to secure the award, yet it was deemed of sufficient value to warrant its acceptance, and particularly so as it expressed the views of a German master painter, Mr. Hugo Hillig, of Hamburg, Germany. Reading this paper we are amazed at the learning and chemical knowledge displayed by this German painter. We doubt if the paint chemist himself could do better. Perhaps the German painters are better students than our own painters, patronizing their trade journals better. We ask for this paper a careful reading by expert and layman alike.

A New School Started.

Attention is called to the advertisement of Adolph Kubisch, which first appeared in our August number. Mr. Kubisch is a first-class fresco artist and interior decorator, of Freeport, L. I., N. Y. The scarcity of good decorative artists doubtless lead Mr. Kubisch to open his school for teaching the art. He writes very interestingly of his school, and in a recent letter asks us to say to our readers who may contemplate taking the course, that a man should be certain of his abilities before he undertakes to learn fresco work, for talent is born, not made. He believes this statement will be of service to the one thinking of taking up this work, and save the teacher a lot of trouble. This is frank and right. But there are many young men who have some talent for art work who can take up fresco work and make good, we have no doubt.

While Mr. Kubisch aims to have the student attend his school in person, yet he will teach the course by mail, and this for the benefit of those who find they cannot well go to Freeport to school. We have received the program for the winter

semester course, giving the daily and hourly work in detail. This consists of

A Drawing, preparing pounces, laying on flat ornaments in color.

B Same advancing copying plaster casts in color, shading

C Same advancing Ornaments, various kinds, flowers, fruit, and Cupids when desired. Designing and sketching of ceilings, walls, figural signs, and marbleing and graining when desired.

D Drawing and shading in black and white. Copying plaster casts.

E Same advancing.

F Same advancing Designing, sketching, choice.

Each day, including Saturday, one or more of these courses is taken up and studied. While the student will probably make better progress under the personal direction of the teacher, yet the art can be successfully acquired by the correspondence method, and will meet the requirements of many who otherwise could not hope to obtain the object. If at all interested, write to Mr. Kubisch for his leaflet and terms.

Mr. Kubisch tells more about his school in the following extracts from a letter to us: "Having worked for a time in several towns I have observed that in most of the minor places fresco work cannot be obtained unless a fresco be brought from some distant city. Several times I have been asked by young men to give instructions in my art, the knowing that there are many aspiring to become decorative artists I have decided to give such an opportunity to them. I shall give six hours instruction daily. The [illegible]

Renovating Wall Papered Walls.

Painters may add considerable to their income by working up a trade in the cleaning of soiled wall papers and tinted or kalsomined walls. It often happens that the paper gets soiled from smoke of stove or lamp, and as this may easily be removed by Jewell Wall Paper Cleaner, costing little but very effective, there is big money in it for the painter. The charges for such work will depend upon circumstances, but in any case, whether by the hour or piece, the charge can be made at a figure that will please the customer and satisfy the worker. It requires very little argument to convince a housekeeper that it will be better to pay two or three dollars for cleaning off and restoring the paper to its original freshness—for it will do that—than to get new paper on. Try it this fall.

Advance in Prices.

The paint, etc., makers and dealers have been obliged to make a slight advance in the price of their goods, and the new catalogues will show the changes, which, however, are not as a rule very material. In some cases, like that of the house of Eugene E. Nice, of Philadelphia, for instance, there has been made a change in discounts that reduces the raise considerably. We find upon the whole that while some increase in selling prices must be made, yet no more than barely enough to cover the increase of cost of manufacture has been made, hence the advances are not of so serious a character as to greatly advance the cost of doing ordinary work.

Interesting Figures for Paint Buyers.

The paint makers of the United States have a "promotion and development" bureau, and are beginning a campaign of education among the some sixty thousand paint dealers of the country, sending out literature that cannot fail to stir up the dealers to renewed activity in passing out paint to the people. In 1906, the consumption of ready-mixed paint amounted to over eighty million gallons. Think of it! From the tone of some of the literature that we have been sent, we assume that the paint dealer has not been alive to the possibilities of prepared paint as a money maker, that they have been slumbering over the canned goods. This sounds strange; they are nice clean and handy goods to handle, the profit is fair, and are used in every community. The shelves are filled with them, for the tireless drummer sees to it that his goods are there, but if the dealer has not been pushing them, it is strange.

Another matter that the association has taken up is the increased cost of materials entering into the making of ready-mixed paints, saying nothing of the great increase of cost in labor and machinery, and the figures they give are interesting and instructive. They issue a chart showing these things, but here are the facts without the chunks of black rule that the association show in their card. Taking the costs of certain materials and things in 1897 as a basis, they show the following advances which affect cost of production:

Tin cans, 33 per cent. increase.
Silica, 34.7 per cent. increase.
Zinc oxide, 40.5 per cent. increase.
Japan drier, 42 per cent. increase .
Barium sulphate, 44.2 per cent. increase.
Linseed oil, 45.4 per cent. increase.
Dry white lead, 61.8 per cent. increase.
Packing boxes, 64.2 per cent. increase.
Turpentine, 155 per cent. increase.

All other crude materials, packages. labor, insurance and taxes have advanced during the same period from 10 to 200 per cent.

Water Paints and Their Advantages.

There has, during recent years, been a very large increase in the use of water paints for interior decoration, and we have already referred to their use for preventing blisters in ordinary oil paints. They have, however, two uses in addition. First, for interior decorations, generally including ceilings; and a second, as a foundation for oil paint work where a good job is required as a minimum of expense. Water paints are now on the market in various forms, the two principal being in a thick paste form and a dry powder. The method of mixing varies somewhat in each brand, and as instructions always accompany each package it is not necessary to enlarge on that subject here.

Water paints, to which we now refer, have all the appearance of the best distempers, but contain in their composition a substance which binds the particles together, and gives a solid surface, which, after a few weeks of its being applied, may be safely washed down or painted upon; indeed, it is not at all necessary to wait so long when ordinary oil paint is to be applied.

They are made in a very large variety of colors, ranging from pure white through a number of greens, browns, reds, terra cottas, blues, etc., to black. When used for interior decoration they give a mural surface of an exceedingly refined appearance, and one very durable, considering the cost. People who have used wall papers all their lives are inclined to believe that a surface perfectly plain cannot produce an agreeable appearance, but this is quite a mistake. It is true that in a very large apartment when a very light color is employed, there is a certain cheerless appearance; but the richest red or greens in water paints may be employed without bad effects. A library is often papered with a crimson hanging, which is very costly, when as good and better results may be obtained by using the same color in washable distemper. The objection to these paints has probably arisen, to some extent, from the large number of buildings, such as mission halls, temporary churches, lecture rooms and school rooms, which have been painted with distemper of a light, cheerless, ultramarine blue. Some painters seem to imagine that if they mix whitewash just as though it were for a ceiling, and add a little extra ultramarine, they will have a wash quite good enough for the walls. The only variation one finds in certain country districts is that buff may be substituted for blue. As already stated, one can obtain such a large variety of colors that not the slightest difficulty may be entertained in producing at once an artistic appearance and a thoroughly sanitary surface. If ornament is desired, it can readily be obtained by stenciling with another color in distemper or frieze, a border, or even an ornament over the whole surface of the wall. A little care in the selection of a design will make a vast difference in the appearance of a room. Above all, avoid those hideous stencils which are intended to represent an impossible vase containing a quantity of equally impossible flowers. It need hardly be said that when desired a dado may be painted in with water colors in different color from the wall. The dado may be varnished, if desired, immediately upon distemper.

WATER PAINT AS AN UNDERCOAT FOR OIL PAINT.

Because painters have been in the habit for some years, perhaps all their lives, of using a certain material in a certain way to produce a certain result, they are apt to imagine that no improvement can possibly be made. This feeling, however, is by no means confined to the painting trade; we all become wedded, to a certain extent, to methods we have employed for many years, and it is difficult to readily appreciate improvements. When, therefore, we say water paints permit of a good job of painting being finished at one-half the cost of using white lead or ordinary oil paint, we are simply stating a fact that is well known to many painters and property owners; and one which is slowlv but surelv becoming instilled into the minds of painters generally. Water paints can be used on good work which it is desired to finish with oil paint without fear of blistering, and with the same appearance as if oil paint had been used all through. Moreover, it possesses the advantage that the work can be done

quickly. The exact manner of using the water paint we cannot give here, as we have stated it will depend upon the particular brand; but the method would always be explained on the package. The paint is mixed to the right consistency, and applied with a brush in the ordinary manner; when dry, a second coat is given, and then zinc or white lead paint, or, if desired, three coats of water paint may be used, and a final coat of varnish. This produces an excellent result at a moderate outlay.

As the distemper is made in black, the last named method can be used with advantage when it is desired to produce a cheap job of imitation ebony work. We have seen a shop front finished in this way with very excellent results, at probably one-sixth cost if the work has been done by the ordinary method. The work was carefully rubbed down, and a coat of black water paint given it. This dried by the afternoon of the same day, when a second coat was given. Light sandpapering was done between the coats, and on the following morning the third coat was given. By the afternoon the work was deemed sufficiently dry to permit of varnishing, and a coat of good varnish was given it, and the job really looked very well, and certainly it was cheap. In this case it was necessary to varnish the work very rapidly, because the shop was about to be opened; ordinarily we should prefer a day to elapse between the final coat of water paint and the varnish. The saving effected by the use of water paints, as compared with white lead, may be taken approximately as one-fourth where the finish is in oil, to one-third where the distemper is used all through.—*The Australian Decorator and Painter.*

—Painters are sometimes at a loss as to the meaning of oil of turpentine and spirits of turpentine. The two are identical. In America we call it turpentine, or spirits of turpentine, while in Europe it is known as oil of turpentine. Turpentine is correctly the name only of the gum before distillation, by which we get the spirits or oil. Venice turpentine is the soft gum of the larch tree, or more usually is obtained from the tree that yields Canada balsam.

The Art and Science of Coloring.

BY WILLIAM FOURNISS.

(*Continued from August.*)

There are several methods in the practical application of color which result in producing that "quality" a good colorist always aims at. An agreeable bloom may be obtained in flatting by working warm over cool color, even if both be of the same hue; or bright and pure over neutral tones of color. Good effects may be got by working transparent over solid color. In this case, if a light color be aimed at, the ground needs to be brought up light, and the glazing color be used thinly; for the transparent colors are injured by mixing white with them. A rich "quality" of color can always be obtained by glazing.

This method consists in going over a solid color with a very thin coat of transparent color. Richer colors can be got by glazing than by any other means, because of the absence of body in the pigments. For glazing purposes, the lakes, siennas, Vandyke brown, indigos, Prussian blue, are available. Both black and white spoil the brightness and intensity of these colors, weakening their tone. Fine effects may also be obtained by scumbling, that is by rubbing out, opaque color over a dry ground, so as to get texture and effect.

It is necessary that every students who wishes to regard his trade as a skilled industry should understand that good coloring depends not only upon the selection and combination of the color itself, but also on the method of application adopted. The ultimate finish, therefore, to a coat of paint is as important a matter in a scheme of color as the tints and shades used.

Texture will alter tone. Contrasts of surface texture also afford an excellent means of getting refined variety of color. Even if the same hue is used, a varying surface will render different tones of color. A smooth surface may be contrasted with a sanded one. Varnished work with flatting. An egg shell gloss with enamel. Raised work of all description with polished work. Even paint will contrast with distemper, by the different "quality" of each.

Terms need to be understood, such as complementary color, neutralization, pulsating color, gradation of tone, various depths of hue, the passing from transparency to opacity, interchange, harmony. All these form means of arriving at a good color scheme. Some of these terms explain themselves, so it is only necessary to explain those which are a little obscure.

This means the carrying of portions of each color across the boundary line of the one into the other, thus doing away with a hard-and-fast separation. Thus, if gradations of tones of violet with tones of greenish yellow be used side by side, portions of each would be planted upon the field of the other.

This consists in placing colors side by side instead of mixing them. If yellow and blue are placed side by side, a better green is the result than if they were mixed together. If red and blue are so placed at a distance a finer purple is obtained than a mixture of the two colors produces.

This is the key which unlocks the storehouse containing every scheme of color. The evidence of its satisfying effects may be seen in all nature, in pictures, and the best art work. It is, therefore, very necessary that it should be clearly understood by all who use colors. The scientist tells us that all the shades and tints are produced by the decomposition of light—that color only appears when white light is split up, when a portion is absorbed by the object. The rays which return to the eye determine what color the object will be. Black and white contain all the colors. Neutralization means the inclination of a color towards the extinction of its hue. All the shades approaching black, and all the tints approaching white, are to be found in those two. Neutralization of a hue may be obtained by mixing a color with its complementary. A complementary color to any hue is that one which, if mixed with it in certain proportions, would produce its entire extinction. White acts in the same way to colors mixed with it. White also neutralizes.

COLOR HARMONY.

Harmony of color may be described as a relationship existing between colors. This affinity may occur either in tone, shade, or hue. For instance, if green is associated with red, it needs red in its composition in order to harmonize with the red. It has then a touch of the same nature in it. A yellow-green for the same reason harmonizes with yellow. Harmonic relationship exists also between colors which lie together within a few degrees on the chromatic circle if combined with their complementary.

A complementary pair, which are always harmonious, generally consists of one primary and two secondaries. Harmony may consist of two colors of the same hue, but differing in luminosity.

There is harmony of scale, which may be obtained by using different hues from a single scale; for instance, a scale ranging from cool green to warm amber (a scale is a gradation of tones or hues) of a defined extent.

There is harmony of tone. This may be realized by using contrasting tones of nearly the same "value" belonging to approximating scales. The "value" of a color means its power of strength.

For example: Red pulsating from yellow-red to purple-red associated with blue passing through grey to brown.

Colors may be used selected by the law of contrast, one hue predominating, colors between orange and purple with red as the predominant color.

Colors may be taken from scales far asunder, from a scale ranging from red to purple, together with hues ranging from green or orange.

A dominant hue may be adopted, using all the colors into which the dominant hue enters. For instance, drab, pale olive green, and delicate shades of lilac. Red may be used with these colors as a dominant hue.

SUGGESTIONS.

Salmon looks well on brown.
Brown on grey or green.
Green on stone color.
Warm tones of violet on pale green.
Warm tones of violet on pale rose color.
Chocolate on bright blue.
Deep red on grey.
Claret on buff.

Help Yourself at our expense

3 Cans FREE

Tear or cut out the coupon in the lower right hand corner of this advertisement, fill it out and mail to us, and we will send you FREE prepaid two samples of Johnson's Wood Dye, any desired shades, and one sample of Johnson's Electric Solvo. We will also include a copy of our 48-page book, "*The Proper Treatment for Floors, Woodwork and Furniture.*" It shows in true colors on wood the different shades of our Wood Dye and tells exactly how to apply any kind of a finish on new or old, hard or soft wood, how to remove old paint, varnish, shellac or any finish almost instantly from wood, metal or glass with Johnson's Electric Solvo. In short, it contains a fund of valuable information for ambitious painters and wood-finishers. Don't fail to send coupon today properly filled out.

Johnson's Wood Finishes

"*The World's Standard.*"

Johnson's Wood Dye, for the artistic coloring of all wood, is a preparation of unusual merit. It is a **dye pure and simple.** Don't confuse it with the many varnish stains which simply coats over the wood without dyeing the grain. Johnson's Dye does not raise the grain of the wood, but actually sinks in and colors it so that if this dye finish becomes marred or scratched, the natural color of the wood cannot be seen. **It comes in all shades:**

No. 131, Brown Weathered Oak; No. 172, Flemish Oak; No. 140, Manilla Oak; No. 126, Light Oak; No. 110, Bog Oak; No. 123, Dark Oak; No. 121, Moss Green; No. 125, Mission Oak; No. 178, Brown Flemish Oak; No. 130, Weathered Oak; No. 128, Light Mahogany; No. 129, Dark Mahogany.

Gallon cans, $3.00; quart cans, 85 cents; pint cans, 50 cents; half pints, 30 cents.

Johnson's Electric Solvo instantly softens all old finish on wood, metal and glass so it may be easily removed with putty knife. **It has no objectionable odor—does not raise the grain of wood, will not injure the hands and does not harm or change the color of the most delicate wood, or have any injurious effect on metal and glass.** Fine for removing putty from windows and cleaning paint brushes. Gallon cans, $2.50; quart cans, 75c; pint cans, 40c.

Try At Our Expense

We want to give you an opportunity to prove for yourself at our expense, the truth of our claim about our wood-finishes. It is worth a great deal of money to you to know just which of the many is really the best. You can find out, free, simply by sending coupon. **Please be sure to give your paint dealer's name.** Send coupon today—don't forget.

S. C. JOHNSON & SON, Racine, Wis.

"*The Wood-Finishing Authorities.*"

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Gentlemen:—My paint dealer's name is .....

His address is .....

for which please send me FREE, prepaid, two (2) cans of Johnson's Wood Dye.....

..... shades, and one (1) can of Johnson's Electric Solvo, and copy of your new 48-page color book, all FREE as per your offer.

My name is.....

My address is .....

COMPLEMENTARY COLORS.

A complementary color is that one which, if mixed, with the one it is complementary to, will make it a black, or, in other words, neutralize it. For instance, if purple is mixed with yellow (with which it is complementary) it will give a shadow tone to the yellow, more or less, according to the amount of purple mixed with it. So it thus produces neutralization.

It is nearly always necessary, when dealing with colors in their native intensity, that they should have their assertiveness checked. This is best done by mixing a small portion of their complementary (which ever it may be) with them. In doing this the colors will harmonize the more. The commonplace method of mixing black or umber for this purpose, although succeeding in taking down the glare of the color, yet injures it, making it dirty. If the complementary is used, it gives the necessary neutralization without destroying the beauty of the color.

THE USE OF COMPLEMENTARY COLOR.

The association of colors, complementary to each other, in a color scheme, will cause the colors to mutually improve, strengthen, and purify each other. The primaries may be used in their full intensity if the spaces they cover are arranged in such a proportion that if mixed together they would mutually neutralize each other.

OPTICAL SCIENCE.

A very great deal of theory has been produced and many splendid works published upon the theory of optics and light, the study of which is fascinating. An intelligent idea should exist in the mind of the colorist respecting optical laws; but doctors differ, and the student may be lost as to how he may practically apply the sometimes conflicting explanation of the primary colors found by the prism and the laws of light. A painter, however, does not paint with rays of light, but with pigments. For practical purposes, the three-color theory of Brewster is enough. The student may take it as a demonstrable fact that red, blue, and yellow, in varying proportions, are capable of producing all the other colors by proportional mixture.

Brewster states that yellow, red, and blue are the three primaries; three of yellow, five of red, and eight of blue producing black; the mixture of yellow and red producing orange; of yellow and blue, green; and red and blue, purple; thus forming a secondary grade of color. Citron, passing through russet to olive, forming the tertiary colors. The numerous tones of color, as they approach darkness or light are named shades. Those produced by adding white are named tints. The practical value of this theory has been demonstrated by the success obtained by three-color printing, which, by superimposing these three colors, yellow, red, and blue, in gradation one over the other, produces all the infinite variety of a perfect picture.

This consists of a circle upon which is placed all the lines in the position that they stand in relationship to each other. On the circle the whole range of complementary pairs face each other, lines drawn across the circle pointing out the exact relationship to each of all. Upon these lines the tertiaries may be placed. Red is complementary to green, purple to yellow, orange to blue, and so on. At a glance the colors can be seen and chosen which, when laid side by side or mixed together, are in harmony. It is laid down as a law that no colors should be adopted from the circle less than 80 degrees apart from each other.

(To be continued.)

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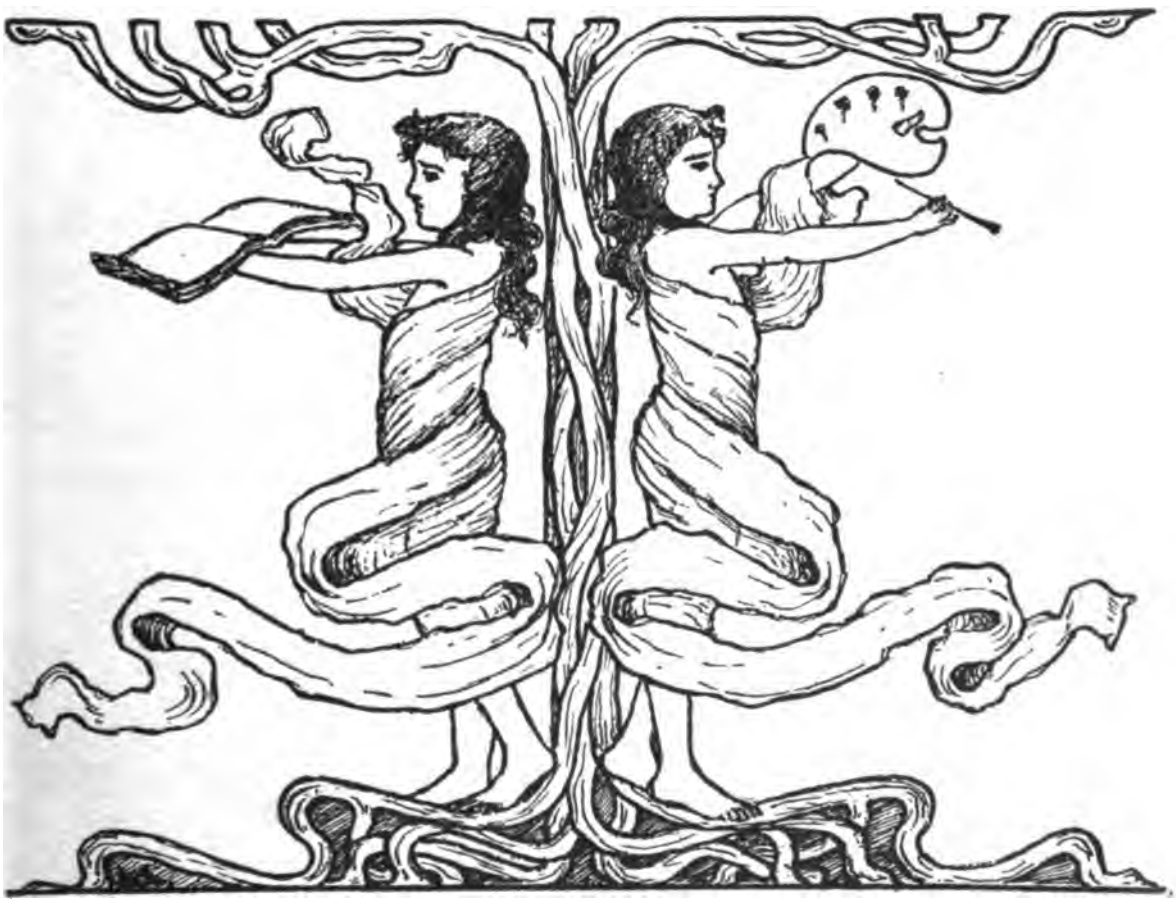
THE MASTER PAINTER



AN ILLUSTRATED MONTHLY MAGAZINE FOR PAINTERS and DECORATORS
PUBLISHED AT MALVERN, (NEAR PHILADELPHIA), PENNA.
BY A. ASHMUN KELLY, PUBLISHER.
SUBSCRIPTION PRICE, ONE DOLLAR A YEAR, IN ADVANCE

Mr. Painter and Decorator

THERE are personal and business reasons why you should become interested in MARVELO WALL PAINT A few of these are as follows:

1—IT IS ABSOLUTELY NON-POISONOUS, and gives a sanitary "DEAD FLAT" even finish, with soft, rich, water-color effects, with more washable qualities than other "flat" oil paints. IT REQUIRES NO STIPPLING.

2—It does away with many drawbacks where White Lead is used for a flat paint.

3—It makes the best ground work for enamel on any surface.

4—It is more dense or opaque, covers better than other oil paint over dark surfaces, thereby considerably further reducing the cost.

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With our guarantee that it will last longer, give better results at a saving of at least 25 to 30 per cent., we solicit your inquiries and orders.

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New Brighton, Staten Island, N. Y.

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THE MASTER PAINTER

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The Sunbeam's Message to Painters.

By A. Ashmun Kelly.

(Conclusion.)

THE HARMONIES OF ANALOGIES.

What we term good taste in the choice of colors for personal adornment or decoration demands the quieter or less glaring colors. This choice is characteristic of the civilized and refined races. The uncivilized and more or less unrefined peoples always choose glaring colors. Note this in the case of the negro and people of like character. But by this I do not mean that the brighter colors are not in use nor to be used by the refined peoples. On the contrary, they will be found using them and enjoying them, but always in moderation and in tasteful and skilful combination with others of less prominence.

Now, in combining colors for effect, we must take into consideration the purpose to be gained. We may get striking contrasts, or mild contrasts, or we may decide against all contrasts, and secure a concord with similar or analogous colors. This brings us to *harmonies of analogy,* which may be produced in the following way:

First, by arranging the different tones of a single scale in a series, beginning with white and ending with brown-black, leaving as nearly as possible equal intervals between them. This will give a pleasing result. And the greater the number of tones, the finer the results.

Second, we may associate together the hues of adjacent scales, all of the same tone, and thus often get an agreeable analogy. But sometimes colors of near scales mutually injure each other, as blue and violet; the complementary of blue, which is orange, being thrown upon violet gives it a faded and blackened appearance; while the complementary of violet, which is yellow, falling upon blue turns it to green. Sometimes when one color is injured we may sacrifice it to give prominence or relief to another.

Third, grouping of colors may be viewed through a colored medium, as where the light from a stained glass window falls upon a carpet, the effect of which is very pleasing.

COLORS MODIFIED BY CERTAIN CONDITIONS.

If you will look at a red or other colored curtain, hanging in folds, you will note that the parts upon which the light falls most are lighter and brighter than those parts that are away from the light more or less. Whether a surface is glossy or lusterless has much to do with modifying the color on an object. A glossy surface affects colors less than where the surface is dead or matt. Again, if the object be of a very attractive form, its colors, though out of harmony and ill chosen, are not so likely to appear displeasing to the eye, for we will naturally give less attention to the color than to the beautiful object. A bunch of flowers may present very bad arrangement of colors, but this may readily pass unnoticed on account of the attractiveness of the group or form. A writer cites the case of the sweet pea, with its alliance of violet and red, which colors mutually injure each other, but the green leaves set off the red and so make up for the otherwise bad arrangement of colors. So that in the matter of decoration or dress we may remember this fact and employ colors together, or alone, under these conditions, that otherwise we could not.

ASSOCIATING WHITE AND COLORS TOGETHER.

You have of course observed that in the presence of white any color will appear brighter and deeper; this is because the

brilliancy of the white renders the eye insensible to the white light that weakens the color; but at the same time the white is modified by the complementary of the color falling upon it. With the exception perhaps of yellow, all colors are in sharp contrast with white. Even in the case of the yellow, the exceptions will be with the light tones of that bright color, and not with the deeper tones. Hence white is useful to the decorator for interposing between two colors which injure each other when in contact.

All the prismatic colors gain by grouping them with white, but not in an equal degree, for the height of tone of the color makes a decided difference in the result. The deep tones of blue, red, green, and violet contrast too strongly with white, while the light tones of the same colors form with it the finest contrasts that we can secure. Orange, the most brilliant of the colors, is almost too intense with white, while the deeper tones of yellow appear well with it.

THE ASSOCIATION OF COLORS WITH BLACK AND GRAY.

Black associates well with almost any color, the light tones of which black makes appear lighter, and as black is already dark, it cannot be affected by any darkness cast upon it by complementaries, at least the influence of such would be exceedingly feeble. With the deep tones of the scales it forms harmonies of analogy, although their luminous complementaries, especially those of blue and violet when falling upon black, deprive it of its vigor, and tend to make it look faded. Where black would give too strong a contrast, use gray, which is intermediate between white and black. Where black would give too somber a combination when used between two colors, such as between orange and violet, green and blue, and green and violet.

SOME PRACTICAL SUGGESTIONS.

Where a proper understanding of the principles of color is had a person will be guided in managing matters of dress, interior furnishing and decorating, and so on. It is therefore a very practical science, and not merely a matter of taste or theory. Guided by it a woman will appear arrayed in harmonious dress and colors; a man may wear a somewhat faded black coat with white trousers and appear well; where if he were to wear the same coat with new black trousers, the coat would appear very shabby. So dark clothing has the effect of making a person appear smaller, while white or light colored clothes have the opposite effect. Large figures and horizontal stripes in a woman's dress will cause her to appear broader and shorter than she really is. Narrow vertical stripes on the dress have the opposite effect. Likewise the complexion is affected by the proximity of colors in divers ways. Thus a pale face is benefitted by a green bonnet, which would injure a brunette complexion. Yellow will suit the brunette best. A blonde is helped by blue, a color that injures the face of the brunette. Rose-red injures a fresh face, by throwing upon it green. Orange will make a light complexion blue, yellow ones green, and will whiten that of the brunette. Lusterless white has a good effect upon light complexions, and a bad effect upon dark ones. Black near the face makes it appear whiter.

In making up a bouquet of flowers complementary colors should be grouped together. Pink should not be placed with scarlet, or crimson; orange with orange-yellow, and so on. If these must be used, then place white flowers between to separate them.

In wall paper we should choose light ones for rooms deficient in natural light, and where the natural light is very abundant dull brownish colors go well, especially in bedrooms. Orange and orange-yellow are trying to the eyes. Oil paintings look best in gilt frames, while steel engravings appear to best advantage in dull colored frames. Still, gilt frames will answer for engravings, as well as for lithographs, if the bordering of white is placed between frame and picture.

These are a few outlines only, for it is best to allow the student to master the principles of color and apply them himself to the different problems that await him in the broad field of decoration and ornamentation.

—Eugene E. Nice, Philadelphia, has issued notice of reduction in price of white lead of ½c. to ¾c. per lb.

Zinc Oxide vs. White Lead.

A PAPER SUBMITTED IN COMPETITION, TO THE NEW JERSEY ZINC CO.

By Hugo Hillig, Hamburg, Germany.

All pigments that take a high percentage of oil are superior to those taking a lower percentage. Thus in this point zinc excels white lead, as it unites with it more of the essential element of a good paint, that is the oil.

The following figures, based on quotations from the Hamburg market in December, 1906, will show how the above mentioned properties influence the price of lead and zinc paints. As before mentioned, zinc takes up seventy-five per cent. of its weight in oil in ready-mixed paints, while white lead takes up twenty-five per cent.

One hundred kilograms of zinc require seventy-six kiligrams of oil to make 176 kilograms of paint.

One hundred kgr. white lead require twenty-five kgr. of oil to make 125 kgr. of paint.

Zinc costs fifty-four to fifty-five marks per 100 kgr.

White lead costs fifty to fifty-two M. per 100 kgr.

Linseed oil costs forty-two to forty-three M. per 100 kgr.

By taking the lowest prices, 176 kgr. of zinc would cost 82.99 M. and 125 kgr. of white lead would cost 60.50 M. Per kgr., zinc would cost 43.13 pfennig and white lead 48.50 pfennig, which shows that the zinc is cheaper than the white lead; but there is still another point in favor of the zinc.

One hundred and seventy-six kgr. of zinc will cover 895 square meters of pine wood, while 125 kgr. of white lead will cover 300 square meters of pine wood, or, in other words, 100 square meters of surface require 19.66 kgr. of zinc paint at a cost of 16.83 M., or 16.89 pfennig per square meter. One hundred square meters of surface require 43.50 kgr. of white lead at a cost of 21.92 M., or 21.92 pfennig per square meter. These figures show that upon a surface as unsatisfactory as porous pine wood and without primary coating, zinc is a much cheaper coating than white lead.

But the following method of calculation shows a still wider difference between the cost of the two paints. The harder and smoother, that is the less porous and rough, a surface is the less paint it will absorb. On a smooth finished brick wall 100 kgr. of zinc will cover 1011 square meters, a thin coat, while 100 kgr. of lead cover 645 square meters, that is 4.2 pfennig per square meter for the zinc and 7.5 pfennig for the white lead. The harder and smoother the surface to be covered, the greater the spreading of the pigment, and hence the greater difference in cost will be shown in favor of the zinc. Thus zinc paint is essentially cheaper than white lead paint, although the zinc pigment itself is expensive. One point,, however, must not be lost sight of, that zinc is of much lighter specific gravity than white lead. The latter, therefore, occupies much less space in powdered form.

Now comes the question how zinc and lead compare with each other from a technical and practical standpoint. White lead has, on account of its molecular condition, a greater hiding power in oil. Higher hiding power in a physical way means a higher refraction of its particles and molecules. Compare the following standards:

Air	1.00	refraction indices.
Water	1.33	
Oil	1.48	
Glass	1.53	
Chalk	1.57	
Barytes	1.64	
Zinc	1.90	
White lead	2.00	

According to the physical law the hiding power of a pigment in a vehicle varies directly with the difference in the refractive index between good vehicle and the pigment. This law holds good in the case of zinc in oil and lead in oil. There is a difference of fifty-two units between the refractive indices of lead and oil and only forty-two in the refractive indices of zinc and oil. This law is of no value, however, in the case of water being used as the vehicle, for the water evaporates from the final coating and therefore has no part in the refraction of the final coat. In the case of water colors zinc is quite as good as lead as regards its hiding capacity.

If, then, it were possible to find an oil

medium with a lower refractive index than linseed oil, it could be used to increase the hiding power of the zinc. Poppy oil, nut oil, cotton seed oil, for instance, would not diminish the refraction in the final coat. For inside work we have the well-known remedy of adding turpentine as a thinner to the zinc ground in oil, or, better still, of adding oil to the thick pulp of zinc ground in turpentine. A zinc prepared in this way covers as well as white lead, and as a primer for enamels is absolutely unsurpassed, and necessarily so, for it follows the fundamental scientific principles for the production of a good coat of paint. A good inside coating must be applied with plenty of turpentine and with only enough oil to serve as a binder. In this way an ideal priming coat is obtained for inside and also for outside use without injuring the durability of the finishing coat in which other proportions are used.

Another way to increase the hiding power of zinc is to apply the paint in a heavier coating than would normally be used with white lead. This would counterbalance the lower refraction of the zinc and give it a hiding power equal to that of white lead.

The application of such heavy coats of oil paint has certain technical disadvantages. In the case, for instance, where several coats are to be applied in the shortest possible time, it must not be overlooked that zinc alone is a slow drier. But the drying action may, of course, be hastened by the addition of a drier to the paint. It is also possible to make the paint thin by the addition of turpentine, which volatilizes after application. The high gloss is only required in the finished coat and may be obtained for inside work by the use of the enamels, or for outside work by the use of linseed oil to which no drier has been added, or by the use of the so-called Dutch stand oil, which is thickend oil, or by the addition of paraffine. This will give the finishing coat of gloss and make it highly water- and weather-proof without lowering the refractive power of the zinc. Rosin has of late years been used to a considerable extent in enamels, and its use is increasing in Germany, England and Holland. The pigment in these enamels is nothing but zinc. These enamels can also be used to advantage as primer; better, in fact, than a mixture of zinc and oil alone. They contain plenty of turpentine which volatilizes and rosin or rosin compounds, which in the enamels sometimes take the place of gum and copal, are left behind in such condition that they do not lower the refraction of the zinc. These enamels dry and harden very quickly, due to the action of the turpentine which oxidizes the rosin to a hard condition. Quick drying enamels are also prepared with alcohol and other solvents in place of turpentine. These enamels with zinc as a pigment consequently need no drier, although the first coats if not thinned with turpentine may contain a little drier. As a drier for zinc, rosin compounds with manganese or a solution of sulphate of zinc in linseed oil may be used. Of course, any compound of lead is excluded. The drier acts with zinc as with any other paints, to accelerate the oxidation of the oil. The action of turpentine, when the pure American product is used, is such that it acts quickly enough alone without the addition of any other substance. The addition of too much drier in the case of a zinc paint can produce disastrous effects, even if they are not as marked as with white lead. It is liable to cause the paint film to crack, as it makes the coating brittle and gives the zinc a better chance to absorb carbonic acid and thus increase its volume, with the resulting cracking of the coat. For this reason, drier should not be used in the last coat, as it may not only spoil the durability but cause it to turn yellow or gray.

This action is especially noticeable with white lead, even when no extra drier is added. It is the result of too quick oxidation which turns the oil yellow. The action is, in fact, analogous to that which takes place when a coat of white paint in oil is applied to a surface exposed to a strong heat, where it becomes brown or burnt. The discoloration of the paint coat is really a burning, as burning itself is only quick oxidation. In every case the oil is decomposed to carbon, which is the cause of the discoloration.

As white lead accelerates the oxidation of the oil, it is almost impracticable to use it on inside work, as all colors sensitive to yellow are soon discolored. Inside coats

of white lead paint will in time look burnt. With zinc, however, this is impossible both inside and outside. The reason that this discoloration in the case of white lead is more noticeable inside than outside is due to the fact that sunlight has a bleaching power.

Of course, a zinc paint will also turn a trifle in time, which is not surprising when it is remembered the large quantity of oil which the zinc takes up, for it is the yellowing of the oil which produces the darkening effect. But where oil is used sparingly and replaced by turpentine, which is itself a bleaching agent, a coat of zinc never turns yellow when the ravages of time are not taken into account, but the ravages of time are less with zinc than with white lead.

For outside coatings, as befor stated, stand oil (thickened linseed oil) may be added, but this only sparingly, about one-fourth to one-sixth of the volume, or one-fifteenth by volume of paraffine. The stand oil should be mixed well with the paint. The mixture is, however, difficult to apply and one has to know how to avoid stripe and spots. When this paint has been applied for an hour or so, it is well to go over it with a dry brush. This treatment gives a fine glossy appearance which is lasting and its durability is fully equal to that of the best japan.

The addition of paraffine gives a heavy flat appearance. The paraffine must be dissolvd in coal oil or turpentine upon a water bath until it reaches the consistency of dripping lard, and then added. It is best to apply zinc which contains paraffine in warm weather only, otherwise the paint will dry off in spots. Instead of paraffine beeswax, plant wax, carnauba wax, ozokerite and ceresin can be used. Zinc prepared in this way when applied over any fine hard surface gives a perfect water-proof, weather-proof and acid-proof coating.

White lead may also be mixed with stand oil and paraffine, but still zinc is preferable for the following reason: Zinc is unaffected by hydrogen sulphide gas, while white lead is affected. The only action which sulphuretted hydrogen can have on zinc is to form zinc sulphide, which is itself of a white color, and therefore does not injure the appearance of the white coat, and even in tinted coats the action can hardly be noted. It is questionable, however, if the sulphide of zinc is formed at all.

On the other hand, with the white lead, sulphide of lead is readily formed if the smallest trace of sulphide of hydrogen be present. This is a black product. Thus white lead very soon turns a grayish black and in time entirely black under the action of hydrogen sulphide gas. The presence of hydrogen sulphide is by no means rare. It is present in a good many places; for instance, around gas works, and rubber works, sulphate works, laboratories, stables and in the vicinity of rubbish heaps. Another point against the use of white lead, as well as all other lead colors, such as chrome yellow, chrome orange, Naples yellow and red lead, is that, as they are chemically affected by hydrogen sulphide they will change when mixed with colors containing sulphur. White lead ought never to be mixed with sulphur colors, and if a painter does this he must expect that his work will be spoiled. White lead should, therefore, never be incorporated with ultramarine blue, vermilion, cadmium yellow, lithophone and other sulphur containing coloring matters.

Finally, zinc can make an excellent water color. White lead is useless for this purpose.

It has been shown that zinc should in every way be preferred to white lead for the following reasons, which are once more summed up:

Zinc is non-poisonous; white lead is poisonous.

Zinc is cheaper than white lead.

Zinc covers, when rightly treated, as well as lead.

Zinc is more durable than white lead.

Zinc does not react on the oil as white lead does.

Zinc does not, therefore, saponify.

Zinc keeps its elasticity longer than white lead.

Zinc does not turn yellow as white lead does.

Zinc is mixable with all coloring materials, while white lead is not.

Zinc does not change under the action of hydrogen sulphide gas, while white lead turns black.

Graining a Room.

By Arthur English.

The room I am about to describe is a drawing room. It is an oblong room, of ordinary size, without much architectural beauty; not what I would call a room in a mansion—suitable for a well-to-do family. It has a bay window to the front, with paneled linings, and the door opens from the hall. The skirting boards are ten inches high. The room is old and dirty. The door and wood-work generally have, in course of time, become obliterated by constant painting and varnishing; all the work being more or less scorched or cracked by the sun, and contractions of various kinds of paint and varnish. Having introduced you to the room, I will proceed to explain in what manner the work should be carried out. In the first place, you must burn off all the old paint. After this process has been accomplished, get some pieces of pumice stone and a bucket of water, and with a flat brush wet the work over. Then rub it down until the surface becomes very even and smooth. Perhaps the pumice stone gets "clogged" up, but that can be remedied by obtaining a second piece and rubbing the two together, then dipping both pieces into the bucket of water. By this means the pumice stone is kept clean, and also makes a good job of the rubbing down. When all is dry, rub and finish the moldings with glass paper. This done, commence to paint the whole of the woodwork. But, before starting, a hint as regards painting would not be out of place.

The paint that you are about to use should be spread on the surface as evenly as possible, and, to effect this, as soon as the whole, or a convenient uantity, is covered, the brush must be passed over it in a direction contrary to that in which it is finally to be laid off; this is called "crossing." After "crossing" it should be laid off gently and carefully in a direction contrary to the crossing, but with the grain of the wood, taking care that none of the cross brush marks be left seen. The criterion of a good brush hand is that his paint be laid evenly and that no brush marks be seen. In "laying off," the brush should be laid into that portion of the work already done, that the joining may not be seen. Cover all knots with patent knotting. You can now paint the whole of the work white, mixed as follows: Oil and turps (half and half); besides these white lead and dryers are the only things required for the first coating. When dry, it is to be rubbed down with glass paper, which, although in itself simple, requires a great amount of care, so that the rubbing shall be equally effective over the whole of the work. I have seen some men get hold of a piece of glass paper and carelessly rub about in any direction; this means some parts will be passed over oftener than others, and the paint may be nearly rubbed off in one spot, while it is left almost untouched in another. To do this perfectly, you must get a piece of wood or cork about four by three inches and fold a piece of glass paper around it. With this the flat work can be rubbed over equally. Now to rub the molding, etc., you can get a piece of glass paper and put it around the finger, great care being taken that you do not rub the paint off the edges. Have a care to remove all dust caused by the glass paper.

The next operation is that of stopping or filling in—making good all nail holes, bad joints, cracks, etc., with a paste called "hard stopping," to be made as follows: Take some dry white lead, and whiting of equal parts, and temper it with turpentine and japan gold size to a stiff paste, similar to the ordinary putty. The lead and the whiting are now mixed together in equal proportions. This stopping putty has the consistency of the ordinary oil putty, and is ready for use. If the putty is mixed as described it will be dry and hard for glass papering and painting in two and one-half hours. First putty the door, which is generally full of holes, bad joints and hollow places in the panels, caused, perhaps, by blows or knocks. In "facing-up" a blow, or any shallow places, the greatest possible care should be used, for it is clear that a mere skin of stopping on such spots would be almost certain to crack off, leaving them wholly uncovered by paint. Now, the best way to avoid such a result is to deepen the shallow places by pricking in holes with a bradawl,

or anything sharp, and these should not all be one way, but should incline in different directions, and should be more closely placed and more numerous near the edges than in the middle. Now take a broad-edged chisel and put some stopping putty on a small hand board. With the chisel knife take up some of the putty and spread it over the shallow places. It will stick as firmly to the panel as if it were nailed, because of the putty penetrating into the holes made by the brad-awl. Fill all other joints by pressing the putty well home.

Look at the paneled lining at the window and you will find two or three of the panels very badly cracked. This is another operation which requires much care, taste and judgment. In these cases the stopping must be forced as far down into the cracks as possible, and it may be done with the chisel knife, leaving the stopping, however, slightly raised above the surface. This is done to give the putty time to sink. As it dries, putty contracts and sinks below the surface. The cracks become just as great an eyesore as before if you do not raise the stopping putty above the surface of the cracks. The same process would be beneficial to the windows and skirting boards. As we commenced stopping the door first, we must, of course, look to it, for it will now be dry and hard.

Next take the chisel knife and scrape all superfluous stopping off as well as you possibly can. Then take the glass paper and use it in the same manner as before described. This is a very important point, as the stopping must be rubbed until it is level with the surface of the wood. There can be a great quantity of stopping and glass papering done by this method in an incredibly short space of time—no more than the ordinary stopping with a common putty—and a splendid smooth surface is the result of the labor. A little practice is needed before one becomes perfectly capable of using the stopping and glass paper.

Presuming that the woodwork and the room have been dusted and cleaned up (you must be careful to have no dust in the room), we would suggest having the floor mopped, which would take all the dust out of the room. We all know it is more pleasant and comfortable to work in a room where all is made clean, and it also shows better when anybody looks into the room and sees all clean and tidy. If most painters will take the hint, I fancy the trade would lose the name of "dirty painters," etc. Not that only, but we should have less trouble with the persons we are doing the work for. To do this is very little trouble, and takes very little more time than being dirty over the work. It is more pleasant for workmen and the parties for whom they are working.

Let us now proceed with the second coat of paint. We can use the paint that is left from the first coat by adding a little more dryers. See that all cans, pots and brushes are clean, and the paint well strained. If painters do not see to the paint being strained, and the brushes and cans kept clean the trouble spent in glass papering will be of little use. I have seen painters take a lot of trouble over glass papering and rubbing down, and then put the paint on the work without straining. This, for the sake of being put to a little trouble, is one of the most absurd things that can be done in work of this sort.

The work now being hard and dry, it must again be rubbed gently over with the glass paper, care being taken not to scratch it, or rub the paint from the edges of the moldings, etc. For this I use spent glass paper. Spent glass paper is what has been used before, and if it is very clean it will not mark the work. Having gone over all with the spent glass paper, take the duster and dust off all particles of glass paper that have been left on. Bear in mind not to forget the floor; it is also dusty, an important point at this stage of the work. Presuming that all is now ready for the last coat of paint.

From the practical experience I have had, I find the best ground for maple is made of three parts of oil and one of turps, with white lead and a little patent dryers, just "warmed" with a little vermilion. The reason this coat of paint has more oil put in it is to leave all the ground work glossy, for the graining color works better on a glossy surface than a dead ground. Having brought the whole job to the last coat of paint, well

strain the paint through a fine strainer. This process will make a great difference as to the result. Look to your cans and brushes before you start this last coat of paint; for maple graining it is very important that the ground color should be got up with a smooth surface. This will add materially to the success of the maple graining. If it is faulty, that is to say, "ropey," or rough in any way, the graining color will gather round such places and give it a streaky and dirty appearance, such as you have noticed, perhaps, on looking over maple graining done on the top of badly prepared grounds. It is no fault of the grainer, but the painter who prepared the work. Therefore be particular of this very important matter.

Now, before describing the process of maple graining, I think it would not be out of place to give you the opinion of Mr. Holbzapffel on bird's eye maple. His opinion on subjects of this nature is worthy of a little consideration. He states that, on examination, be found the stem of the bird's eye maple, when stripped of its bark, presented little pits or hollows, as if made with a conical punch; others ill-defined and flattened, like the impression of a hodnail. Suspecting these indentations to arise from internal spine or points in the bark, a piece of the latter was stripped from another block, when the surmise was verified. The layers of wood being molded upon these spines, each of the fibres is abruptly curved at the respective places, and when cut through they give, in the tangential slice, the appearance of projections, the same as some rose engine pattern, in which the close approximation of the lines at their curvation causes these parts to be more black (or shaded). They produce upon the surface the appearance of waves and ridges.

Having given Mr. Holbzapffel's opinion of bird's eye maple, I will return to the room that is ready for graining.

(*Conclusion next month.*)

Freight Car Painting.

The subject of freight car painting, although intelligently handled at the recent Master Car Painters' Convention, did not provide a remedy for a special feature of the business for which there has long been a crying need,—that of the prevention of the early obliteration of the stenciling from natural causes.

It is not an unusual sight to see freight cars on which the body color is in a fair state of preservation, with the stenciling so badly perished and dim as to render it almost illegible.

In all instances where the brown mineral color is used as a body color, white lead is almost invariably used for stenciling, and to a practical railroad man it would appear strange, indeed, that the white lead stenciling should perish before that of the color around it, and from those who take only a superficial view of the matter, condemnation of the white lead is but a natural sequence.

In some instances, possibly, the adulterated lead or the adulterated oil in which the lead is ground is in some measure responsible, but mainly, the trouble is due to the fact that in order to make the white lead cover solidly over the darker color, it cannot be reduced with oil or other vehicle to the same consistency as the color which forms the body color of the car, in fact such a small quantity of oil only can be used that the mixture must depend in a large measure upon the durability of the pigment, that is, the lead, for its term of service. If it were possible to thin the lead to the same consistency as the dark color, it is probable that the stenciling would remain after the dark color had disappeared, that is, provided of course that the same number of coats were applied. This, of course, for obvious reasons, is not practicable, but in lieu of this we would suggest the following simple plan for increasing the life of all stenciling on freight cars, especially cars that are painted a dark color, and on which it is desired to have the lettering in strong contrast.

Allot certain spaces of suitable length and width on which to place the lettering, paint these spaces or panels with three coats of white lead and oil, and on these place the stenciling with black composed of lampblack and linseed oil. Lampblack is the most durable pigment known, and when mixed with the same small proportion of linseed oil that is required in white lead for stenciling, will outwear the

latter many times. By this method the extra cost will be very small, while the life of the stenciling will be more than doubled. The plan is perfectly feasible and inexpensive, in fact a few roads in different parts of the country have been pursuing this plan for some time, and we have yet to witness one of these cars with dim lettering.—*Railway Master Mechanic.*

Preservation by Paint.

An important contribution to our knowledge of the comparative value of different preservative compositions for iron has recently been published by L. E. Andes, a well-known writer upon subjects connected with paint. His lengthy tests have brought into prominence several facts which often seem to escape notice.

It appears that a simple coat of linseed oil, raw or boiled, or some varieties of spirit varnish, are useless as preservatives when the metal is to be exposed to the weather, *i. e.*, the sun, rain and damp air; but that granted an oil paint is made up with a trustworthy pigment, it will not matter what particular pigment is selected. But the vehicle, or liquid matter, must be essentially linseed oil. On the contrary, if the metal is to be always under water, especially fresh water, oil paints are valueless—except red lead in boiled oil; and the proper protection is one of those spout varnishes which fail in the air.

An oil paint, which when tested on glass seems to indicate permanency under water, is shown to be devoid of utility when applied to iron. Salt water, such as sea-water, is less injurious to oil paints than fresh water, and a single layer of white lead in oil withstands a three per cent. solution of ammonia salt better than several layers of the same paint stand pure water. The best method of protecting iron, which has to be kept under water constantly, is still being investigated; at present it seems that a priming of red lead in boiled oil, followed by some varnish paint, is the most satisfactory. For exposure to definitely corrosive influences, a spirit varnish composed of some rosin and some celluloid gives the most lasting coat; but the behavior of this material in air has not yet been studied.

Factors In Painting Woodwork.

By Houston Lowe.

When we were young in the paint business, we fancied that if we could produce good material we would have no special troubles with it. However, experience soon dispelled this illusion, and taught us that there are other things than the quality of the paint which effect the results to be obtained from its use. From our standpoint the following factors affect results in painting, viz.: (1) the location of the structure, *e. g.*, seaboard or inland; (2) the kind and condition of the surface; (3) the quality of the paint; (4) the workmanship of the painters; (5) the number of coats applied; (6) the amount of time allowed to elapse between coats; (7) the atmospheric conditions when the painting is done.

LOCATION OF STRUCTURE.

Whether a paint is made to dry by oxidation, by evaporation, or by both, naturally there is a difference in its drying when used in the damp, saline atmosphere of the seashore or in the dry highlands of the interior; when used on the Gulf of Mexico or in the colder States of the North; when used in the pure air of the country or in the vitiated air surrounding structures in many towns and cities. Not only is the drying of paint affected by the location of the structure upon which it is used, but its working properties and durability as well. The viscosity of oil and varnish being affected by temperature, they will work more easily in warm climates than in cold. The durability will always be impaired by alternate exposure to wind and water by exposure to sunshine and rainfall; deleterious gases, vapours, and liquids; dampness, darkness, mechanical injury, &c. The paint for the finishing or top covering of any structure should be made to meet the special conditions of exposure to which it is to be subjected. Competent paintmakers can readily make protective coverings to withstand any reasonable condition of exposure and use; but in order to do so, obviously they must know the conditions, *e. g.*, we were recently called upon to make for a prominent railway system a steel tank coating to be used near the Gulf

(*See page 20.*)

Interior Decoration

Pointers for Paper Hangers.

By Ye Editor.

If you have your doubts about the wall, add a little Venice turpentine to your paste.

If the wall is very hard, add molasses or brown sugar to the paste, to make it more flexible or less liable to dry off.

If the wall is hard do not use alum in your paste, for that would make the paste too hard and liable to come off.

Alum is good in some cases, in moderate quantity, say two ounces to four pounds of flour. Use the clear crystal alum, as it is not so strong as the other sort. Alum will injure papers that have metallics in their printing.

To paper over kalsomined walls, glue size is good, and where the stuff is old and dry it is well to make the size penetrate the material so as to bind it together and to the wall surface. Apply the size hot, especially where the walls are cold, otherwise the size will jell before it penetrates deep enough.

For the rough wall make your paste quite stout; for a hard and smooth wall make it thin.

Thin paper, thin paste; heavy paper, heavy paste, the rule.

For pressed papers a good paste is made as follows: Mix two pounds of flour with warm water to a batter or thick cream, then add an ounce of powdered crystal alum, a little pulverized rosin, and one-half ounce powdered sugar of lead; add boiling water and stir until the paste is cooked.

The painted wall must have its surface cut with sal soda water first, to roughen the surface; put no alum in the paste, but put in some Venice turpentine, and if this is not at hand, use a little syrup or brown sugar instead, or size the wall first with Sisk's patent size.

If you pour in more boiling water than just enough to bring the batter to a very thick condition you will have watery paste. Too much hot water and too much cooking make thin weak paste, one that will not hang on.

Yellow and Blue Effects.

The use and artistic appreciation of yellow is very general though it is by no means a matter of modern origin, but is, rather, the revival of an old fancy. There is no denying the effect of a yellow gable peeping out from a mass of green leafage, with the clear blue sky effect above. Thus we have the perfect symphony of complementary colors, each at its best, and the yellow the most charming of them all.

What can be more charming than the yellow walls of, say a dining room, a corner cupboard showing pretty willowware, the blue pagoda ware, with blue bits here and there setting off the yellow of the surrounding walls? There was Whistler's famous yellow room, with these same blue, not costly, Chinese blue wares for decorative effect, and which were on mantel, table and walls, with small blue pots hanging from the four corners of the ceiling, over the four corners of the table.

Have these yellow walls whenever you can, for the dining room, with the woodwork what it may be, no matter, though oak is preferable and for the north bedroom, walls and woodwork, real yellow, not a toned affair. How warming and cheering the color is, and can we ever tire of it? No.

To complete the harmony, however, we must have blue in the furnishings, but not too much of the color, as a very little answers the purpose. For the ceiling a bluish-gray goes well with the yellow walls. The border or frieze need show but little decided blue. This because yellow must be supreme in the scheme, with blue holding only a subordinate position.

The Tinting of Walls.

Refinement begets taste; taste begets harmonious effects; harmonious effects begets ease; ease begets quietness and rest.

According to the verdict of many interior decorators, it is impossible to cover the walls of a room with a pattern repeat design and then expect to hang pictures and curtains with effect. Of course, if

the matter is well thought out and a proper design chosen to meet the requirements of the pictures, it is not so crude. This, however, means laying out the walls in panels to meet the size, arrangement, and number of pictures, etc., as may be readily understood. For instance, take a room, the walls covered with a large-figured vine pattern, and endeavor to hang the pictures to look even and see the utter impossibility of ever attaining a well, even balanced adjustment. The natural laws of harmony are upset and incongruity becomes dominant.

How aptly put is the question when decorating walls and ceilings: "Do I intend to install expensive furniture, carpets and hangings to set off the walls, or am I going to decorate my walls and ceilings to set off and enhance the value of my furniture or pictures?"

To enhance the value, one must not detract or subtract. The foundation of properly-planned effects rests in a room or apartment as well as in a stage setting—it is the background. The perfect setting for a picture is a properly devised frame and mounting, with a solid background of light tint or deep color, accordnig to the specific demand of color harmony, to effectually set off the furniture, carpets and hangings. Such a refinement of taste is noticeable in the use of plain cartridge paper applied as wall covering, or tinted walls with light tones of water colors, or in deeper shades with the same material.

There are many ready-prepared water color finishes utilizable for this purpose, of which perhaps, Calcimo, in its varied bright light and subdued shades, or in its deep wall colors, has proven the most serviceable.

The preferred method is to paint the ceiling in a very delicate tone and then carry the frieze and side wall down in deeper shades of the same or properly contrasted color. The application of such a water color coating is very inexpensive, and as it can be easily washed off and recoated when necessary, or when soiled, it forms a very sanitary finish.

For the nursery, bathroom, entrance hall and passages, where the wear on walls is excessive, it is sometimes difficult to keep water color and cartridge paper from being soiled. A new material that is filling a long-felt want in this direction is Marvelo Wall Paint, which is absolutely non-poisonous, as well as being perfectly washable and very durable. It is an oil paint, but has the special required features of giving a "deadflat" water-color effect. It is prepared in a pure white and suitable colors for interior work, and is easily adjustable to the most refined taste, for decorative effects in any room, no matter how elaborate and artistic the work is planned, to be, as well as for the plainest tinting or deep color effect.

The great drawback heretofore existing in the use of oil paint in addition to the glossy, greasy effect, is the well-known poisonous qualities of the white lead. In many of the European countries white lead paints are vigorously condemned for interiors. In one of the late Australian papers is is noted that the Brisbane school authorities had decided that the use of white lead paint on the fences surrounding the school must be abandoned, as the children were suffering from lead poisoning caused by scratching the paint and carrying lead particles off in their finger nails.

The Marvelo wall paint above referred to, although being more washable and durable than any other "flat" oil paint, is absolutely non-poisonous. That is to say, non-poisonous in the application, non-poisonous in oxidation or drying out, and never gives off poisonous gases; hence it makes the safest finish for the children's nursery as well as all bed-rooms and living-rooms. It is in all respects an up-to-date sanitary finish and the most delicate water-color effect in light, subdued or in strong, solid colors, can be obtained in this excellent wall paint.—*Wall Paper News.*

Taste in House Decoration.

By W. Fulton.

A warm room, a cheery fire, a comfortable arm chair, and clean, bright surroundings are the grosser kind of household comfort which all can enjoy. But many of us attempt to surround ourselves with things not purely utilitarian. We ornament our walls with paper and paint, doors and mouldings, ceilings and cornices with plaster work, floors with carpets, fireplaces with marbles, and chairs

with chintzes. The consequence of all this is, that we often spend a good deal of money in making ourselves less comfortable than we should have been if we had spent very little. The motive of this outlay is not infrequently a desire to obtain cheap magnificence, to imitate with little what richer neighbors have bought with their plenty. And we only succeed in imitating their gaudiness. We forget one of the essential principles of all good art. that if a thing is conspicuous it should be able to bear close examination. How much better it would be if, instead of trying to produce cheap imitations of things which properly belong only to grand reception rooms and stately galleries, we could contrive a style of decoration which should be in keeping with the houses in which we live and with our manner of life. The love of show is apt to blind us to all discrimination between beauty and ugliness. The love of show for its own sake is vulgar. To show a beautiful thing because it is beautiful is not vulgar; but to show anything, whether beautiful or ugly, for the sake of show is vulgarity.

Coming to particulars, the common mirror is found in moderately-sized parlors. This neither "gives size to the room," nor "brightens up" an otherwise bare room. It does not add, as it is commonly supposed to do, to the light of the room, reflecting as it does the dark as well as the light parts of the room.

To increase the apparent size of a room, large obbjects, as articles of furniture, should be avoided. We judge of size only by comparing one thing with another. As a rule, a large pattern wall paper, a large door, a large sheet of plate glass in a window, tend to make a room look smaller. Thus the vulgarity of cheap magnificence defeats its own object, and the effort to avoid supposed meanness succeeds only in making evident the very thing it is most anxious to hide.

GILDING.

Touching the matter of gilding in house decoration. Beautiful of itself, and in its place an efficient element of beauty, gold leaf needs great care in its use. In the hands of an artist it may be employed with wonderful effect. It may be made to give lightness or heaviness, brightness or shadow. It may be made to harmonize a system of coloring that would be crude without it, and it may produce a marvellous richness; but in the same proportion that it may be used to adorn, it may be used to destroy beauty, and to draw attention to ugliness. It must be admitted that the way in which gilding is generally used displays an extraordinary ignorance of its artistic properties.

In the first place it makes the object it covers more conspicuous. There are some things (some carvings, for instance) which are very good, both in design and workmanship, but which require some of their parts to be emphasized and made to stand out against other parts. In these cases we may gild either of the parts and so produce the desired contrast. As a rule, it will be found best to gild those intended to catch the light. It will be found in almost all cases that the use of gold should, in decoration, be reserved for the accentuation of form. This is, of course, only a general rule, and is liable to many exceptions under peculiar circumstances. But how is gold generally used? Let us look round the room and see. It is to be seen on the frames of the mirrors above mentioned. The cornices above the valances of the curtains look as if they had been dipped into it ;the pattern of the wall paper is drawn out with it, and the mouldings of the doors are covered with it. These carvings of the mouldings, let us suppose, are of good design and carefully wrought. Consider those of the panels of the doors. The beauty of good plain moulding consists in the contrast of light and shade that exists between its members, and of the relative proportions of these members. On mouldings of this kind gilding might be employed with great effect, not by covering over the whole, but by so carefully choosing those members that the contrasts of light and shade between them shall be increased, and the proportions of them maintained or improved. The same rules apply to all mouldings and carvings whatsoever that have to be gilt.

MANTLES.

What can be more harsh or discordant than the familiar combination of a white marble chimney piece surrounding a cold

dark metal fireplace or grate? If we choose to give a large sum for a marble chimney-piece we could procure one which, with the help of delicate sculpture, might have been made beautiful; but this is no reason why we should spend on bare polished marble much more than would be necessary to carry out a beautiful design in wood. But not content with putting up white marble, we double the effect of its coldness by contrasting it with black iron or steel. There is really no excuse for this. Grates can easily be procured calculated to give a large amount of heat for the fuel consumed, with a very small edge of iron round a square opening in front delicately moulded. If this is surrounded above and on each side with tiles of good color and design, and the whole enclosed with a good gold moulding of stained deal or oak, the result is most effective, and the cost slight. One or more shelves may be erected above on brackets or otherwise. All the beauty will depend on the proper choice of tiles, grate and mouldings. In this arrangement, if the hearth be covered with tiles as well as the sides, the only thing that requires any labor to clean is the grate itself, and this should be made as little conspicuous as possible.

Any amount of play of design may be given to the wooden surroundings; they may be ornamented with pillasters or shelves or panels, carried up to the ceiling or left three or four feet high; and all this may be done more effectively, as well as more cheaply, in wood than in marble. —*Australian Decorator.*

A Word With the Wall Paper Hanger.

How often is a decorator told that a paper is out of stock, or finds that what is sent is all "off-shade," or that the papers received are in two or even three different shades? It is an old-standing grievance, this, and is constantly recurring. It may be laid down as proof positive that when several shades are observed in a pattern, that the particular paper has had a considerable sale, as each shade implies a separate printing or making of a large quantity, and hence that the paper is a popular public fancy and enjoys a good run may be accepted as indisputable; while, on the contrary, because a paper is all correctly perfect, and is one shade, it does not prove the paper has had a poor sale. It implies nothing except that all shades are alike, or as nearly so as it is humanly possible to get them.

On comparison, however, with the shade in the original pattern-book, it may prove lighter or darker, and, therefore, when we speak of a paper being the same shade, &c., we mean that, except to the specially fussy, it will pass muster as being for all practical purposes the same tone of color. It is certainly and admittedly very irritating to find that, after doing a staircase with twenty-four pieces, you are a piece short, and then to be informed that there is no more of the identical shade, and thus the whole work has to be done over again. And it is just here where the decorator, paper-hanger, and paper-dealer squabble, and each blame the other. The one is taken to task for his short measurement, the other is found fault with because the paper was not ordered long before there was any chance of its running out of stock, and the paper factor is blamed because his paper has sold out of stock too quickly.

In this connection we might indicate to the paper-hanger the advisability of sometimes doing the bottom portion of the hall and staircase first, instead of last, and then finally paper the upper staircase.

This shade difficulty will arise, and will continue to arise until wall-papers shall be no more. There is no reason why, however, the decorator should not take all reasonable precaution to reduce the risk of a shade difficulty to a minimum.

To delay ordering papers until the last moment is the most fruitful cause of shade trouble. The decorator often forgets that there are others who fancy the same pattern, the same ground, and the same texture, and a little procrastination on his part will more than likely lead to the disappointing reply that the paper is temporarily out of stock, or "we have sent it in two shades, and kindly ask the paper-hanger to hang it to the best advantage."

The question of shading and matching in papers will not diminish, but increase, as the continued yearly diminution in the supply of hand-printed papers goes on. Our remarks so far only apply to ma-

chine-printed papers, and it may well be asked why the shading difficulties should be more pronounced in the case of machine papers. For a proper understanding of the cause, it must be understood that a very large batch of color has to be made up for printing a quantity of 240 pieces at one operation, and as the printing of a machine pattern is not remunerated on the same scale as a hand-worked article, it is only reasonable to conclude that once the mixture or mixtures are made up approximately near enough *to* the original, it would be costly and disastrous to put the printed article aside because it was a trifle off-shade to the original.

We have often heard the simile quoted: "If I go to a tailor's for a suit of clothes, would he be justified in putting me off with an inferior article, and one which was not the same shade? How, then. can you expect me to accept the paper?" The illustration is not a convincing one, because a sensible judge would decide in favor of the tradesman in both cases. However, the mere use of the argument often frightens the decorator to acquiesce, and so the ancient shibboleth wears a certain vogue or inherent apparent truth in it, which is altogether lacking if we analyze the proposition. It just comes to this:If the decorator is a man of means he disputes with the disputer, and wins his case, but gets no more work in that direction; while the hand-to-mouth, hard-working man gives in, and hopes to make it up on something else.

A very popular fallacy in connection with this off-shade question is that the article, by reason of its not being of the identical color, is "vastly inferior," or words of a similar purport. Whence the heresy arose we know not, but to attempt to argue that the paper is really stouter and faster in color is to bring down upon the decorator's head the epithet "impertinent fellow," "does not know his place," and a whole string of finely-graded word constructions that the British matron dearly loves to underline in her tea-errible scribbles. (Hope the lady decorators will forgive us.)

In pulp goods, and in the commoner variety of papers, this question of off-shade from the original applies only in a very minor degree; but it is in the ingrain, single-print, and self-colored papers that the shade question is most serious; and, therefore, as a nod is as good as a wink to a blind horse, it will be where these particular papers are concerned that the decorator will be well advised to order early and to order enough, be sure of his qualities, and, above all, examine the paper before trimming and hanging.

It is only necessary to indicate it, but no paper-hanger would risk hanging an ingrain paper in artificial light, unless he had previously examined the papers in daylight.—*Journal of Decorative Art.*

Factors in Painting Woodwork

(*Continued from p. 15.*)

of Mexico. The engineer in charge informed us that there was so much water of condensation on the surface of the metal most of the time that it was only possible to paint between the hours of ten in the morning and three in the afternoon, and that he had to have a paint that would set (not dry and harden) in two hours, otherwise it would be impossible to secure fair adhesion. It was possible to make a paint to meet this condition; had we not known the condition, anything sent at haphazard would undoubtedly have proved a failure.

KIND AND CONDITION OF THE SURFACE.

Absorbent brick, soft lumber, corroded iron, or a rough surface of any kind will generally require a paint with a larger proportion of liquids to solids than hard lumber, clean steel, tin, &c. In one case the paint will be more or less rooted into the material underneath, and in the other it must be held almost wholly by surface attraction. Lumber contains water, sap, ligno-cellulose, and mineral matter. The two former are repellent of paint. As a rule, the heartwood of trees is more receptive to paint than the sapwood, a notable exception being yellow pine, the sapwood of which costs less than the heart and takes paint better; therefore, if protected by paint, it will last longer in frame buildings. The railroad people who are progressive have found this out, and are rapidly substituting sapwood for heartwood in freight-car construction. We are surprised to learn that many reputa-

(*Continued on p. 25.*)

QUESTIONS ANSWERED

"He that questioneth much shall learn much"—Bacon.

PAINT GOES WRONG ON PLASTER.—"Some time ago a painter painted a newly plastered wall a sort of dark pea-green color. In a few days the color was destroyed, nothing being left but a streaked and spotted copper color effect. I was asked to do the work over, and I gave the walls a good coat of size and re-painted the job, making the color about the same as what was on before. To my surprise the result was the same as in the first case. Now, I would like to know how to do those walls, and write to you for the information." In reply we would say that the lime in the plaster acted upon the blue in the paint, and upon the yellow that was associated with the blue, no doubt. This resulted in the muddy brown effect noted. The walls should have been properly treated before the paint was applied, to prevent the action of the lime upon the pigments. Be it noted also that the lime would have injured any ordinary paint placed upon such walls, injuring the surface of it and causing a blotchy effect. A vinegar size is usually advised upon new plaster, to neutralize the lime, after which glue size, to stop any suction, is in order. We would add that if correspondents would be more particular in giving details in cases like the foregoing we might treat them much more intelligently. For instance, state what pigments were used in making the dark pea-green colored paint, what white lead, oil, driers, etc., and how the walls were treated before painting, if at all, and how many coats of paint, how long between coats, etc. A doctor tells you to stick out your tongue, and he tells you what your ailment is; but the paint doctor can't even see your tongue, and has to depend upon what you choose to tell him.

CARBONATE AND SULPHATE OF LEAD.—"What is lead carbonate and lead sulphate? and what is the difference between the two as paint materials?" Lead carbonate is the white lead that you are familiar with, made by the Dutch process, or stack method. Pure refined metal lead is used in this process. The carbonic acid gas generated in the process affects the lead to form carbonate of lead. This lead carbonate exists in the lead in the proportion of three parts to two parts of what is called hydrated lead, and any deviation from these relative proportions seriously affects the character of the white lead. Hence it is that while a Dutch process white lead may be pure, and Dutchy all right, yet it may be inferior as a pigment material from another brand of white lead made upon the same process. It is simply a difference in care in the making. Hence, to say that a certain white lead is all right because it has been made on the old Dutch method is not to be taken as a guarantee of its excellence as a paint material. Try your lead.

White (carbonate of) lead is a very dense pigment, opaque, taking comparatively little oil, and not spreading greatly, though it works very nicely under the brush. When properly made it wears well, and in a pure air holds its whiteness well, bleaching whiter after a short exposure to a pure air; but in the presence of carbonic or sulphurous air it will darken. Lead sulphate has poor paint value as compared with white lead, and yet it is not without some great merits also. It is of uniform composition, it is finer of texture than white lead, is not poisonous, and in association with other pigments mixed with it is neutral. Also, it is not affected as white lead is by injurious gases, at least not nearly so much so. It has much less covering power than white lead carbonate. Vast quantities of this pigment material are used, however. It is made from lead ore direct, by means of fire, and very poor grades of ore or galena answer for the purpose.

WHAT PIGMENTS ARE HURT BY LIME IN WALLS?—Pigments that are attacked by lime, and should therefore not be used on lime-plaster walls, are: White lead and lead colors, such as the yellow chromes,

Prussian blue, vermillion, Antwerp blue, emerald green, cadmium, rose pink, the lakes, and most vegetable colors, such as madders, indigo, etc.

PRESSED PAPER FLATTENS OUT.—"I have had my first experience in hanging a pressed paper, and it's pressed all right, looks like I had pressed it with a heavy roller. I pasted the stuff the same as other papers, leaving it soak before hanging it. Was that right or not? Any information will be gratefully received." You erred in letting the paper soak; that caused it to dry out flat, aided possibly with your rubbing it too much. Too much soaking of the paper will also cause it to shrink and open at the joints. You do not say much about how you did the job. The walls should first have been lined with blank or lining paper, and then with the pressed paper. Make your paste rather heavy, and apply it to the paper the same; paste and apply the strip at once; the lining paper will take up excess of moisture, and prevent the flatting of the embossed work by that route. A good paste is made by the addition of Venice turpentine to it, adding a tablespoonful or so to the ordinary pail of paste; add it while the paste is hot, and stir well. Never add Venice turpentine cold to cold paste, for it will in that case stain the paper, being of an oily resinous nature. Have a straight-edge that is slightly concaved on the under side, so that it will not flatten the embossing when on the paper. Press the paper to the wall with a soft bunch of cheese cloth or soft hair brush. Dark pressed papers should have their edges coated with a dark water color, and another precaution is to run a streak of the color down the wall where the joins of the butted paper come; this in view of the fact that the joins are liable to come apart, and show raw edges.

MAKING MUSLIN SIGNS.—"What is the best sizing for muslin for signs? I have tried glue, but the muslin was so rough and crinkly that I could do nothing with it. Also, I have trouble with the paint spreading away from the letters; I have had no experience with such work before." It is always difficult to do something with imperfect knowledge of the methods to be employed. It reminds us of a fellow who had been running a saw mill engine, and when he heard of the big strike of the locomotive engineers he came up to the city and braced the yard master for a job. He was given an engine and told to run it into the round house. Pulling out the throttle full length, the engine shot into the house, but the new engineer quickly reversed and the machine shot as quickly out as it had gone in. Thus it went in and out, until finally it was stopped. The yard master was hot. "Why didn't you house that engine?" he yelled at the sawmill engineer. "I had it housed; why didn't you shut the doors when I got it in?" was the answer. Yes, sir, it is hard. You can easily secure ready-sized muslin, and you may also dampen the unsized muslin, after you have it stretched on wall or frame, and letter it while it is damp, and the paint will not run. Use japan color, thinned with benzine or turpentine, adding a little varnish to bind the paint.

REMEDY FOR DAMP WALLS.—The Sylvester solution, so often referred to in past years, in this magazine, consists of castile soap, ¾ lb., dissolved in one gallon of water; apply one coat with a broad of flat bristle brush, avoiding froth. Then prepare a solution of alum, ½ pound, with four gallons of water. Apply a coat of this twenty-four hours after the first coat was applied. Repeat the operation, a coat of each preparation twenty-four hours apart. This should be done only in dry weather.

VARNISH FOR ELECTRICAL APPARATUS.—"I have some electrical apparatus to varnish, and would like to know what kind of varnish I should use. The man I am to do it for says they use 'insulating varnish' at the factory." Electrical apparatus should be coated only with shellac varnish of the best quality.

VARNISH ON VEHICLE SPOTTED.—"A few days after the carriage was varnished. having used hard drying finishing gear, it was used, and some mud got on the wheels, and wherever the mud was there is a whitish spot. The spots remain after washing off. What caused the spots, and what will remove them?" The mud in

your part of the country is full of lime, and the lime acts upon the varnish like soap or alkali. If you had given the vehicle a week or two to become hard in, or had turned a hose on it, with clear cold water, it would not have spotted much if at all. Mud should always be washed off soon as possible, using soft water, or water that has no lime in it. You might try revarnishing the parts that are spotted, that is, the entire wheel, say.

BRUNSWICK BLACK.—"What is Brunswick black, and how is it made?" Mayer gives a formula as follows: Take seven lbs. pitch and seven lbs. of asphaltum gum, boil in an iron pot for from seven to ten hours, with frequent stirring. This should remove all moisture, an important matter. Now add two gallons boiled linseed oil, previously heated, then add two and a-half lbs. red lead, and two and a-half lbs. litharge, and boil for three hours, or until it will set hard when tried. Then let the mass cool down, and add five gallons turpentine, or as much as will reduce it to the consistence best suited for the work in hand. The varnish should dry in from twenty minutes to an hour, according to the weather. To make it good and cheaper, use less turpentine and more oil, but this will require a longer time in drying, of course.

HOW TO MAKE GOOD GOLD PAINT.—We give you here what is called Bessemer's method. Dilute pale oil copal varnish with about six times its volume of turpentine, the mixture then being shaken with about one-thirtieth part of pulverized or dry slaked lime; after a few days' standing, decant it, that is, pour off the clear liquid into another vessel. Mix five parts of this liquid with four parts of the very best gold bronze powder.

SHOW CARD INK.—"Have trouble getting good show card ink. Can you give us a good formula, that we may make our own ink?" If you will try the ink sold by Wm. A. Thompson, Pontiac, Mich., we are quite sure that you will like it. Here is a formula that may suit you, if you will make your own ink; we have printed formulas in previous issues: Dissolve and mix perfectly together pure imported asphaltum, 16 ozs., Venice turpentine, 18 ozs., dry lampblack, 4 ozs., turpentine, half a gallon.

GALVANIZING IRON.—"I would like to know something about the way sheet iron is galvanized; I have read in your magazine how to prepare it for painting, but chink it useful to know how the galvanizing is done also." The sheet of metal is dipped into a bath of muriatic acid 1 part, water 4 parts; after soaking long enough to loosen all scale, it is taken out and scraped with wire brushes and scrapers. Then it is dipped in a fresh bath of acid and water, same as the first bath, adding also about an ounce of sal ammoniac to the gallon of the solution. Then the plate must be heated, to dry it. This drying is important, because if any of the acid solution remain there may be an explosion when it is dipped into the zinc bath. This zinc is heated until it has a clear shining surface, and to make sure, a little powdered sal ammoniac is prinkled upon the surface to clear it; then any dross is skimmed. The length of time required for the immersion in the zinc bath is determined by experience of the workmen; the temperature of the zinc also affects the time required. Very small objects require only a few seconds. When galvanizing is done honestly it forms a very satisfactory and durable coating, but as much of it is now done, it is quite otherwise. We have had zinc gutters on roofs to rot out in less than two years, and hence would advise painting such gutters at once, and often.

COLONIAL YELLOW.—"I have had my house painted recently, and the color was to be Colonial yellow, but I think the painters got it too yellow, the color being decidedly yellow; they maintain that it is the true color. Will you decide at least for me, what it is, or what true Colonial yellow is? If it is that yellow, then I want something else, but I believe it is not the right color." Perhaps we can do no better than to refer you and the painters to the New Century Dictionary, which gives this formula for Colonial yellow: White, 6 parts, chrome yellow, M., 77 parts; green, 17 parts. From this you may imagine, if at all acquainted with pigments, what Colonial yellow will be

when made upon this formula. For our own use we prefer a much lighter yellow than the one indicated in the above formula.

THE ACID ETCHED SMOOTH.—"I have been disappointed in glass etching to find that I do not get the dull or matt effect that I see others get, and I would like to know whether it is my fault or the fault of the acid that I use." Fluoric acid usually etches smooth, while other fluoric preparations etch matt. Fluoride of ammonium slightly acidified with acetic acid will give you a matt surface, though the composition of the glass will influence the result, lead glass being easily acted upon, and giving a fine matt.

TESTING FOR POISON IN WALL PAPER.—To test for arsenic in wall paper dissolve some of the colors from the paper in a little ammonium hydroxide, pour off this solution on a piece of glass, and drop into the liquid a crystal of silver nitrate. A yellow coloration around the crystal indicates the presence of arsenic. This, however, is but a rough test, though enough to show whether there be any poison present or not.

—Venice turpentine is useful to mix with damar varnish and shellac varnish, making them work more freely. What is commonly sold for Venice turpentine is apt to be Canada balsam. It is of the consistency of honey. Much sold under the name is only an imitation, made of rosin, etc.

Mixing Zinc Oxide.

Zinc oxide should be used by itself, that is, without any other pigment being mixed with it. If you buy it ready ground in oil, you will require per hundred weight, about two gallons of pale boiled linseed oil and not more than three-fourths gallons of turpentine to thin it out to the proper state fit for application. About four pounds of zinc drier will be required, or even a little more if the painting is to be done in damp weather. Do not forget that ordinary patent driers must not be used.

Painting an English Railway Coach.

The following gives in detail the successive steps in the painting of English railway coaches as followed in many of the car shops on the other side:

Three coats of lead.
Two coats of rough stuff, pumice down with water.
One coat of lead.
Two coats of body color flat.
One coat varnish color, rub down with ground pumice.
Letter, stripe and ornament.
One coat rubbing varnish, rub down.
One coat finishing varnish, or
Two coats, if there is time.

A SIGN THAT READS BOTH WAYS.—Once in a while there is a call for this old-time and once very popular sign. It is made by having an ordinary sign board with a projecting band of about 1½ inches, in which slots are cut about 1½ inches apart to receive the tins. Paint one reading of the sign flat on the board, lay the tins flat down and paint the sign on these also; turn them over and paint the sign on the other side of the tins. When the tins are dry slip them into the slots.

A Good Knifing Paste.

A knifing paste for locomotive tanks may be had by those who use the A. B. C. system from the settled paste of the C. says a writer in *Railway Master Mechanic,* as it can be applied in the morning and sanded in the afternoon and given a brush coat of C surfacer, which is sanded down on the following morning and colored, with good results. This avoids sanding lead, which is so injurious in its powdery form. It cuts freely and leaves a good smooth surface on which you might finish, on a pinch, but one or two coats of surfacer C makes a better foundation, one without suction and capable of holding up the varnish coats.

VARNISH FOR TIN.—Asphalt, ten parts by weight; rosin, five parts; linseed oil varnish, twenty parts; turpentine, eight parts.

Is the Knifing Method of Surfacing Durable and Economical.

In some of the principal car factories the knife method of surfacing has largely superceded the rubbing stone method. The change is due to the time to be gained in consummating the work, as by this process a car can be completed from start to finish in seven or eight days with a fairly good surface. The method and materials employed are as follows: To one gallon of finishing varnish is added one pint of linseed oil, to this is added sufficient dry white lead to form a paste, which is ground sufficiently to mellow the mass; with this the car is plastered on the day after being primed. On the third day sandpaper and two coats of color; fourth day, stripe, letter and one coat of varnish; sixth day, second coat of varnish; eighth day, third coat of varnish.

There are several things that favor the knife method, without which it is in no measure comparable to the rubbing stone method.

The first and main essential is a surface free of scraper and plane marks to begin with, and which it is almost impossible to obtain without a sanding machine, a machine with which every shop should be equipped. The second esential is the nature of the surface in which the priming coat has left it for the reception of the plaster.

It is a fact that the plaster of the kind ordinarily used does not, and cannot have the same adhesion that a surface has that is produced by the rubbing stone, that is brushed on and rubbed down, for the reason that when the surface is brushed on, it is necessarily thinner and will therefore penetrate deeper, thus getting a firmer hold on the preceding coat. But the adhesiveness of the knifing plaster can be greatly increased if the priming coat possesses the necessary homogenity.

The priming coat should leave the surface porous but not absorbent. A primer composed principally of resin which produces a smooth or sleek surface is entirely unsuited to the knifing method. A priming coat consisting of one part turps and four parts raw linseed oil, with a small proportion of lead and dryers will produce an excellent surface to knife upon. It should, however, be lightly sandpapered previous to knifing. The process of applying the plaster calls for much skill in order that the process may not prove expensive in the end. It should be evenly applied, free of ridges and knife marks, and not knifed too closely. The more evenly it is applied, the less sandpapering of course will be required to produce a good surface.

The durability of the knifing method depends almost entirely upon the proposition of securing a perfect union between the plaster and priming coat, and in the mixing of the plaster in such proportions as to obtain the same elasticity as by the brush or rough stuff method.

Aside from the question of durability, it is undoubtedly more practical, and more in keeping with the spirit of the age than the slow and tedious rubbing stone method.

The question of appearance has ceased to be an important factor in railroad car surfacing; the question of utility supercedes every other consideration; that which produces the best all-around average is really the most acceptable; in this respect the knifing method of surfacing has no peer.—*Railway Master Mechanic.*

Factors in Painting Woodwork.

(*Continued from p. 20.*)

ble architects in the Southern States still specify the heartwood of yellow pine for siding upon houses of the best class; it is unfortunate that there seems to be a lack of understanding upon the part of educated men of the close relation which paint must bear to the surface it covers, *e. g.*, the wood, and the importance of specifying lumber that paint can stick to. There are said to be thirty-nine varieties of pine in the United States and numerous species of poplar(hemlock, cypress, &c., so that one can see that it is easier to design a paint for coating iron or steel than it is for coating wood. It may be a good idea to use common lumber or seconds for weather-boarding and then try to save it or hide it with paint; but we question the economy of it. With metals, when their temperature is less than that of the surrounding atmosphere, more or less sweat or water of condensation will

always be found upon them. This is repellent of paint, as also would be any grease that might in any way get on the surface. In other words, paint will only stick well to a receptive surface, and a warm and dry surface will certainly hold paint better than a greasy, cold, or damp surface. It will also be noted that some metals not only hold paint better than others, but they also affect it differently. Paint does not adhere well to metallic zinc (galvanized iron). A paint spread upon clean metallic lead will dry much more quickly than one spread upon clean steel. On the other hand, it will wear longer upon steel than it will upon metallic lead. Another point regarding surfaces is this, viz., that rough surfaces hold paint better than smooth, and a paint upon rough surfaces seems to wear longer. The only reason for this phenomenon is that on a rough surface you get a greater thickness of layer than you do upon a smooth surface with the same number of coats. The sand blast offers a rapid, efficient, and economical means of cleaning steel and putting its surface into a receptive condition for paint, and we would be glad to see this method of preparation more generally employed when painting contracts are undertaken. So, too, we hope that it will not be long before architects, engineers, and builders realize that it is important to have sound clear, dry lumber as a foundation for paint, and will insist upon the same in their specifications.

THE QUALITY OF THE PAINT.

The quality of any paint depends as much upon its physical characteristics as it does upon its chemical composition, *e. g.*, with two linseed oil paints that will show the surface qualitative and quantitative analysis, the one of the greater viscosity will be the slower drying and the more durable of the two. This is because it will form a skin upon the surface that will be thicker and more impermeable to water and gases than the thinner paint. The corrosion of steel, the decay of wood, and the deterioration of paint are practically due to one and the same cause, viz., the combined action of carbon-dioxide and moist air. Therefore, that paint or coating will give the best protection which will be the least affected by, and is the most impermeable to, a combination of these two things. To understand the nature of painting, we will first take up the subject of linseed oil, which, after centuries of use, to-day remains, from the standpoint of durability and drying, the best thinner we have for painting. Linseed oil in drying changes first into a sort of jelly and then into a solid leather- or rubber-like substance, which Mulder named "Linoxyn." This linoxyn is a wonderfully tough and durable substance. However, when linseed oil is spread upon a smooth surface, without the use of pigment, the skin formed will be less than $\frac{1}{100}$ of an inch in thickness. Further, the skin so formed will be pervious to moisture. Pigment is therefore added to the oil for paintmaking, first for the purpose of thickening the skin formed, and second, for the purpose of making the skin impervious to moisture. Dried paint may be looked upon as a fabric in which linoyyn is the chain and pigment the filler. Linoxyn is not quickly formed from linseed oil without dry air and the light, but when once formed is much more stable and much better able to resist atmospheric influences than linseed oil itself. In other words, wet paint is much more sensitive than dried paint. A fair quality of linseed oil when spread out in a thin layer on a smooth surface under favorable conditions requires from five to seven days to dry and harden. As this would be too slow for practical purposes, paint makers and painters either add to the oil some pigment that will react with it to hasten drying, or they add to it some oxidizing agent like japan, or some diluent like spirits of turpentine or petroleum naphtha, the two latter only serving as volatile extenders that more or less interrupt the continuity of the resultant film. So many books have been written on the subject of linseed oil, that we will not attempt to take more of your time in the discusison of its nature and characteristics; but should you wish to pursue your investigations further, it will be a pleasure to cite authorities.

THE PIGMENT CONTENT.

We will now take up the subject of the pigment content of paint. From the practical standpoint, pigments may be divided into two general classes: first, those

that react more or less with the binder, notably the carbonates and all lead compounds; and second, those that have no chemical action upon the binder, *i. e.*, are inert, such as graphite, lampblack, barytes, silica, and sometimes ferric oxide, &c. Those of the former class produce the better drying and less durable paints; those of the latter class produce the slower drying and more durable paints. We work upon the theory that under coats should dry more quickly and harder than those above them, and that the difference in drying between adjoining coats should not be very great. On this theory, where best results are desired, we always recommend the use of red-lead paint as a foundation coat on bare wood. For the middle coat, where conditions will permit the use of three kinds of paint, we recommend the use of paint made from about equal proportions of active and inactive pigments with linseed oil. For finishing coats we always recommend the use of paint made from inactive or inert pigments with linseed oil. Among the best of this class may be noted graphite, charcoal, oxide of iron, powdered mica, and aluminium. The pigments named in this class are more stable and weather-resisting than linoxyn, therefore in the use of them you will find that the thicker your paints are the more durable will be the films resulting from their use when spread out in thin layers on steel. On the contrary, where durability is desirable, with the active pigments like white lead, zinc white, &c., which are more affected by atmospheric influences than linoxyn, you will find that the thinner you use paints made from such pigments, consistent with fair covering of the surface, the better they will wear. On general principle, or as a common law, we would state the proposition as follows, viz., where inert pigments are used with linseed oil, the

thicker your paints are, consistent with proper spreading under the brush, the better they will wear, and as a corollary of this, thin coatings, especially top ones, of paints made from pigments like white lead, chrome yellow, &c., will wear better than thick ones. You have, doubtless, noted how much better common paint—made from dull, inert pigments—wears on freight cars, barns, bridges, &c., than more delicate colors made from active pigments like white lead, &c., wear on line cars, frame houses, and structures of that class.

WORKMANSHIP OF THE PAINTERS.

A good painter will often get better results with a fair paint than a poor workman will get with a praiseworthy one. The method of application is about as important as the quality of the paint used, for the reason that a layer of air and water which it may hold exists upon all surfaces. This layer of air prevents close adherence of the paint to the surface, and it can only be gotten rid of by thoroughly brushing the paint out on the surface and into the body of the material underneath. A distinguished British painter and author writes: "The less paint that is put on at each operation consistently with a proper covering of the ground, the better will the ultimate result be." Less paint and more painting," he impresses as a need "to quite ninety per cent. of his painter students." The personal equation always counts in painting as it does in almost everything else. From experiments with an ocular micrometer in connection with a microscope, we find that single coats of the same paint may vary in thickness from $\frac{1}{500}$ in. to $\frac{1}{1000}$ in. The variations in thickness from these extremes and intermediate points are due to the varying pressure of the brush under the hands of the painter. Much of the poor work done nowadays results from the quality of the tools purchased by or supplied to the painters. We insist that a good workman to do good work must have good tools to work with; that is, brushes not over $3\frac{1}{2}$ inches wide and full or thick with good stiff bristles. For the highest class of work we prefer what they call down East "pound brushes," that is, round brushes with good, stiff okatka bristles in them, not less than six inches long. With one of these properly bridled, a painter can do more and better work in a day than it is possible for him to do with the ordinary flat brush that is usually furnished him, and which costs little less. The good workman will always pay special attention to the coating of edges, and those parts of a structure where water and dirt will lodge, and to the filling in of all crevices, beads, and mouldings, to prevent the incursion of water. These hidden parts are often the vital ones in bridges or in buildings of steel cage construction, and they are those which should have the most vigilant and constant attention.

(*Conclusion next month.*)

The Art and Science of Coloring.

BY WM. FOURNESS.

(*Conclusion.*)

It would be wise of a student if he made his own chromatic circle, placing the pigments he is daily using in their proper place. It is necessary to realize, however, that the ordinary pigments are not actually the central colors the exact laws of optics demand. For instance, red occupies the top of the circle, but as vermilion is a yellow tone of red it should not be placed at the direct top, but to the left, approaching the yellow. Crimson lake is a blue tone of red, so it would be on the right side of the line reaching towards the blue. One is actually an orange red, the other a purple one; neither is a direct red. Ultramarine blue inclines to red, Prussian blue to green, which takes its place at the bottom of the circle. Lemon chrome is a near approach to a central yellow. Ochre is a tertiary color; it is a yellow tinged with brown—a shade practically. Raw sienna is a color approaching orange, and also slightly brown. Indian red is purple in tone. On the circle the secondaries would also be placed as well as the primaries, the tertiaries finding their place inside the circle, each one near to the one predominant, as russet near red, etc.

THE HELP OF THE CHROMATIC CIRCLE.

Several tones of either the tertiaries may be taken from the circle to form a

(*See p. 32.*)

Editorial Department

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Vol. XII **OCTOBER, 1907** **No. 7**

By reference to this little square YOU will know the date on which your subscription expired.

Editorial Notes.

—I send a dollar for renewal. I could not do without THE MASTER PAINTER, for it is hive-full of practical helps for painters. But don't you think an index would improve it?—P. S. V., Hensonville, N. Y., to which we replied that an index is being considered now, and will appear at the end of the year.

—Over sixteen millions of gallons of spirits of turpentine were exported from this country to Europe last year, valued at over ten millions of dollars.

—"Your July issue was a dandy," said G. M. E., of Billings, Okl., when renewing his subscription.

—A subscriber, L. B., of Santa Ana, Cal., writes that he has saved more than the price of the books that we sent him on one job, especially the Kalsominer's Handbook. He adds that THE MASTER PAINTER is all right, excepting in one particular, it doesn't come often enough.

—I enclose a dollar. I like THE MASTER PAINTER first-rate. A. O., Erwin, S. Dak.

—THE MASTER PAINTER is a grand old magazine, and should be read by every painter.—E. F. M., Green Bay, Wis. Note that it is now an "old magazine." We like to hear that, and assure our friend that the old M. P. is being read by almost, if not quite all painters in business, and has a bigger bona fide subscription list, we believe, than any other similar periodical in existence.

—Your magazine is very good and highly appreciated, full of sound, practical information for amateur and expert. It should be in every paint shop, and its price is full value.—A. L. M., Weeping Water, Neb.

—A well known Canadian steeple jack fell to his death from a chimney, said to be the highest in the world, 448 feet.

—Find enclosed my renewal. Yours is a magazine that I do not intend doing without; can't get along without it.—H. B. N., Amana, Ia.

—A Norman, Okl., subscriber, J. H. Redding, writes to say that he made from an eagle's quill the pen with which President Roosevelt signed their statehood bill.

Our Combination Magazine Offer.

We are offering this fall a new magazine, one that is new in the sense that we have never handled it before, and we have selected it because in it our friends will get better value for their money than in any other magazine offer we can make. The *Technical World Magazine* covers popular topics in recent developments of science, invention, commerce, and industry, told interestingly, and fully illustrated with beautiful photo plates; a big, instructive, interesting magazine, selling at $1.50 a year, and just the thing for practical men, not an idle page in it. We want you to try this magazine, and to induce you to do so will make the price *one dollar a year when taken in connection with* THE MASTER PAINTER.

The *Technical World Magazine* is published in Chicago, and has a strong staff of able technical writers. It will interest the whole family. *Send ten cents for a sample copy,* to us, and if you are not already a subscriber to THE MASTER PAINTER, we will send you a copy of that magazine also. We are not giving anything away, but are willing to give you a whole lot for a very little, in order to get you interested in our propositions. Write now, addressing, *The Master Painter, Malvern, Pa.*

A German Criticism and Suggestion

Mr. Adolph Kubisch, whose school for teaching fresco work is advertised in THE MASTER PAINTER, has translated for us the following interesting item from the *Deutsche Malerzeitung*, of Munic, Germany, and has our thanks for the courtesy:

"With the intention to promote the applied arts in America, the Metropolitan Museum of Arts, in New York, will be changed into a great school of applied arts, in which artizans will have opportunity to study designs from the old periods. We know that in America artists are not a scarcity, to be sure, but then they receive very few commissions. Hence, it is about time that America had created an art evolution of her own, one that shall fitly express the whole development of that country. We would, however, suggest that it is not to be accomplished by the study of style expressions, so distant by both time and distance, as is propagated there. Quite the contrary. If America would have the applied arts to correspond with peculiar circumstances then she must not make the same mistake the old world made, and erect museums; but she should spend her millions on orders for the artists on hand, so giving the opportunity for learning and developing on an independent basis."

The companies that insure plate glass windows have made a very curious but important discovery that will interest not only owners of plate glass windows, but those who paint signs upon them, namely, that black paint will cause the cracking of the glass. It is said that the absorption of the sun's rays and the local expansion of the glass about the paint, or any quick or sudden gust of wind will make such a difference in the tension of the glass that it will often crack without apparent cause.

The fall of a daring steeple jack to his death is not of rare occurrence, but it is seldom that one is killed by a fall of four feet, as one was recently in New York. He had a job in hand of placing a gilt ball on the tall flag staff of a hotel in that city, and before going on with the work he undertook to show some of the spectators there his agility in climbing; he undertook to walk up a perfectly perpendicular ladder ten feet high without touching it with his hands, and he had not taken more than a round to two before he fell backward, landing on his head, dying shortly thereafter.

Book Combination Offer.

Old and new subscribers to THE MASTER PAINTER are to profit by our revised combination offer, as follows:

	Regular	Our Price
Wall's "Ancient and Modern Graining"	$3.00	$2.25
Thompson's "Show Card Writer"	1.00	.65
Meinhardt's "Practical Lettering"	.60	.45
"Manual of Lettering and Design"	5.00	3.75
"Kalsominer's Handy Book"	1.00	.80

These prices are only for new subscribers and renewals of old subscriptions; to all others regular net prices are charged. Any book relating to the trade will be furnished on the same basis.

THE MASTER PAINTER,
Malvern, Pa.

October 1, 1907.

Glutol, Sphinx Gum and Condensed Paste Powder

Are the three staples which have made the Sphinx the trade mark of the Arabol Mfg. Co., 100 William St., New York, familiar and welcome to painters and paper hangers. Those who use them once declare that they would not be without them, as nothing equals them in saving labor, time and money, and producing a fine job at the same time.

Brilliant Electric Signs.

Brilliant effects for electric signs are now to be readily obtained with little cost by the use of small colored transparent caps which fit over the rounded ends of the incandescent bulbs. This permits the owner of a changeable electric sign to alter the legend at will and to indulge in the use of colors without the necessity of keeping on hand a large supply of colored lamps, some of which are very expensive.

The Art and Science of Coloring.

(*Continued from p. 28.*)

scheme of color for a room—say claret, russet, and olive. It is always safe to work with the tertiary colors, since they contain a portion of each of the primaries. They fulfill the law of neutralization, having a harmonious relationship. Apart from this, from the circle may be selected harmonies of close analogy as well as of strong contrast. The value of the help given by a chromatic circle may be estimated by the statement that the association of colors complementary to each other mutually improves, strengthens, and purifies them all.

Schemes of color may be suggested from the chromatic laws of color harmc examples of fine col pleasing arrangement nature, or even in ind

A door, the panel: silver-grey backgrou brown mouldings of The ornament on the blue, which agrees w

grey; a tone of Venetian red here and there for contrast.

A ceiling, generally light blue with portions of white, also several tones of dark grey, almost black. These tints applied to the enrichments, the surrounding border being gold and pink.

A room, with peacock blue ceiling, cornice a pale yellow or salmon, the color of the walls a deep red, the woodwork a rich sienna brown.

The following color schemes are a few examples intended to show another of the sources from which a student may derive color schemes. Nature is an inexhaustible storehouse, full of valuable suggestions of beautiful combinations of color. For instance: a crimson or scarlet flower is carried by stems of a purple tone. The

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THE MASTER PAINTER

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BY A. ASHMUN KELLY, PUBLISHER.
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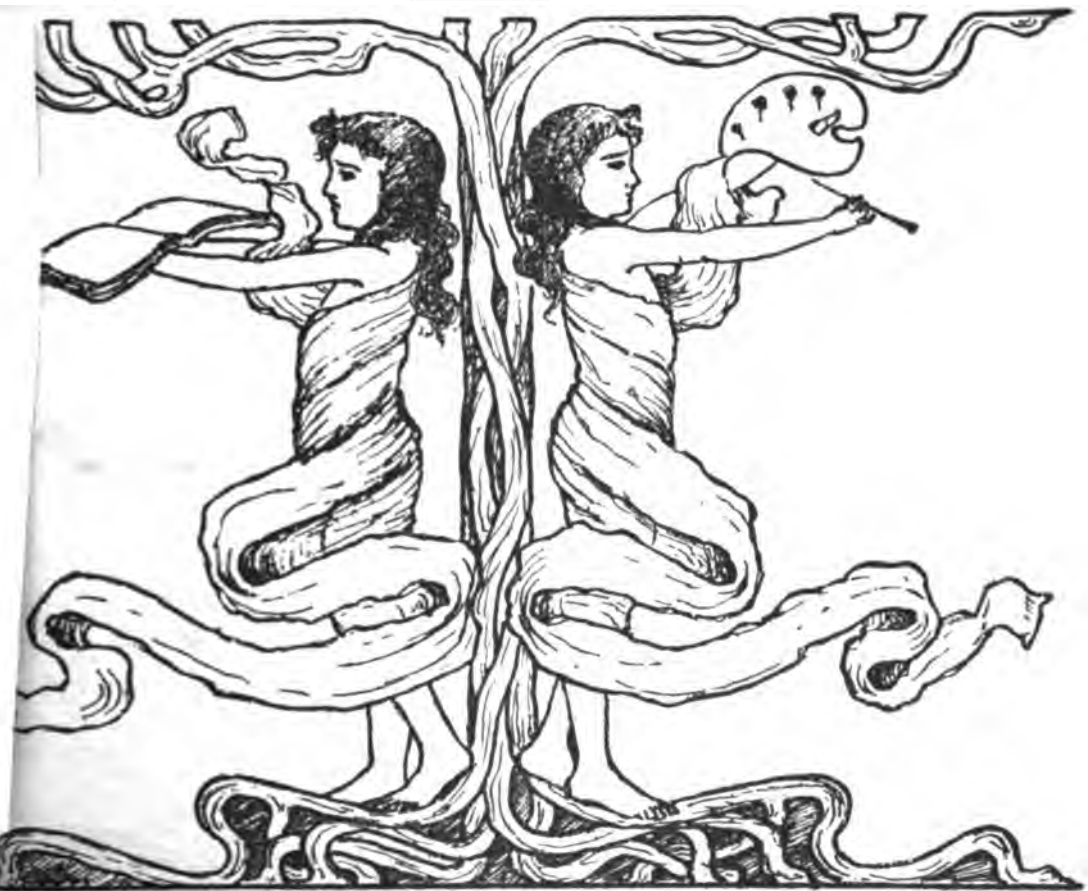
THE MASTER PAINTER



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Mr. Painter and Decorater

THERE are personal and business reasons why you should become interested in MARVELO WALL PAINT. A few of these are as follows:

1—IT IS ABSOLUTELY NON-POISONOUS, and gives a sanitary "DEAD FLAT" even finish, with soft, rich, water-color effects, with more washable qualities than other "flat" oil paints. IT REQUIRES NO STIPPLING.

2—It does away with many drawbacks where White Lead is used for a flat paint.

3—It makes the best ground work for enamel on any surface.

4—It is more dense or opaque, covers better than other oil paint over dark surfaces, thereby considerably further reducing the cost.

5—MARVELO WALL PAINT colors are especially made for high class interior decorating, and stamp originality on the painter's work, to further interest his customers or prospective customers. The same effect cannot be obtained with ordinary colors ground in oil.

With our guarantee that it will last longer, give better results at a saving of at least 25 to 30 per cent., we solicit your inquiries and orders.

MARVELO WALL PAINT is made in paste form, in white and ten deep colors, and packed in 12½ and 25-lb. pails and 100-lb. kegs.

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THE MASTER PAINTER

Vol. XII NOVEMBER, 1907 No. 8

System in the Paint Shop.

BY FRANK T. COPPINS.

There seems to be a general impression among people that a paint shop is a very unclean place, and to go inside means to have fresh paint on your clothing. I do not think this should be so; we should at least have one room in such condition that even the ladies, upon whom we depend so largely for custom, could enter without fear of soiling their clothing.

Keep nothing but the best materials, and use only the best. By adhering to this you will gain the confidence of your customers.

In preparing material for the men this should, as far as possible, be mixed the day before it is to be used and taken to the job, so the men will lose no time in starting. Paint for large jobs should by all means be mixed in the paint shop, where it can be handled so much better. In a large shop, I would recommend a cylinder which will break up 500 pounds of lead in less than three minutes ready for the coloring matter.

If inside work is to be started in the morning, and colors have not been arranged before, have the lead, oil, turpentine, colors, etc., all put up the day before, ready for transfer the first thing in the morning. This method saves time and confusion, which means money.

In this way from twenty to thirty men can be sent out to work in about twenty minutes. The shop men are then ready for the next day's orders, which should be kept in a book for that purpose and marked for each day, so there can be no mistakes. Also, as soon as the superintendent comes in, he should hand in a slip showing what is needed for the several jobs under his supervision. Keep the men supplied on the job so they will not have to go back to the shop, which does not look well and consumes a great deal of time.

A truck book should also be kept, in which, at the completion of each job, a record is made by the superintendent or foreman in charge of all ladders, trestles, plank, paint, etc., left there. This should be done promptly, as it keeps the work cleaned up and the tools always at hand. The ladders, steps, trestles, carts, etc., should be strong and well made. Adopt a color for the truck, then keep it well painted and lettered. It shows enterprise and preserves your tools. In time you will become known by them, and it will prove a good means of advertising.

The care of brushes is important. There should be a record kept of the brushes given to each man and charged to him, and when he returns the stubs, as they are called, they can be exchanged for new ones.

The method of charging is of great importance. I will mention one way which I think is good. Have a strip list of all the men in your employ; carefully go over the list the last thing each day. After a time you can readily tell where every man has been working. This, in addition to the time kept by the different foremen and handed in on a slip with their own time-sheet on the morning of pay day. Also, each morning let the bookkeeper take a position where he can see every man go out and make a note of all stock to be charged. If this is done thoroughly there will not be many mistakes made.

There is one things which cannot be too strictly enforced. This is the matter of oily rags. I believe more fires are the result of spontaneous combustion from this cause than anyone is aware of. It should be the duty of one man in the shop and

the foreman of every job to go over the entire building the last thing every day and see that every rag is picked up and put into a covered iron pail kept for that purpose.

Perhaps the most important part of all is the hiring and governing of men. I wish there was some way of knowing a mechanic before he was set to work. There is one way which seldom fails. That is, give a man a pound brush and some twine and request him to bind it. If he does it properly he will usually turn out to be a workman, although it sometimes happens that this will be all that he does know. It is never safe to hire a man who comes with overalls under his arm and the blade of a putty-knife showing out of his pocket. He will prove to be what is termed a Spring artist and of no use to you. Employ only good mechanics and pay them good wages; cheap help is never profitable. If good wages are paid you can in return demand good work, and this will help to lift the trade to a position beside that of any other, which, I am sorry to say, has not always been the case.

Aside from paying good wages, I believe it pays to reward a good man when he has done good service as foreman on a large job, and the work has been done in a satisfactory manner both to yourself and your customer. Not only pay him a little more than the men under him, but reward him with something extra in his pay envelope.

I think the employing painter should be interested in the welfare of his men; encourage them to be saving and industrious. Allow no profane language, no smoking, and, more than all, no visiting saloons while at work or during working hours. Provide each man with a set of rules, and then enforce them, even if, in doing so, you have to discharge the best men you have just when you need them most.

The most trouble arises in the Spring with the class that I referred to before. They usually want more waiting upon than all the old hands put together. I have seen these artists, after having color given them with which to do some painting a distance of two squares away, instead of taking a couple of brushes, they will stand with their whole kit, looking wistfully about. When questioned as to what they are waiting for, they meekly ask if the teamster could not take them. I usually tell them to wait until I telephone for a carriage.

Last, but not least, is the paying of men, whether it is done on Saturday or Monday. The time-sheet or pass-book should be handed in before eight o'clock on the morning of pay day. The superintendent should look them over and check them up with the foreman's slip; also with the charges you have yourself made daily. This gives time to put each man's money in an envelope used for that purpose, marked with his name. These can be delivered to the foremen at the several jobs on the afternoon of pay day. You can then close your shop at a reasonable hour.

Painting Yellow Pine Siding.

A lumber man in the yellow pine district asks the question, "Does yellow pine make a good barn siding, and how should it be treated to hold the paint?" And then he goes on to tell some things pertinent to the subject, in the St. Louis *Lumberman*. He justly observes that the building trade is prejudiced against the use of yellow pine, even for dimension timber. Continuing, he adds: "Having a few thousand feet of twelve-inch, No. 1 yellow pine boards in our shed, and not being able to move them, we concluded to use them in the construction of a barn that we were having built. The principal objection being that paint would not stay on the yellow pine, we had one of our local painters instructed to use material which he thought detrimental to use in paint for outside work. However, Mr. Fogyism Painter objected to use the material that we had specified, saying that he could not guarantee his work to stand if we wanted the material used as we had instructed. Having some little knowledge of paint ourselves, we insisted, and had the work done. With what little knowledge I had of paint, I studied the condition of the material to which the paint was to be applied, knowing that linseed oil is the foundation and must give life to the body as well as to make it stick on the surface to which it is applied; therefore, any material that cannot absorb the oil cannot

hold paint that is exposed to the elements of the weather. You must treat your material, first so that it will take and absorb oil, which can be done by priming with spirits of turpentine. First, use some good pigment, and enough good linseed oil to make a thick batter, then reduce with pure spirits of turpentine to the proper consistency for priming your building, the little oil and pigment that is used in the priming coat combined with the turpentine will assist in keeping the turpentine from evaporating so rapidly; it will do what it is intended to do, open the pores of the wood and to some extent kill the pitchy places in the yellow pine, and in ten days your building will be ready for painting with pure linseed oil, mixed with any good pigment you may wish to use. Our barn was treated in this manner, and while it has stood only three years, it is still in first-class condition and does not shew any signs of peeling or scaling. I may add that the battens on the barn siding are of Norway pine, and were not treated with the turpentine priming as the siding was, and the paint is scaling on the battens very badly. So that I believe that with the proper treatment with paint yellow pine will make good barn siding.

How to Finish Georgia Pine.

By W. S. Hopkins.

The first step is to remove all dirt and pencil marks, making a clean surface, without which much of its beauty will be injured. Then give it a good sandpapering, smoothing off any rough places, and getting a perfectly smooth surface. Dust off clean, and apply a coat of white shellac, made quite thin. When this is dry, rub down with sandpaper and apply a coat of interior finishing varnish of light color. When this is dry enough, rub it down smooth to a surface, and apply another coat of the interior varnish. This may either be left in the gloss, rubbed down and polished, or left in dull finish, as may be desired.

Never fill Georgia pine with a filler that contains oil, as it will darken in time, and impair the beauty of the wood. Wood alcohol also is apt to darken the wood. Use grain alcohol, the denatured article.

This pine darkens quickly after coming from the mill, or from the carpenter or cabinetmaker, as the case may be, and hence should be treated as soon as possible. At least clean and sandpaper it and apply the shellac as soon as you can; this will keep the natural color of the wood, and prevent finger marks, etc.

Georgia pine contains some rosin or tar, and this is apt to seek the surface, especially under the influence of heat, but the shellac holds it back. Being a close-grained wood it does not require filling, though for a strictly first-class job it is well to apply a coat of very thin light filler before the shellac is applied; but this filler must contain very little if any oil.

After the shellac is dry enough, putty up the holes with a putty made from white lead and whiting, colored with ochre to match the wood. Use No. O paper for sanding off the shellac coat, be careful to remove all dust and dirt, and use a very pale varnish, thinned with turpentine. The thinning should depend upon the kind of varnish being used. The first coat should be rubbed lightly with No. OO paper, steel wool or curled hair. The next coat of varnish should not be thinned any.

Georgia pine will take on a very fine finish if the finisher understands it, and some fine effects may be had by the use of stains. Should the work require a rubbed finish, or a polish, apply three coats of varnish, and rub the gloss of the finish coat down with pumice stone powder and water, after which it may be polished.

If this pine is to go against a dampish wall, it had better be painted on the back first, to protect it; two coats of a hard drying paint will do. If not thus protected the surface will in time show streaks like mildew, spoiling the whole effect. The wood should be dry, and varnish applied at a temperature of about 70 degrees F.

Points for the Kalsominer.

—A good binder for kalsomine may be made thus: Soak half pound of white sheet glue in cold water over night, and in the morning pour off water and add one gallon of hot water, then add half pound of crystal alum, previously dissolved in hot water, and one-half pound of white soap that has been reduced to shavings and dissolved in hot water. Mix all and

boil together until the mass becomes like a syrup and free from lumps.

—The greens to use in kalsomine work are those not acted upon by lime or alum, such as verdigris and emerald green. The latter are poisonous, and if objected to you may use instead Bremen green, cobalt green, green verditer, and terre verte green, or as it is also known, Verona green. These are lime or alkali proof.

—Damp walls are coated with gloss oil, or rosin dissolved in benzine, applied very thin, in two or more coats. Or to good white sheet glue size, a pound to the gallon of water, add dry red lead enough to form a paint, which apply while hot to the wall.

—Good glue is essential in water color work, and if the glue when soaked in cold water swells very much and does not discolor the water very much, and has a sweet smell, it is good. If left in cold water twenty-four hours it should not alter much after swelling.

—It is unsafe to apply kalsomine over whitewash, as the glue in the kalsomine will pull the lime off. For a surface limewashed but in good condition and smooth size with vinegar size, then when dry give it a coat of strong glue size. Have the room warm. If this works well you may apply the kalsomine.

—If an old kalsomine coating is not to be removed, size it with this: Melt one pound of white soap in hot water, slicing the soap, soak one pound of white glue in cold water, pour off the water and add hot water to dissolve glue; then dissolve two pounds of alum in hot water, then stir the liquid glue and soap water together and add the alum solution. Thin the mass with warm water to make it to the usual size consistency. This will bind the old kalsomine and give a hard ground for the new kalsomine.

—If you wish to tint kalsomine, use water color that comes in one pound glasses, and add to the kalsomine before the glue sizeing has been added. Try the tint on paper, which when dry will show the strength of same. The colors that are unsafe to use in kalsomine are chrome yellow, chrome green, Prusian blue, etc.

—The kalsomine may be thinned with cold water when wanted for use, being careful to not get it too thin. To make the kalsomine dry slower add glycerine at the rate of two ounces to the gallon of kalsomine.

—Too much glue and alum will cause kalsomine to crack. Add a little glycerine to counteract this.

—Glue size is not always able to stop suction in walls, and in this case try a varnish size, made from common varnish reduced to a very thin state with benzine or turpentine.

—To remove old whitewash from wall before kalsomining, saturate the surface with a solution of one pound of concentrated lye to the bucket of water. This will rot the lime, after which it may easily be scraped off with a scraper.

—Emerald green is another name for Paris green, the deadly poison, but a very beautiful color. It is a heavy pigment, and settles badly. It is not a strong tinter. Ultramarine green in its various shades is best for water color work.

—To prepare a smoky ceiling for kalsomining first brush off all loose dust and smoke, then apply a strong solution of pearlash, after which wash off with clear water. When dry apply a thin coat of freshly made limewash, having some alum in it. When this has dried give a coat of glue size, then kalsomine it.

—To develop possible stains in a bad wall apply a coat of whiting and water, and let dry; then the stains, if present, will show themselves. If the stains are bad, make a mixture of boiled oil, japan and turpentine, equal parts, and apply. After this a coat of shellac will be well. Then a thin coat of white lead, flat.

—For a rough plastered wall that is to be kalsomined use a size of cheap rosin varnish, thinned with benzine. Or a coat of boiled oil will answer as well.

Stippling in Oil.

Distemper work is seldom stippled these days, except where blending is done. If we had the walls of a room to tint in oil, with a stippled finish, and these walls had stood until the lime had become inactive we should take plaster of paris and repair all the broken places, fill the cracks, etc., and, after the patches became dry, we should sandpaper the surface with fine paper until it was perfectly smooth. After

dusting, we would give the surface a good round coat of paint, mixed to dry glossy, and tinted exactly to match the finished job. Next we should dissolve one pound of high grade transparent glue in one gallon of water, and, after the first coat of paint had dried thoroughly we would put on a coat of this size. The size must be applied while warm as it will jell when it begins to cool. When the size became dry we would be ready to mix our stipple coat. Before beginning to mix our stipple coat we would put one gallon of raw oil and one gallon turps into a can and shake until the two liquids became thoroughly mixed. We would call this mixture our "thinner," and it would be used as the medium for thinning the balance of our paint. Now we would break up our white base paint which we would prefer to be a high grade combination white, because the amount of oxide of zinc and inert materials contained in such paints make them whiter than white lead, consequently they produce clearer, sharper tints.

This white paint should be thinned to the consistency of thick buttermilk, with the thinner above described. In another vessel we would put high-grade plaster paris and break the dry plaster up in the same thinner that we used in the white paint. This plaster mixture should be of the same consistency as our white. Now we would pour an equal quantity of the plaster mixture and the white together and stir until they are thoroughly mixed, after which the batch would be tinted for the stipple coat. We would apply our stipple coat as heavy as we were able to spread it with a brush and stipple it immediately.

The stippler must keep up with those who are spreading the paint, and on large surfaces enough brush hands and stipplers should be employed to carry a stretch entirely across the surface at one time. By using a thinner made of half raw oil and half turps the stipple coat will dry with an eggshell gloss. If a perfectly flat surface is desired use two parts of turps to one part of raw oil.

A stipple coat made as above will have the appearance of pebble goat leather, and after it gets thoroughly dry will be as hard as flint.

Paint Shop Suggestions by a Painter.

By Benj. Goodfellow.

[Mr. Goodfellow—suggestive name—read a paper before the late Canadian convention of master painters, from which we have taken salient points and woven them into the following article; not seeking to improve upon Mr. Goodfellow's style or matter, but simply to condense:]

The paint shop is more than a mere place to keep paint pots and materials; it is a laboratory, a place for mixing paints, etc.

Let me see the inside of your shop, and I can tell you pretty near what class of work you do, and if you have been properly schooled in your trade.

I take it for granted that every man wants to do good work. In the first place, good material is the basis of good work.

I favor raw oil for exterior paints. Or for quicker drying, I use half and half of raw and boiled oil. I believe in using a little turps, summer and winter, inside and outside.

I take it as one of the marks of a good workman that he will wipe down his pot and keep it clean. He will also only mix paint enough for the job in hand, not having a lot left over.

Nowadays paint pots are plenty, because lead and color comes in cans that we can use for pots. Formerly the pots were made at the tinsmith's, specially for painters, and every man had his own pot, and kept it neat and clean. I find it different now, and the man who keeps his paint pot clean is rare.

It is a good plan to have a tank to keep lye in, to soak the pot in when it gets very dirty. Then you can have clean pots on hand.

Don't allow paints to accumulate in the shop; they become fatty. Keep colors covered tight. The cans are labeled and shelved for future use. When we want it, we find this paint in good condition for use.

Few workmen but are failures in color mixing. In matching a color that calls for lampblack, say, and they will likely add umber. If chrome yellow is wanted, they will add ochre.

I think the shop-mixed paint has the ready-mixed paint knocked out. How

can we mix some of the colors we are called upon to mix, with ready-mixed paint? You must have white lead.

I have never seen anything that would take the place of white lead, though I admit that there are whites not white lead, that are good for a great number of purposes.

You can't get the same tint with lampblack that you can with drop black. The latter has a soft tone that the other black can't give; lampblack gives too gray a tone.

Every shop should have a variety of tinting colors.

Some use the paint too thin; you cannot get good work that way. You must have your paint right, it must be applied right; some paint must be brushed out, and some flowed on full. I always brush out my grounds for graining on, making them about an egg-shell gloss to dry hard.

If the graining ground is too glossy and too much is applied it will either let your varnish sink in, or in time the varnish will crack.

Ground color for enamel paint should always be flat, being made so with turpentine, with a little raw oil to keep it from setting too quickly.

As to brushes, there is none that will take the place of the oval brush. Buy brushes that are cheapest in the end.

Don't throw a brush into water; don't let it stand in the pot of paint; keep your brushes in water, your varnish brushes in raw linseed oil.

Don't give a workman a poor brush and expect him to do good work.

Keep a sharp eye on your brushes, for herein (in the careless use of brushes) does the paint shop suffer loss. Careless workmen will leave brushes lying around, and go away and forget them; hold each man responsible for his brushes.

Don't get it into your head that you know it all, or enough; we can all learn something from each other; we should read the trade magazines, even to the advertisements, trying goods that are there advertised, keeping up to date, and not getting into a rut.

I have known two men working in a room, who set the paint pot of umber color in the middle of the floor, each dipping in and letting the paint drop over the floor; when the pot was removed the picture presented on that floor was of the rising sun, besides which tears of paint were flowing from doors in fringes.

Following the reading of this paper there were suggestions and criticisms, as follows:

I do not agree that it is best to put paint brushes in water, for in my opinion it is better to keep them in oil.

Brushes should not be allowed to stand on end, but should be suspended in the keeper, by having holes bored in the handles.

It is best to keep varnish brushes in oil.

It is not an easy matter to keep the shop always clean, but we should try to keep it in as good order as possible.

Graining a Room.

BY ARTHUR ENGLISH.

(*Continued from last month*)

At this stage glass paper the work and dust it. The floor should also be looked to before any work is done. Now get a large basin and mix some water and beer together; also drop in a little whiting, and mix them well. Take a sponge, dip it into the basin, and rub it all over the part that is to be grained. This rubbing is done to stop the graining color from "cessing." It is a very important thing in distemper graining. Mix the graining color as follows: Take a basin that will hold enough stuff for the whole job. Then put in burnt sienna and a little drop black, ground in water, and "bound" with a weak solution of beer and water. This must be very thin. The color is very useful, as it enables a grainer to vary his "tone," warming or cooling it at pleasure, by the addition of more black or more sienna. The graining color is now ready. Take it and the tools, put them on some paper on the floor at the right-hand side of the door, keeping near you a bucket of clean water. Take the sash tool and dip it into the basin containing the color, and rub in the top panel of the door. If you cannot lay it off with this tool get the largest mottler which will spread it even and level. And if you brush over the panel with the badger at this stage, it will make it all the better. Take a mottler in the right hand and the chamois leather in

the left, which must be dipped in the bucket of water and well wrung out—a process that will have to be constantly done as the work goes on. Now proceed with the large mottler at the one side of panel, gradually thinning off in breadths as the mottler reaches the middle of the panel, now swelling out again as we get to the opposite side. Here the cross mottles will follow much on the same lines. To do this cross mottling you must push the end of your fingers into the hair of the mottler, which will give the irregular and broken lines seen in maple, taking care that neither the first nor second mottling is straight. Be careful that the cross mottles are not so thick or broad as those first put in.

One important thing is to keep the mottler brushes clean. As we go on mottling, the mottler will get full of graining color. To clean them we wipe the ends of the mottler on the chamois leather, held in the left hand. To clean the leather, dip it into the bucket of water and wring it out. In this manner both tools are kept clean and in working order.

Now take a one-inch fine "cutter," and here and there wipe off a bit of color, thus leaving the mottles bright in places, and take the badger and soften the raw edges left by the mottler. "Badgering" is always done across the panel, and this must be by extreme ends of the hairs.

At this stage get a piece of round stick about one-eighth or three-sixteenths of an inch thick, and lap a piece of shamois leather round it. This will form a tool like the end of a pipe. The tool is for putting "eyes" or "knots" in the work, and dipped into color, and then on to the lights of the mottling to the darker portions of the same. More should be dotted in some places than in others; also place groops here and there, and you will find that will leave a round, or partially round ring. The color that should be used is burnt sienna, and this should not be dark. If you have examined a slab of maple wood you will have seen on both sides of the "eye" or "knot" bright lights or shadows. These are put in by taking a piece of chamois leather, wet with water, upon the end of the thumb or finger, and with this is wiped out the bright lights or shadows about the "eyes" of the wood.

The next process is over-graining, and for this the color must be very thin and made of burnt sienna alone. If this is strong it will look very bad. To be right it should only be strong enough to be seen clearly. Take a sable pencil and the over-graining color, and commence with it penciling lines about the center of the panel, and going about the groups of "eyes" or "knots," extending them from one group of eyes to another, until you have filled up the center from top to bottom.

Next take the pencil over-grainer with the same color, and draw it down the panel, going in and out to follow the lines of the parts already penciled in, gradually fining down until there is nearly a straight set of veins.

Other panels can be done in the same manner by changing the pattern of the "mottling" and over-graining. I trust to the inspiration of the moment, and to the suggestions which will arise as I proceed with the work.

(*To be concluded*)

Painting Steel Bridges in Winter.

The question of durability regarding the painting of steel bridges, is not so much a question of season as it is a question of favorable weather. So far as temperature is concerned, either extreme (hot or cold) is equally detrimental to paint. Extreme heat forces paint to dry rapidly and therefore unnaturally, while extreme cold retards the drying and consequently also unnatural drying. Oil paint wastes much in weight and body under extreme heat, while the reverse is true in cold weather. The latter is an advantage, but is offset in many instances by the injury sustained whenever the paint becomes frosted before it is dry. When an oil paint dries naturally, it absorbs the requisite amount of oxygen, but if forced by extreme heat or by the addition of artificial dryers, its durability is correspondingly impaired. A temperature of from fifty to sixty degrees, provided the atmosphere is not overladen with moisture, is far more conducive to durability than either extreme heat or cold. Water, which is usually to be found in considerable quantity near or underneath most steel bridges, is a factor to be reckoned with,

in bridge painting. The ascending moisture caused by the evaporation of the water is very detrimental, especially while painting, unless there is sufficient heat to dissipate it before it envelopes the steel structure. On this account much care is necessary in order to guard against painting over and sealing up in the pores of the iron, such moisture that may have been absorbed by the metal. Moisture thus absorbed will remain indefinitely, or until there has been a protracted season of dry weather of sufficient duration to dry it out. Whether the painting is done on naked metal or over old absorbent paint, it is necessary as a preliminary step to determine the presence or absence of moisture before painting.

That portion of a bridge most exposed to the rays of the sun presents the greater advantage for painting in winter on account of the action of the sun in freeing the metal of moisture. It is a good plan and not impracticable in bridge painting to be governed by the position of the sun, or more correctly speaking, by the position of such structures to the sun at various seasons. As for instance, painting the sunny side of a bridge in winter when conditions require it, and those parts never reached by the sun in warmer or dryer weather. Another feature of bridge painting, whether in winter or summer, that does not always receive the attention it should, is the method of cleaning and application of paint. When it becomes necessary to scrape away or sandblast the structure, thus exposing the bare surface of the metal, the cleaned surface should in no instance be left unprotected over night, or for a period sufficiently long to absorb moisture, but should be followed up immediately with the painting. Sandblasting a bridge or other structure previous to painting, has the advantage of being dried or freed of moisture at the same time to a large extent by the compressed air that operates, the sandblast, that is provided the atmosphere is not overcharged with moisture, as the air taken in by the compressor is necessarily of the same humidity as that of the surrounding air. This is a common mistake in the construction of air compressors, as the air inlet should be placed in the engine room, or arrangements made to dry the air before it enters the compressor. Where this is the case, the dry air could be utilized to dry out the moisture from those parts of the bridge not exposed to the sun.

All things considered, the winter season is not altogether favorable for bridge painting. The fall season is far more advantageous than either winter or summer for painting structures whether of wood or metal.—*Railway Master Mechanic.*

The Mystery of Rust.

Recently there has been something like a sensation owing to the alleged discovery of the cause of rusting in iron and steel. As one leading English railroad loses eighteen tons of metal daily from its rails alone through rust, and as a leading American railroad estimates its daily loss through the rusting of rails at ninety tons, the item is costly. The whole of a great metal railroad bridge is painted at great expense at regular intervals in vain efforts to eliminate rust altogether. In painting the great Forth Bridge there is an expenditure of over $10,000 every year. In our own country special care is taken to clean all bridge parts before laying on a coat of paint. The increased use of iron and steel in modern structures makes it indispensable that an accurate knowledge should be obtained of the conditions under which the metal is converted into a material which resembles the earthy ores from which it was originally extracted.

The new discovery purports to be that the cause of rusting is the action of water containing traces of acid on iron in presence of atmospheric oxygen. To prevent rusting it is necessary primarily to exclude every trace of acid. This is generally impracticable. The alternative is to prevent contact of the iron with water and the atmosphere by means of some such protective coating as paint. Whether, in the case of steel, the internal structure can be so modified by a suitable and inexpensive treatment that the metal shall be nearly rustless is a problem that still remains open and urgently needs investigation. The problem in the case of steel has been attacked with the aid of certain elements, such as nickel. Certain varieties of steel containing nickel are said to be

almost entirely resistant to atmospheric corrosion. But the point is involved in dispute notwithstanding.

Primarily the rusting of iron is the result of acid attack, and the conditions for rusting to occur must be the same as those known to be determinative of chemical action in general, namely: the possibility of the existence of an electric circuit. The interaction of iron with water and oxygen appears to be impossible in the absence of an electrolyte, just as the union of hydrogen and oxygen has been shown by recent experiments to be also impossible in the absence of impurities. In the case of iron the presence of a trace of acid, by rendering the water an electrolyte, fulfills the conditions requisite for action to occur. . In the case of ordinary atmospheric corrosion the acid is usually carbonic acid.

The misapprehension or misconception of this position has given rise to some discussion on the subject in the columns of *Nature*. Thus it has been suggested that whilst carbon dioxide, oxygen and water are essential for the rusting of pure iron, the last two alone may be sufficient to cause the rusting of impure forms of the metal. But rusting in such cases appears to be due to the production of acids, owing to the oxidation of impurities in the iron, these acids playing the same part as carbonic acid in the rusting of pure iron.

How "Carter" White Lead Is Made.

The blue lead is melted and, while still in a molten state, is atomized by a jet of steam at high pressure striking the molten lead as it flows from the kettle through a pipe. The principle employed is that of the ordinary atomizer. The lead is made as fine as flour. Several thousand pounds of this atomized lead is then placed in a wooden cylinder ten or twelve feet long and about five or six feet in diameter. This cylinder slowly revolves, which causes the lead to continually shift position, that which is carried up the cylinder's side rolling to the bottom. This exposes the atoms to the action of the corroding agencies and also, by abrasion, wears off the white lead which forms, by which means the ultimate particles are made fine. Acetic acid much diluted is sprayed onto the lead through an opening in the end of the cylinder. Water is also sprayed in the same manner. The carbonic acid gas is produced by the combustion of coke under a steam boiler. The fumes (carbon di-oxide) are cooled and purified on their way to the cylinder, and enter at the temperature which experience has shown will produce the best results. After being removed from the cylinder the white lead is mixed with water, passed through fine screens, and washed free from traces of acetic acid. Then it is pan-dried and mixed with linseed oil, or sold in the dry state. While being mixed with linseed oil it goes through two sets of burr mills, but they do not grind it finer, simply rubbing the lead and oil together and thoroughly incorporating them.

In the Carter process the same elements are used in the process of corroding blue lead to white lead as are employed in corroding the same metal to white lead by the stack or old Dutch process, the difference being only in methods of application. The chief advantage is in the control over corrosion.

Removing Paint from Iron Tanks.

A method for removing a few or many coats of old paint from an iron tank is given in *Engineering Review,* as follows: Make a paste from fresh slaked lime and concentrated lye or caustic potash, and spread this over the surface of the tank to the depth of about ⅛ inch, using a trowel for the purpose. Let the stuff remain on long enough to soften the paint, then wash off with a hose and water. What is left may be scraped off. For a very obstinate case more than one application may be necessary.

This lime and potash remover is simply what painters many years ago employed for removing any old paint and varnish, and it is still used to some extent for this purpose.

Interior Decoration

Some Beautiful Interiors.

(This series will continue for some months.)

A very fine example of what is known as the Flemish style of interior treatment is shown in the annexed picture; it represents a dining room with deep Flemish oak wainscoating of panels that are made from the same dark wood that is used in the beams of the ceiling, and between these panels are other panels of magnificent Flemish tapestry, whose colors of rich coppers, burnt orange and old greens in the draperies of the figures are carried into the ceiling panels of the same material. This tapestry frieze represents an old Flemish drinking scene, both scene and coloring have a touch of Rubens in their composition. The walls between the frieze and wainscoating are covered with plain burlap, with a sheen of gold, fire and green that is charming. Notice the fine carved chairs, leather seated, the Flemish sideboard, and massive square table, only partly shown, all exquisitely carved, while on the wall are hanging shelves full of rare old china and cups, articles picked up all over the world by the owner, whose beautiful old Flemish home represents the results of one woman's nimble pen and fingers. Overhead is seen an old green bronze chandelier, and in the beautiful bay window are large jardinieres of Flemish porcelain and containing palms.

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Stencilling finds a very useful place in the decorative arts, but it is doubtful if it shows to as good advantage anywhere as in the frieze, where it has full decorative value. Stencilling is indeed so excellent for this purpose that nothing else in the,

range of decorative home art can approach it, unless it be hand work, of which it is a pattern or substitute. Those who can afford hand-painted friezes will not find stencilling an interesting topic, but for the masses of home makers it possesses real interest. Let me enumerate some of its advantages: Variety and change of color are exceptionally valuable factors in the frieze, and these no mere mechanical process can give. The paper frieze repeats itself over and over again, but with the stencil one may have a frieze with no repeats. The stencil pattern lends itself admirably to changes of form and coloring. Now, as a frieze dominates the room's decorations, we must have either the expensive handpainted article, or the stencil work, with the machine made affair as an alternative. The frieze is the one place in the room that admits of free and elaborate decoration, and nowhere else is decoration so expensive; I speak of the ordinary modern room. The frieze is prominent, it is out of the way of accidents, and it is not interfered with by pictures, for they hang below the frieze. So we may say that it dominates the room.

A very attractive frieze is stencilled on coarse linen, in water colors, and it is tacked on the wall, not being easily pasted on, with a wooden strip at top and bottom, fastened with copper nails. It is easily put up and as easily taken down, and its rough texture in contrast with the smooth paper beneath its lower edge affords a very pleasing effect. The material costs little, and the stencilling is easily done, and needs not be more than a one-color decoration, if the artist lacks skill in handling color. Or you can use brilliant dyes instead of water paints, but while the effects are better there is more trouble in the work, and it is not urged upon the novice.

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It is sometimes advisable to paint the woodwork of bedrooms in colors which correspond with the colors of the paper on the walls, and in doing so the decorator will not make the mistake of getting any one color from those displayed on the paper, but will take the general color tone of the paper for his cue, making a composite color, as it were, and which will be very satisfying to the eyes. This scheme of coloring is very good where a restful effect is desired, as in an invalid's room, or indeed in any sleeping room. The papers having browns and like colors in their composition give the best results.

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Harmonious coloring does not necessarily mean that everything in a room matches; the one-color-tone room of a generation ago is no longer in favor, and the room that does not proclaim its color is satisfactory, decorations, rugs, etc., combining to form a satisfying whole without any one object standing out from another.

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The kitchen may be made one of the most attractive rooms in the house by proper treatment; this is no more than its due when we stop to consider its importance. One very effective treatment calls for the painting of the woodwork a dull black rubbed to a dull polish with a rag and oil. The walls and ceiling may be papered in varnished tile in blue and white, with the floor covered with a linoleum corresponding in color to the walls. The pipes and other metal work may be done with aluminum bronze paint. Blue calico curtains at the windows add a touch of daintiness and hominess to the rare picture, but it is doubtful if black will serve in many of our kitchens, owing to the want of sufficient light to make so much black bearable. Aside from this the black gives a very rich and satisfying effect.

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It is not given to every little girl to have an artist for a father, and one having such a parent is the happy possessor of a bedroom that is more charming than words can describe. On the wall, back of the bed, which is hung with dainty French hangings, the artist painted an apple tree, among whose leafy boughs robins are disporting themselves, and in a crotch is a nest full of speckled eggs. The walls of the room are laid off in panels, on each panel a fairy scene being depicted; on one is seen Red Riding Hood and the wolf; on another is Hop O' My Thumb, and so on. Between these panels

are painted strings of children's toys, the whole painted with loving care. Something of the same effect may be obtained by the use of printed papers, arranging cut-out figures on panels, and pictures from magazines and catalogs serve famously in such work, so that a very attractive room for a child may be had with little expense, though not without some time and patient labor.

Suggestions for the Wall Paper Dealer

Is your wall-paper business satisfactory to you, considering the time, space and money devoted to it? I feel that many dealers will answer this query negatively, and even go further and say that it is not only unsatisfactory but very discouraging. Now, there is a reason for this feeling, and let me assure you the fault lies entirely with yourself.

In this article I will endeavor to give you some helpful hints on selling wall-papers. I am supposing and taking for granted that you are carrying a stock of wall-papers in conjunction with furniture, carpets and kindred lines. This stock of papers you no doubt augment by the use of sample-books issued to you by wholesale or book houses.

The first thing, then, that I would suggest is that you have a space in your store devoted entirely to the display of wall-papers. This space may be alongside or in conjunction with your drapery department.

It need not be large, but only large enough to accommodate a book-display rack; a sample-roll display rack, and two or three chairs for your customers and the friends she may bring with her. Above all things, do not relegate this space to some out-of-the-way corner, but have it in the front of your store where it will have prominence and a good light. If your wall-paper business is of enough interest to you to carry, then surely it is of enough importance to have the space allotted that it deserves and to which it is entitled. This matter is of vital importance, and must be done if you would have success. I do not mean by this that your stock of papers must be displayed. Far better is it that your stock-racks be not seen, as they are at all times disordered and decidedly untidy in appearance. Your stock may be kept in any space about the store that is dry and protected from the strong light. A very good sample-roll display rack can be made easily and at very little expense. A splendid type is the one having the space behind the rack apron divided into shelves, where you can carry your sample-rolls. You should then take a double roll of each paper you are carrying in stock and sample it on one end. Number and price it. It is also well to put your landed cost price in cipher along with the number and selling price. When your stock of any of the papers is sold down to a small lot you can also enumerate the number of rolls left. In this way many times you can work off your remnants very advantageously. Your sample-rolls can then be put into the shelves of your roll display rack, where they are always convenient to the salesman and where they do not take up any of your wall space. Your sample-books of your own stock and any you may have of the jobbing houses should always be on your book display rack. Do not have them scattered about the store, as your customer always becomes impatient while you are hunting for them.

As regards your sample-books, these should be made up in such a manner that all the time possible is saved in turning them down. Ordinarily there appears to be no definite plan with reference to the arrangement of sample-books. Neither the use of the paper nor the color is considered, nothing but the price, and a two-tone library paper may come next to a cretonne bedroom paper, or some other style. In showing a book made up in this manner a great deal of time is lost, as your customer will halt you on some pattern that strikes her fancy for a moment, and after three or four minutes have been wasted the pattern is passed by as unsuitable. And then there is another and even worse effect. The sight of all these papers, which are utterly unsuited for the purpose wanted, tends to confuse your customer's mind. She cannot bring herself down to make a selection and halts irresolutely, wasting your time, until finally she selects something with which she shall not be satisfied, or decides that nothing pleases her, and she will go elsewhere to make her se-

lection. Therefore, it will help matters greatly if you will group in one book all the suitable hall papers. In another you might have the parlor papers. Perhaps it will be well to have two or three books of these, say one for low-priced, another for medium grades and a third for the more expensive. Then you could group the dining-room papers together and put the bedroom papers in a book by themselves. In this classification it is also well to keep the same colors grouped together, your browns or tans, your pinks, etc. You will be surprised to see how many advantages are gained by making up your books in this way. In the first place your customer's mind is not confused by permitting her to see a large number of papers which are totally unsuitable to the work in hand, hence her choice is likely to be made much more quickly and your time is not wasted. Having the sample rolls of your stock right handy, as I suggest, you can save time. Frequently your customer is undecided between two or three patterns. Then turn to your sample rolls and display the three under consideration. This will always show up disadvantages of one or the other, and thus get a decision more quickly.

It, of course, is always better business to sell from your own stock first, but never lose sight of the importance of the jobber's sample-books. These you can always get for the asking without any expense to yourself. Therefore, get as many different books as you can, for you cannot carry in stock yourself papers to suit every one. When you find that your customer is not suited with what you have in stock, turn to the sample-books of the jobbers and hold her attention. She surely will find many papers to suit her and you make the sale. While on the other hand if you do not resort to the use of the jobbers' sample-books, your customer goes to your competitor and perhaps gets suited. Your time has thus been spent for naught, as you have lost the sale completely. And not only that, it causes the customer to think more favorably of your competitor's selection and taste. Before you go away, show her every sample-book you have. Then if you fail to make a sale you know you have done everything you could. Don't let your competitor get the order. What you sell he doesn't, so get every order. You do not get any profit on what your competitor sells, so it is up to you to make the sale and get a profit, even if you do have to order the paper when you would much prefer to sell from your own stock. Therefore, I say, do not overlook the importance of the jobbers' sample-books and what they mean to your business.—*The Wall Paper News.*

Sign Painting Art.

The art of sign painting may be learned by any one possessed of a fair education and average intelligence, who is willing to devote undivided time and attention to the work; it offers no hope of reward to the indolent; success will come only to the persevering. Let this much be fully understood at the beginning. I write these words because I know that many would be glad to become expert sign painters if only there were some royal road to its attainment, but who fall by the wayside, unwilling to put heart and hand faithfully into the work. They prefer to either give it up, and when obliged to do something use letter patterns. Letter patterns are good in their place, but if you want to become a sign painter you cannot get there by the cardboard route.

A man may become capable of doing any sort of lettering that is done, but as a rule the art is divided into several parts, such as the ordinary business sign, the wall or bulletin sign, the wagon sign, and the railroad car shop sign. Maybe it could be divided some more. Certain it is that few men ever do all these various branches of sign work. There are sign painters who do business signs, often working for various house painters who take contracts from customers and sublet the work to some sign-painter-to-the-trade, and who number among their clients wagon builders, who have them do wagon signs they may have to do. In the car shops the employees, one of them at least, will do the sign work on the cars, passengers and locomotives or tenders; freights are stencilled by ordinary painters. So that you can see that the art is in sections, as it were.

I think it a good plan to get a general knowledge of sign painting, by working at the several kinds, whether you intend

to work for other sign painters, or for yourself, for it gives you a better chance for work when in need of it. You could then turn your hand to bulletin or any other kind of letter work. There never was a time when so much sign advertising was done as right now, and the business is constantly on the increase. And it can be still further increased by pushing for it; a good deal of sign advertising is being done simply because some hustlers went after it, convincing the business man that it would pay him to advertise in this way.

The evolution of sign advertising began with plain JOHN SMITH, CLOTHING, to indicate Smith's store, to the present elaborate sign work that tells all about Smith's goods and business methods. We can easily remember when the street cars did not carry a line of advertising; now see the frieze that decorates cars in this way. You can't open your eyes in any city or town without seeing sign work on every hand; somebody has done the work, and ready for more of the same kind. Never was the time for learning sign work more propitious than now.

The suggestion has been made by some shrewd fellow that towns might call attention to any attractions that they possess by means of the bulletin board, having painted neatly and legibly thereon a brief statement of what the town holds to attract visitors and permanent population, and incidently manufacturers. The idea is very good, much better indeed than any other form of publicity for the purpose that can be used. Some say that neatly laid out parks near the station of the railway is the thing, but it is only a part of the thing; the bulletin board is the whole thing, no doubt.

Wall signs are viewed from a distance, hence should be lettered accordingly. The form of letter that is adapted to the near-by sign is obviously not the letter for the wall sign. Wall sign painters call the letters suitable for the work "fat," or thick and heavy. You make a sketch of your wall sign on paper, say an inch to the foot scale, with lines up and down and across, one inch apart. Then all he has to do up on the stage is to follow his chart. He measures the width of the wall from the ground, and can get the height of the space that is to be lettered by counting the rows of bricks, if not plastered, and this he can do on the ground. So that when he is ready for the work he has it all measured off. Four bricks make about thirteen inches.

He paints the letters on in the rough, calling that "breaking on the letters." Then he cuts in the letters, with the background paint. For breaking on the letters the painter will use a flat wall brush, four inches wide, and the same to fill in the background. Brushes from one to two and three inches wide are used for cutting-in the letters.

A wall sign should be brief; people see it and glance at it; in that glance they must take in the whole story, or the effect is lost. The name of the article is most important, and should be in bold letters that stand out. Then the price comes next in order of importance. To make the sign more distinct the choice of colors used is important; you might have the finest designed wall sign in the world, but if the colors were so somber as to be really indistinguishable, the sign would be no good. White makes a good letter color. Use the best white lead for this, thinning with benzine, and adding driers. The purpose of the benzine is to allow of the cutting-in of the sign at once, and as the background will be black, say, and the letters white, you will see the need of a quick-drying color, so that it will not mix up. If the sign does not have to be finished all at once, as is usually the case, especially where the staging is up, a slower and of course more durable paint may be used.

For a black background use dry lampblack thinned with boiled oil; in cold weather add a little benzine also, and the same for a new wall or one that is very porous. Colors ground in oil are also useful for the purpose, especially for small signs.

The painting of bulletin signs is similar to wall sign painting. The bulletin sign, however, must be painted solid with white lead paint and allowed a day or two to dry before the lettering is roughly outlined thereon. The colors used are either oil or japan colors, thinned with turpentine or benzine, with driers.

HARD WOOD FINISHING

How to Finish Birch.

BY A. ASHMUN KELLY.

Since mahogany is mostly treated with color to darken it and enhance its richness of coloring—natural color of mahogany being far from rich—it is an easy step from it to the treatment of birch in the effort to make the latter successfully imitate the former. It is well known that when skillfully treated birch makes a very close imitation of mahogany that has also been treated with stain. We are therefore fortunate in having so excellent a wood left to us out of our prodigally wasted wood substance to use for fine furniture and interior woodwork for buildings.

Birch should first be thoroughly kiln-dried. That is the lumber man's business, but we must, as finishers, insist on having it well dried, if we are to be successful in finishing it. It is close-grain wood, and as such should not require paste filling; but after it has been water-stained to color it the pores open a good deal, and hence we must paste-fill it after the staining process. Now, there is more than one color in which to finish birch, according to the fancy of the one we are to finish it for. We may finish it mahogany color, taking the stained mahogany color as the standard; or we may stain it almost any color that fancy may dictate, such as forest oak, for instance; then we may be required to finish the wood in its natural state. The latter finish is produced by first giving the wood a coat of white or bleached shellac varnish, using one pound of bleached shellac to the gallon of alcohol. After 24 hours we will sandpaper this shellac coat with fine paper, a coarser paper being likely to cut edges and parts that are liable thereto in the case of one who is not overcareful. This is to be followed with two or more coats of the best hard copal varnish. Two coats of this varnish will produce a good finish, rubbing down the first coat; more than two coats may be used, giving the wood a greater depth of effect, but it is not best for the wear of the varnish. Just here let me introduce a useful set of axioms for the finisher:

One coat of varnish never cracks.
Two coats of varnish seldom cracks.
Three coats of varnish often cracks.
Four coats of varnish always cracks.

Like all rules, these may not always work infallibly true to statement, but they indicate the danger attending the application of superfluous coats of varnish.

For staining the birch to a mahogany color nothing is more satisfactory than Bismarck brown, an aniline stain powder, using an ounce of powder to the half-gallon of water. Indeed, this is the right proportion of aniline powder to use in any case. Mix the stain in an enamel ware or earthen pot, and add a little alcohol. Water stain raises the grain of the wood, but here is a good way to minimize this effect: First, wet the wood with clear water; let it dry, then rub lightly with worn or fine paper, dust off, and give another water coat, dry, sandpaper, dust off, then stain. By applying the water you raise the grain, which in turn is sanded off, so that by the time you come to apply the water stain there are no grains to raise, or at most there will not be much raising of the grain. One coat of stain is usually sufficient, but if a greater depth of color is wanted, then apply another coat of stain. When the stained wood is quite dry, sand off with fine paper, say No. OO. Dust off, for no dust or dirt must remain, for that would give a dirty effect to the finish. Now a coat of orange shellac may be given, coloring the shellac slightly with some of the stain powder dissolved in alcohol, adding it to the shellac and stirring well to incorporate it with the shellac. The object of this staining of the shellac is to stain any little places that the sandpaper may have rubbed through. It also gives a more uniform color effect to the job. When this coating has quite dried and become hard, sandpaper again with OO paper, and dust off as before.

Paste fillers may be bought ready pre-

pared, and it is more satisfactory every way to buy it this way, than to prepare it yourself. Thin the filler with benzine or turpentine, the benzine being cheaper and equally as useful. Apply the paste filler quite thin, or in what might be termed a liquid filler condition, for whilst the grain of birch is open after water treatment, it is far from being porous like the open-grain woods, such as oak, ash, chestnut, etc. The filling is done the same as in the case of other woods, being applied and allowed some twenty or more minutes to set, then rubbed off across the grain with wad of tow, or a leather scraper, being careful not to pull the filler out of the wood pores. As you rub off the superfluous filler rub it into the wood at the same time. When done with this operation let the work stand 24 hours, then sandpaper off with fine paper, when it will be ready for the varnish. The varnish may be left in its native gloss, or be rubbed to a polish or dull finish, just as may be desired. The natural varnish gloss is seldom desirable, especially in this wood; rubbing may be done with pumice flour and water; I say water, because there is danger of rubbing up the varnish if you use oil in the rubbing. And water cuts much quicker than oil.

What I have said about the finishing of birch applies to many other woods, but each of which must be separately described when it comes to the finishing thereof, for there is likely to be some minor differences of operating that are important to know and to observe. For instance, the work necessary on one kind of wood may be greatly more than may be at all required on another kind. Birch is a fine wood, of fine grain, and exceedingly fine veining and shading, and it stands to reason that it will require a finer finish to look its best than a coarser wood will require.

Surface of Finished Veneer Work.

An interested reader of the articles on veneer in *Wood Craft* asks the following question in regard to the surface on finished veneer work: "Do the painters use the same method in painting veneer as in painting straight stock? What's the cause of what would be termed ordinary stock graining out on the veneer where in the same job a straight panel shows perfect painting?"

It's a little difficult to answer this question without knowing all the details of the particular instance inquired about, what kind of veneer it was, how it was put on, what kind of painting was used, and also whether the straight stock was quarter-sawed or plain-sawed, and whether the veneer was quarter-sawed, sliced or plain rotary cut. Evidently if it was a job of paint work the veneer was plain rotary-cut stock. Rotary-cut veneer should, and does under proper treatment, paint or finish with varnish practically the same as solid plain-sawed stock. It ought to produce the same result with the same treatment. In fact, the writer has seen panels made of veneer set in frames made from solid stock of the same wood in which the panels showed up better than the solid wood, because they finished equally well and produced a better figure.

Ordinarily the raising of the grain after any painting or finish whether of solid wood or veneer is due to the wood not being thoroughly dry when it is finished, either when it is finished at the machine or when the paint is put on. Take a job in solid wood for example, and let the stock be put through the planer and sander before it is thoroughly dry and after it is finished with either paint or varnish it is likely to do what this reader terms graining out. That is, some of the grain will shrink away and leave the other with the same effect as if it had raised. Applying this same theory to built-up work one can understand how that built-up panels is sanded immediately after gluing before all the moisture of the glue has become thoroughly evaporated out of the stock, it might after being painted show a raised grain.

Another thing that might cause the same effect, too, would be the use of veneer which had been too loosely cut. Also it might be caused from using rotary-cut veneer with the wrong side out. Rotary-cut veneer where the blocks have been properly boiled, and the pressure bar well fitted and carefully adjusted, is tight and smooth on the outside as it peels from the log and rather stiff to bend as compared to loosely-cut stock where the

pressure bar is not doing its duty, or where the logs have not been properly boiled or steamed. In fact, some concerns can cut veneer from one-sixteenth to one-eighth inch in thickness that is so tight and firm that it is difficult to tell the inside from the outside.

On the other hand, however, there are others who cut it loosely who either do not understand the business well, or are careless about their work, and stock of this kind instead of being a solid body, is more or less a mass of splinters held together by interlocking fibers. Veneer of this latter class might show up badly under finish, and even veneer that is cut fairly tight if put on inside out might finish off poorly. Again, an excessive amount of sanding on the face of the finished panel may at times cut away so much of the outer wood of the top layer as to leave only a very thin sheet of what is practically the inside of the veneer and is not as tightly cut as the outside. However, with due regard to all the points mentioned herein, the painting of built-up work should result in as good and lasting a job as if the work were solid wood, sawed instead of cut.—*Wood Craft.*

Wood Finishing Formulas.

OAK FINISHING.—In furniture and house interior work there are used red, black, white and rock oak, principally. and these are nearly all quarter-sawed, an operation that gives us those exquisitely marked specimens which we call flaked. The log is sawed in two, and then the halves are sawed in two, thus making four pieces or quarters; then each of these quarters are sawed into boards, beginning with the sharp end of the triangular stick, each strip being somewhat broader than the preceding one.

The wood is treated in various ways to produce fine effects, and these will be described as follows:

GOLDEN OAK.—This is the most popular of all the several kinds of finish, and is produced as follows: The wood is first stained with a mixture of pure asphaltum varnish and gold size japan, half and half, thin with turpentine; wipe this out so as to show the markings. Next comes the filler, which is made by adding together japan gold size, raw linseed oil and turpentine, equal parts, and stirring in enough pulverized silica to form a paste; color with burnt umber, oil color and some drop black, in oil. Run this through a paint mill. The best plan is to buy the filler ready made; if you will get the lightest in color you may then darken it to suit your needs. Fill your wood in the usual way, and proceed to varnish and rub.

ANTIQUE OAK.—Stain with Vandyke brown or lamp black. Fill with a paste filler to suit. Several coats of ammonia will antique oak. Or a stain of iron filings and vinegar. Or treating the wood with a concentrated solution of permanganate of potash, which does the work in a few minutes; then wash in water, let dry, oil and polish.

FLEMISH OAK.—Stain with a solution of bichromate of potash, half a pound to one gallon of water; let dry; sandpaper smooth; coat with drop black in japan, thin with turpentine; let stand a few minutes, then wipe off clean, coat with shellac. sandpaper with No. o paper, coat with beeswax, a pound to a gallon of turpentine, adding one-quarter pound of drop black, stirring all together, and wipe off with cheese cloth.

WEATHERED OAK.—Apply a coat of strong ammonia, let dry, sandpaper smooth, then stain with a mixture of lamp black and ochre, adding two pounds of silica to the gallon of stain. Wipe off with cheese cloth, apply a coat of grain alcohol shellac, sandpaper again, give a coat of wax, and wipe off clean. There are ready-made weathered oak stains also, and various shades of the same. You can get a brownish shade with an ounce of bichromate of potash and ammonia.

VERDE OAK.—This is a green finish. Dissolve an ounce of nigrosene in two quarts of water, apply a coat, sandpaper; and fill with a green filler, to which add some white lead. Let dry hard, then shellac and wax, or varnish finish, if desired. The nigrosene stain makes all of the wood but the pores black, while the pores are filled with the green, a bright green being used.

QUESTIONS ANSWERED

"He that questioneth much shall learn much"—Bacon.

RENOVATING OLD GOLD LETTERING ON SIGN.—Can you give me a formula for restoring or bringing back the luster to the gold lettering on a smalts sign, after the same has been in use for some time? If you will mix together equal parts of sulphuric acid and water, and apply this to the letters with a soft cloth, it will remove the dirt and grime and make the gold as bright as when new.

HOW IS TINFOIL MADE?—Tinfoil is not made of lead, as you think, but of tin, in the following manner: A pipe is made of pure tin, and this is filled with lead; the whole is then beaten, the same as gold leaf is beaten out, the tin coating spreading with the lead core. The three sheets which follow are sometimes reduced to a thickness of .0001 of an inch.

PAINT ON GLASS.—You can remove the paint marks on the glass by making a coating of ammonia and whiting, thinning this to the consistency of cream with water; leave the paste dry on the glass, then wash it off with soap and water.

FINISHING GEORGIA PINE.—I have some houses to do inside and out, the inside Georgia pine, some natural finish, and some to be stained and filled at the one time. I used to buy a stain and filler combined, made by the Cyahoga Varnish Co., but since they went out of the business I am inclined to make the filler myself. What should I use to make such a filler for this purpose? In reply we would say that you can buy a stain-filler at any paint store, and at such a price that it will not pay you to make your own for a job of three houses. It is simply varnish with a suitable pigment stain, with starch or other base to give filling body to it.

A RUB AND POLISH JOB ON OAK.—I have a good job of oak to finish, and would like to give it a rub and polish finish; can you tell me how to go about it? After smoothing and cleaning off the work, apply a paste filler to it, rubbing well into the wood, then after some twenty minutes or so, rub off across the grain all surplus filler, pressing it into the pores of the wood. The next day sandpaper smooth, and apply a coat of good copal varnish, which when hard-dry is to be sandpapered off, following with another coat of varnish, which should be allowed at least forty-eight hours to dry in; after which it may be rubbed with pumicestone, flour and water; clean off and rub with rottenstone and oil to a polish. If you wish a gloss polish, then flow on the final coat with a good finishing varnish. More coats of varnish, with more rubbing, gives a higher grade finish, but this you must decide according to the money there is in the job.

GILDING ON COPPER.—I have some gilding to do on copper that is exposed to the weather the year around. How shall I prepare this copper surface so that the paint wont peel off and keep the gold leaf from changing color? This question is from a carriage painter. There should be no trouble from the paint or gilding on copper; clean the surface and remove any dirt or scale there may be on it, rubbing with some abrasive material if necessary, in order to make it clean and bright, then apply the paint in the usual way, having more turpentine than usual in the first coat, which is thought best to make it attach firmly to the metal; then apply your gold size as for any other job. If the gold leaf should change its color, it will not be on account of the copper under it, but because of the probable alloy of copper or brass in it, and the action of the gas laden atmosphere. Should the gilding tarnish, clean off as advised in the first one of these answered questions in this department.

WATER COLORING INGRAIN PAPER.—It is sometimes done; apply a coat of water color paint, as near the color of the ingrain as possible, and stipple this lightly.

CHARGES FOR GRAINING.—You will find the price list of the Boston, Mass., Grainers' Association a good guide in the matter of charging for graining. Here it is:

For all ordinary work, kitchen, not over 5 doors and ordinary sheathing, according to quality, from $3.50 upwards. Extra door sides and casings, 50 cents each. Pantry and closet work extra.

No single room less than $3.00. Double front doors, $2.00 and upward. Single front doors, $1.00 and upward. Ordinary graining, per yard, 15 to 20 cents. Extra quality, such as matching hard woods, etc., 20 to 40 cents. Floors and ceilings, 3½ cents per square foot. Store and bar-room work, and all places difficult of access, and involving delays, from 20 to 30 per cent. extra. Choice or rare woods, requiring double graining, not subject to this list. Out of town work, board and fare charged. You can alter this schedule to suit your place and conditions. If you should have a number of front doors close together, say in one block, you can make a discount in favor of the customer. And so on through the list.

GRAY AND GREY AGAIN.—That the spelling of various words permitted by usage and the dictionaries to be varied takes on a different twist of meaning by the change, is not always known, even to lexicographers. The case you mention, of grey and gray, is a case in point. The profession of art, if not primitive English usage, has made a distinction between the two forms of the word. The word as spelled GRAY may with propriety be employed to designate an admixture in which simple black and white are employed; the form GREY may indicate those admixtures which have the same general hue, but into which blue and its compounds more or less slightly enter. A common variety of the former is drab; of the latter, lead color.

CLEANING DIRT FROM VARNISHED SURFACE.—We believe that the railroad car painters employ a composition for this purpose, but do not now recall its formula, Here is a paste that is recommended for the purpose: Starch or flour, or wood pulp, 40 parts; hydrochloric acid, 45 parts; chloride of lime, 16 parts; turpentine, ½ part. Mix these thoroughly into a paste. Cover the varnished work, whether on wood, metal or stone, with this paste, and allow it to remain for some hours. Then remove the paste, and this may be done by rubbing it briskly with a piece of soft leather or a brush, which removes all dust and dirt, leaving the surface perfectly clean. Rub with a cloth or soft leather to produce a polish. The chloride of lime keeps the paste moist, and permits of the removal of the paste without injuring the surface of the varnish.

ESTIMATING PAPER FOR A ROOM.—No definite rule can be given for determining the exact amount of paper required to paper a room, because of the allowance that must be made for windows, doors, etc., and matching patterns and width of border. Some paperhangers deduct from the entire surface of the side walls above the base, the surfaces of the doors and windows, while others deduct one-half of a single roll for each door or window. No deduction is usually made for the border, thereby making sufficient allowance for waste in matching. In our own experience we have found that when a close figuring is made for the job, estimating all solid and making no deductions at all, excepting in cases where there are many openings and parts not to be papered, there is nothing left worth speaking of; there is always a chance of shortage when you count out openings, and so we advise our own plan.

A QUESTION ANSWERED FOR US.—"In THE MASTER PAINTER for September you want to know who sells transfers for ornamenting phonograph horns and such like; I would say that Einstein, wholesale dealer in bicycles and sundries, Chicago, sells them. The Consolidated Picture & Frame Co., 290 W. Adams St., Chicago, have a Magic Transfer Fluid that will reproduce black and white or colored pictures from newspapers, books, catalogs, etc., transferring to paper, satin, silk or other fabrics, glass, leather or wood. These are the best I know of." Information furnished by A. J. Ellison, Loveland, Colorado.

DRILLING HOLE IN GLASS.—With a case hardened drill, slightly twisted at the point, and with a carpenter's brace, drill the hole in the glass as you might one in

wood, only in this case you want to keep the point of the drill wet with turpentine. Drill the hole half way from each side of the glass, in order to prevent chipping of the glass around the hole. For a small hole an ordinary hand saw file will do; break off the front end of the file and grind to a blunt pyramidal point. If possible, lay the glass flat down, to prevent the turpentine from flowing away from the point of the drill.

MAKING A FLEMISH OAK.—This may be accomplished in several ways: you can fill the wood with a filler made dark with raw umber, and when the filler is dry and rubbed off, stain the wood with a transparent flat stain of raw umber, and for the darker shades add black to get the desired darker shade. When dry and made smooth, varnish and rub. Or a wax finish may be given.

BLENDING WATER COLORS.—The ceiling color is to come down the side walls about nine inches, where it is to blend with the wall corner; I have also an arched or rounded corner building to blend. I have never done such work, and would like information on the subject. Our correspondent should get Nelson's HANDY BOOK FOR KALSOMINERS, and turn to page 84 for the information he wants, and get at the same time lots of other useful information for those using water colors. As the cost is only a dollar, or much less than that to our subscribers, and as to describe the method of blending colors would take more space to do it justice than we can give in this column, we think it better to suggest the book and omit the detailed information needed by the correspondent.

ELECTRO-CHEMICAL COLORS. — The preparation of mineral and artificial organic colors by the aid of electricity has recently made considerable progress, and it is suggested that the products of this new industry may eventually replace those derived from coal tar. Among the colors now produced in commercial quantities by the employment of the electric current are vermilion, Scheele's green, cadmium yellow, Japanese red, cerise or cherry red, Berlin green and zinc white, besides a number of organic colors. Th process consists essentially in sending a electric current through a solution con taining the elements required for the pro duction, by precipitation, of the colorin matter desired.

CADMIUM PRODUCED IN AMERICA.— The production of metallic cadmium which has hitherto been confined to Bel gium and Silesia, has been undertaken b a chemical company of Cleveland, O. Th ore of the Joplin district is said to b richer in cadmium than the ore of Silesia but under the conditions of zinc smeltin in the United States it has not been con sidered worth while to attempt to sav cadmium as a by-product.

INDICATES HYDROCHLORIC ACID GAS —Metanil yellow is popularly known as dye for curtains, imparting a soft cream tint. Its scientific name is "the sodiur salt of meta-amido-benzene-sulphonic acid-azo-diphenylamine." Recently it wa accidentally found to be a test for th presence of hydrochloric acid gas in th atmosphere. At an alkali works in Eng land it was found that this gas was escap ing by the fact that the curtains of th residents near by were being change from the metanil yellow coloring to heliotrope tint. Free chlorine and sul phurous gases have no effect on the colo excepting to bleach it.

WHAT COLOR SHALL THE AUTO CA BE?—An English cotemporary calls at tention to the need of a suitable colorin for automobiles, so that they may easil be seen at a distance. It suggests brigh red and white, in combination, to whic we would add blue, as being necessar to a perfect combination. Red, of bright hue, relieved with white part would make a very fine appearance, bu we think the advocate of the combinatio errs when he states that red may be see at a greater distance than any other colo yellow or buff excels red in this respec as anyone may easily determine for him self. However, as the machines spee with the velocity of an average comet, really matters little what color they ar saying nothing of the section of roadwa that envelops them in dust form.

THE ZINC QUESTION. — Architects specify the use of French or imported French zinc, whereas all the French zinc now imported comes from Belgium or Germany, and it is said that the Florence zinc made in this country by the French process, which makes it from the metal, the American zinc being made from the ore, direct, is fully the equal of the imported zinc, and in respect to uniformity it is superior to it. . The architect should therefore specify French Process Zinc, as has been done by the Government, so that painter and manufacturer could furnish either the imported or domestic, as conditions indicated.

Factors in Painting Woodwork.

(Conclusion.)

THE NUMBER OF COATS APPLIED.

The durability of paint will be affected by the number of coats applied, *e. g.*, two coats of paint will wear better than one; three coats of paint will wear better than two; and four coats of paint will wear better than three. The theory upon which we design coatings, both for wood and for metal, is, that the primer or foundation coat should be considered as structural material whose function is both to exclude air and moisture from the material underneath it, and to form a receptive surface for subsequent coats. It is further our theory that in the sequence of coats this primer or foundation coat should dry more quickly and harder than any one covering it. Where it is desired to finish a structure in white, or in a light tint composed largely of a white pigment, we have reason to infer that it is wise to limit the number of coatings applied to three, exclusive of the primer; the reason for this limitation being that our knowledge includes no inert pigment which, when used alone with linseed oil, will have sufficient hiding power to serve as a satisfactory paint pigment. The conse-

quence is that to produce a good paint in white or some light tint, it is necessary to use pigments like white lead or zinc white that react with the oil and continuously weaken it, until its power as a binder is finally destroyed. With paints made from inert pigments and linseed oil, it is undoubtedly true that, provided a sufficient interval be allowed to elapse after each coat for it to dry and harden, the greater the number of coats and the greater the total thickness of the layer, the greater will be the degree of impermeability to air and moisture, and also the greater the degree of resistance to atmospheric influences.

AMOUNT OF TIME BETWEEN COATS.

Linseed oil in drying takes something from the air, viz., oxygen, and gives off something to the air, viz., carbon-dioxide and water. Mulder describes the process beautifully, and calls it "the breathing of the drying oils." The things favorable to the drying of oil paints are light, pure dry air, and moderate artificial heat. The things unfavorable to the drying of oil paints are a humid atmosphere, darkness, noxious gases, and low temperature. The amount of time which should be allowed to elapse between coatings of any given oil-paint will vary so much with the location of the structure, the kind and condition of the surface, the quality of the paint, the atmospheric conditions when the painting is done, that it is obvious no set period of time can be named. However, a painter who is interested in his work can always determine whether one coating is fit to receive another by noting its lustre, the time when the paint no longer sticks to the dry skin of the finger, and the time when the layer cannot be removed under heavy pressure. Blistering, cracking, and peeling of paint are often due to the fact that under coats were too elastic when they were painted over. If a piece of work be painted coat upon coat of oil-color before each coat is sufficiently dry, the movement and shifting of the under coats in their effort to obtain oxygen for their proper hardening will either rupture—*i. e.*, crack—the top coats or lift them up in the form of blisters. Pearce, in his excellent book on painting, says that four days is not too much to allow for the proper drying of oil-color which will nominally dry in twenty-four hours. The period may be shortened by additional driers but a good rule is to allow all paint to stand four times as long as it takes to arrive at superficial dryness.

THE ATMOSPHERIC CONDITIONS WHEN THE PAINTING IS DONE.

Opinions as to the best time for painting differ largely; but nearly all the standard authorities concur in the opinion that a temperature of from 55° to 80° and an atmosphere that is as free from moisture as possible favor the best results.

From three to four gallons of raw oil will mix 100 pounds of dry red lead Prince's Double-Label Mineral Brown dry, will absorb 15 gallons of oil, to bring it to a paint, and the same material in oil will take 8 gallons to thin to the usual consistency for application.

Interesting Test.

Exposure tests on a large scale are in course of trial at the North Dakota Agricultural College Experiment Station, at Fargo. The idea is to test various commercial paints found on the market under exactly similar conditions to those met with in ordinary house painting. In order to carry out this project, a fence was constructed running north and south, 7 feet long, built of cedar posts set in cement, and with the top and ends well capped to prevent rain from soaking into the boards from the back. Soft and hard pine is used and the space is divided into five feet lengths. The Paint Manufacturers' Association have donated a sum of money to enlarge and supplement the work, and have contributed paints specially prepared, and the National Lead Company has also donated money and furnished a quantity of white lead. The painting is to be done by an experienced painter employed by the college for the purpose, and the Paint Manufacturers Association has sent a man to inspect the work and see that the paint is properly applied. The test will last for a series of not less than eight years, and it is understood that not only will the durability of the paints be under observation, but record will be kept as to the comparative cost of labor and materials, during the series of

years. The various paints are to be numbered, and no manufacturer's name or brands will appear, but the formula upon which each paint is made will be furnished to the superintendent, who will verify the composition by analysis. Not only will various brands of ready-mixed paints be tested in comparison with white lead and with oxide of zinc, but mixtures of the two in various proportions will also be tested, so as to determine the value of inert materials used as "extenders," and the effect of water in paint used for exterior work. This is the most comprehensive test of paints ever made in the United States. The test will be absolutely an impartial one, made with a view to ascertaining the truth rather than of supporting any pet theory, and will not only be scientific in its methods, but will be carried out on such a scale and in such a manner as to be thoroughly practical in every respect.

The Work of School Boys.

The accompanying picture shows as well as a photograph may some work done by student boys in a sign painting class, under the direction of the editor of THE MASTER PAINTER. The picture fails to give one of the best features of the work, namely, the coloring, which was good. This work is the result of three months' or so of careful instruction in the art and practice of sign painting, the boys being about sixteen years of age, fresh from public school. What the boy can do, the painter of riper years and with experience with paints, ought certainly be able to do also. Any painter desiring to learn sign painting should write to *The Malvern School of Painting,* and he will be told how he may accomplish his desire.

Fred's aunt was taking a kindly interest in teaching her young nephew the colors. She happened to be wearing a gray skirt, and, pointing to it, she asked: "Now, Fred, what color is this?"

Fred (carefully)—"Dark white."

Aunt—"No; try again."

Fred (decidedly)—"Then it must be light black."

Paint Fashi

The Taste for Certain Tints and Colors Runs in Cycle

While we can control this taste to a certain extent onl production and use of paints.

The tints and colors, combinations of which will be offere tectural forms, but the actual tints will be limited in numbe

It is hoped to secure the co-operation of intelligent Ma sumers. An explanatory pamphlet will be issued before th

Any Master Painter who will furnish his address will b tion as soon as the matter is ready.

Address :

PAINT MANUFACTURERS' ASSO

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This is as true of House Paints as of Dress Goods.
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upplied with a copy of the pamphlet and with full informa-

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BOURSE

Philadelphia, Pa.

Editorial Department

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By reference to this little square YOU will know the date on which your subscription expired.

The Outlook for the Boss Painter.

Under this caption the organ of the organized jours in the painting and decorating trades, published at LaFayette, Ind., calls attention to the fact that the trustification of different branches of industry means the ultimate crowding out of the boss painter by the big general contractor. Thus the small bakeries have been squeezed out, and even the saloonkeepers are rarely independent concerns, and so on all down the line.

The same principles can be applied in the building industry, and slowly but surely, methods are being adopted which enable the great construction companies to take advantage of the economies of concentration and monopolization. Each year the field of the contracting carpenter, painter or other building trades employer becomes narrower. Practically every large office building, hotel or similar structure is painted for a percentage of its entire cost or the owner or general contractor pays all bills for materials and wages and the employing painter receives a percentage on the cost for hiring the necessary labor and supervising the work. This practice is being extended to smaller work, the general contractor giving all his painting to some firm which does not figure upon it, but receives a percentage upon the cost. Sometimes the employer is dispensed with entirely, the general contractor employing a foreman to hire the workmen and superintend the work.

Half of the work upon new buildings is done in one of the above methods. Conservative employers who refuse to accept work on these bases are compelled to confine themselves to old work which so far has not been seriously invaded by the jack-of-all-trades general contractor. But this restriction of the field of enterprise makes competition keener, and places this employer in a position little superior to that of him who accepts a percentage from the general contractor. In order to secure business he must be satisfied with a very modest profit—occasionally when the job is completed, the balance is on the wrong side of the ledger.

The evolution of the building industry is rendering the independent contracting painter superfluous. Between this upper millstone and the nether millstone of the thorough organization of the journeymen, he is being ground out of existence. His only hope is to co-operate with the journeymen in an effort to elevate the trade by educating the public taste so that there may be a greater demand for a class of work which requires for its performance skilled mechanics working under the supervision of men who have devoted a lifetime to the study of decoration.

A Campaign of Education.

The principal paint makers of the United States have long been associated as an organization for mutual advantage, and the present work in which they are engaged, as seen in the extensive advertising which they are doing, is naturally what might be expected they would do, in view of the inroads which the mail order houses are making in the legitimate paint trade by wide publicity of their inferior wares. The design of the paint makers' propaganda is to stir up the regular paint dealers, which consist of hardware dealers, druggists, etc., to greater activity in pushing paints, not waiting for people to ask for the goods, as is the old custom with the dealers, but to advertise and call attention to them; in this work the dealers

will be assisted by the paint makers, with literature and instructions. We desire to call the attention of painters to the importance of the matter also. It is and must be to their interest to do what they can against the flood of mail order paints, which anybody is presumed to be able to apply, and which takes that much of the work out of the hands of the painters. We advise the general use by the painters of the ready-mixed paints made by all reputable makers, sure that it is advisable both on the score of economy and better satisfaction, where the customer desires it. To all dealers who may read this we advise their sending for Heckel's PAINT CATECHISM FOR PAINT MEN, which will enlighten them upon all points of paint knowledge. To the painters we say, send for the matter which the PAINT MFRS. ASSOCIATION want you to read, for it will interest you. It is the design to simplify and make uniform the use of colors for exterior painting, which will be a decided economic advantage to makers, dealers and painters.

A Practical Wall Paper Book.

A most important book for decorators, paperhangers, wall-paper manufacturers and salesmen has just been published under the title "Wall-Paper Decoration," by Arthur Seymour Jennings. This book, which supersedes "Practical Paper-Hanging," "Wall-Papers and Wall Coverings," and other books by the same author, gives in a very complete and comprehensive form a resumé of the popular styles in wall-paper decorations. Wall and ceiling decoration by means of printed papers and woven or printed fabrics is thoroughly discussed and lavishly illustrated by half-tone and colored plates showing the different styles and designs that are most used at the present time.

The chapter headings include how to select wall papers; recent developments in wall-paper designs; the different varieties of wall-papers, dadoes, fillings and friezes; ceiling decoration, hanging papers on walls; the tools employed in paper-hanging; drapery, silks, tapestry, cretonne, tufted tapestry, etc.; and in addition to containing a selection of patterns that will serve as an inspiration to the designer or manufacturer, there is a complete and practical treatise on the uses of various styles and the requirements that should be considered for different rooms

For the practical workman there is a great deal of technical information covering tools, methods and recipes that is unusually interesting and instructive. One hundred and seventy-seven pages and nearly 200 illustrations, eleven in color. Price, $2.50 postpaid.

Editorial Notes.

—"We want to see your MASTER PAINTER, as we have read your articles in SIGNS OF THE TIMES and considered them of value to the trade. We do quite a sign business here, and expect to open one of the most up-to-date shops in the South, in a city of 40,000, Wilmington, N. C."—F. A. S., Rocky Mount, N. C.

—"The Little Green Shop in Cornhill," alias "No. 15," alias "Birch's," probably the oldest shop front in London, England, has been newly painted, after the removal of some 200 coats of old paint, which were burned and scraped of.

—"I have been a subscriber for one year and like THE MASTER PAINTER so well that I send you my renewal."—F. H. T., Pemberville, O.

—New Zealand has largely been run by and in the interests of organized labor, and yet it is said to be the only country that sends workingmen to jail for going on strike.

—"Am well pleased with THE MASTER PAINTER, and it is the kind of help that I need."—A. J. K., Worthington, Minn.

—Among recent inventions are a pneumatic painting tool and a stencil duplicating apparatus.

—A minister at Lock Haven, Pa., kalsomined the interior of his church one week, and surprised his people Sunday when they came to worship. He used tints of green, salmon and white, painted the woodwork and varnished the pews. His salary is to be made larger.

—In Orange, Mass., indignant citizens

had painted on all street corners the words "THAT TAX," in big white letters, as a protest against the tax collectors' method of gathering the taxes.

—The production of denatured alcohol for the first six months of 1907, under the new law, was 1,774,272 gallons. The supplemental Free Alcohol law will, it is estimated, lead to the production of 4.-000,000 gallons for the calender year. The operation of the law reduced the cost of wood alcohol from 60 cents to 30 cents a gallon, greatly benefitting consumers.

—"Please find enclosed one dollar to renew my subscription to THE MASTER PAINTER, with which I am well pleased." —M. E. H., Napanee, Ind.

—One correspondence school is said to have 50,000 students in Massachusetts alone.

—The master painters of Indianapolis, Ind., have guaranteed a scholarship fund of $1200 a year for two years, in aid of the new painting department of Winona Technical Institute, of that city. Mr. C. T. Sherman, of Indianapolis, is the Director of the department of painting.

—A dispatch in September stated that painting was so slack in Minneapolis that painters were leaving that city, many men being idle.

—A Minton, Okla., advertisement for a tinner states that he will be paid "whatever he is worth," which sounds rather funny. No men could be obtained in the *effete* East on that basis.

—"The sample copy before me is certainly satisfactory, and I enclose my subscription for one year."—G. M. D., Superior, Wis.

—The membership of the Brotherhood of Painters, Decorators & Paperhangers of America now exceeds the 70,000 mark. During the first six months of this year 97 new Unions were organized.

—If foodstuffs continue to rise, the dollar "dinner for Democracy" will resolve itself into two courses—soup and nuts.

—"Sample number received, and I will subscribe for it. It is an excellent magazine."—N. Z., Lake City, Ia.

—We have received two letters containing ten cents each for samples of THE MASTER PAINTER, and neither has an address by which we may reach the party. One gave name and town, but no State. The other gives town, but neither his name nor State. We once received a dollar subscription from a party in York, Pa., but as no name or address other than name of town and State came with it we have never been able to connect up with the party.

—We received a number of replies to our ad. in the SHOW CARD WRITER a few days after the ad. appeared in it. That is pretty good for a brand new magazine.

—Get one or two of Dahlberg's REMOVABLE BOTTOM STRAINERS, to strain paint with. We are using one in our shop. Only a dollar.

—"It is a valuable book of information for the painter, and I wish you success with it."—L. F., Elsah, Ill.

—Have you tried out the CARTER WHITE LEAD? Read their advertisement in THE MASTER PAINTER as it appears each month, and learn why it will be to your interest to use Carter lead.

—"I received the sample copy of THE MASTER PAINTER and am well pleased with it."—C. R., Ramona, Kas.

—With October came the luscious oyster and florid oyster sign. One noticed in Philadelphia read: "OYSTERS OF ALL KINDS, ALSO FRIED." Show card men want to read THE SHOW CARD WRITER, as advertised in our magazine. Only a dollar a year.

—"I received the sample copy, and found it very useful for my business (dealer in wall papers, etc.,) and enclose subscription for one year."—H. W. L., Lansford, Pa.

—A party of local capitalists have purchased for $50,000 Sand Island, in the Lehigh Valley, Bethlehem, Pa., and will erect thereon a modern paint mill.

—"Enclosed find a dollar for renewal. I don't want to miss a single number."—B. L. J., Logansport, Ind.

—Julius M. Rieser, said to be the pioneer maker of plate glass in this country and organizer of the Pittsburgh Plate Glass Co., is dead at New York at the age of 67.

Painting the Capitol Dome.

The dome of the Capitol at Washington has recently been painted, including the statue of the Goddess of Liberty on its top. It is never an easy task, but this year it was harder than usual on account of the numerous thunder storms and trying weather conditions generally. It required nine tons of paint to do the work, enough to paint about eight city blocks with three coats, and took 35 men two months to do the painting. Most of the famous domes of Europe are of stone, and do not need painting, but Uncle Sam's great dome at Washington is of iron and must be kept painted. The work was begun in April, this year, and first of all the surface had to be thoroughly cleaned of all dirt and loose paint, being scraped in many places down to the iron. The iron is first covered with oil-soaked linen, then two coats of a new elastic paint is spread over that; then the whole surface is painted over. The iron in this dome weighs nine millions of pounds, and it is of the utmost consequence that it be well protected with paint against corrosion to prevent possible collapse.

Doing a Lofty Job.

Working 703 feet up in the air, the wind a gale, Ernest Capelle, a steeple jack, crowned the top of the Singer Building flagpole, at New York, with a gilded copper ball. Thousands of citizens viewed the daring act. Capelle lashed himself to the base of the pole at 1.45 o'clock, and by means of a bo'sun's chair and a stirrup worked himself to the top of the pole by 2 o'clock. Lashing himself there, he worked for more than an hour, filing the rod, placing the gilded ball, and fixing the halyards. He had a can of yellow paint strapped to his waist, and he painted the pole as he descended. It is related that after he had placed the ball in position Capelle took a chew of tobacco and threw the plug into the hat of his partner, John Franklin, remarking: "Have a chew, old boy; this will be the highest chew you've had in a long run." Franklin was standing on the apex of the cupola.

To all master painters not affiliated with the International Association of Master Painters and Decorators of the United States and Canada: The undersigned having been appointed Chief Organizer, desires to call your attention to the work of this Association, and will mail to any inquiring master painter who encloses his card a copy of the Constitution and other literature of this Association. The annual dues for individual members is at present but one dollar.

Yours respectfully,

WM. E. WALL,
Chief Organizer.

16½ Union Square,
Somerville, Mass.

STAINED GLASS SUBSTITUTE.—Windowphanie is practically stained glass, in that it is as handsome, as easily kept clean, and about as durable. If you should break the glass you simply apply another glass and a sheet of Diaphanie. It is so easily applied that a child can do it; it comes in so many designs that every taste can be met: it is easy stock to handle, being put up in rolls like wall paper, 19 inches wide and 27 feet long. Wherever a stained glass window would look well, Windowphanie will look equally well. It is useful for private and public buildings. The Diaphanium, 19 E. 14th St., New York City.

YOUR EXPERIENCE?—A boss painter sent his foreman, a Swede, to collect some bills from farmers for whom he had done painting, and the collector came back to report poor success. He said: "Yim Yohnson say he will pay when him sell his hogs. Yim Smit he will pay when him sell his wheat. And Tom Yones say he will pay in Yanuary." "Well," said the boss, "that is the first time Tom ever set a time for paying a bill. Did he really say he would pay in January?" "Well, I tank so," said the Swede; "he say it been a colt day when you got dat money, and I tank dat been in Yanuary."

A PAINT FOR LAUNDRIES, ETC.—Irono Damp-Proof Paint will give very satisfactory results in laundries and buildings used under similar conditions, such as Turkish bath rooms, where there is considerable dampness caused by the rooms being filled with steam. This is one of the hardest tests for paint, as, owing to the penetrating action of steam, ordinary paint quickly deteriorates and decays. IRONO PAINT should be applied to a clean surface, being mixed with benzine in about the same proportion as for paint for concrete buildings; say 8 or 10 gallons of benzine to 100 pounds of the paint TRY IT.

SMART ADVERTISING.—Lots of bluff and other stuff in the matter of the advertising art, for it is an art. Last spring a certain maker of water color paint in the West paid $18,000 for a single page ad. in a New York magazine, printed in the interests of women folks, and the paint world gasped. Soon thereafter the magazine was running big ads. in all the leading city dailies of the country telling about this $18,000 ad., and the result was that both parties got value for money spent: it was simply a case of scratch my back, I scratch yourn.

Mr. Dealer:—Have you read the "Paint Catechism for Paint Men" compiled by Dr. G. B. Heckel, an eminent authority on all paint subjects? This Catechism tells all about paints and paint products, how they are used and why they are used. If you haven't a copy, tell the Bureau of Promotion and Development, Paint Manufacturer's Association of the United States, Post Office Box 282, Chicago, Illinois, and one will be sent you at once, free of charge.

Pistol Loaded With Putty.

A new invention for glazing windows is in the shape of a pistol, the barrel containing the putty, the flow of which is regulated by a trigger, the putty being thus pressed into place in a plastic condition. It is supposed to take the place of the putty knife, but painters are advised not to discard the old knife for a while. The editor of THE MASTER PAINTER years ago was considering the idea of a tool of this sort, but in the form of a carpenter's plane, on a smaller scale, but lack of time caused him to abandon the idea and possibly untold wealth from a great invention.

Another Paperhanging Machine.

This is a German invention, the arrangement being provided with a rod upon which the roll of paper is placed, and a receptacle for paste, with a brushing arrangement to apply the paste automatically to the back of the paper. The end of the wall-paper is fixed at the bottom of the wall, and the apparatus rises on the wall, needing only to be set by the workman. While the paper unrolls and is pasted, an elastic roller follows on the outside and presses it firmly to place. When the top of the wall is reached the workman pulls a cord, cutting the paper off.

"I believe you said, 'Rastus, that you had a brother in the mining business in the West?"

"Yeh, boss, that's right."

"What kind of mining—gold mining, silver mining, copper mining?"

"Kalsomining, sah!"

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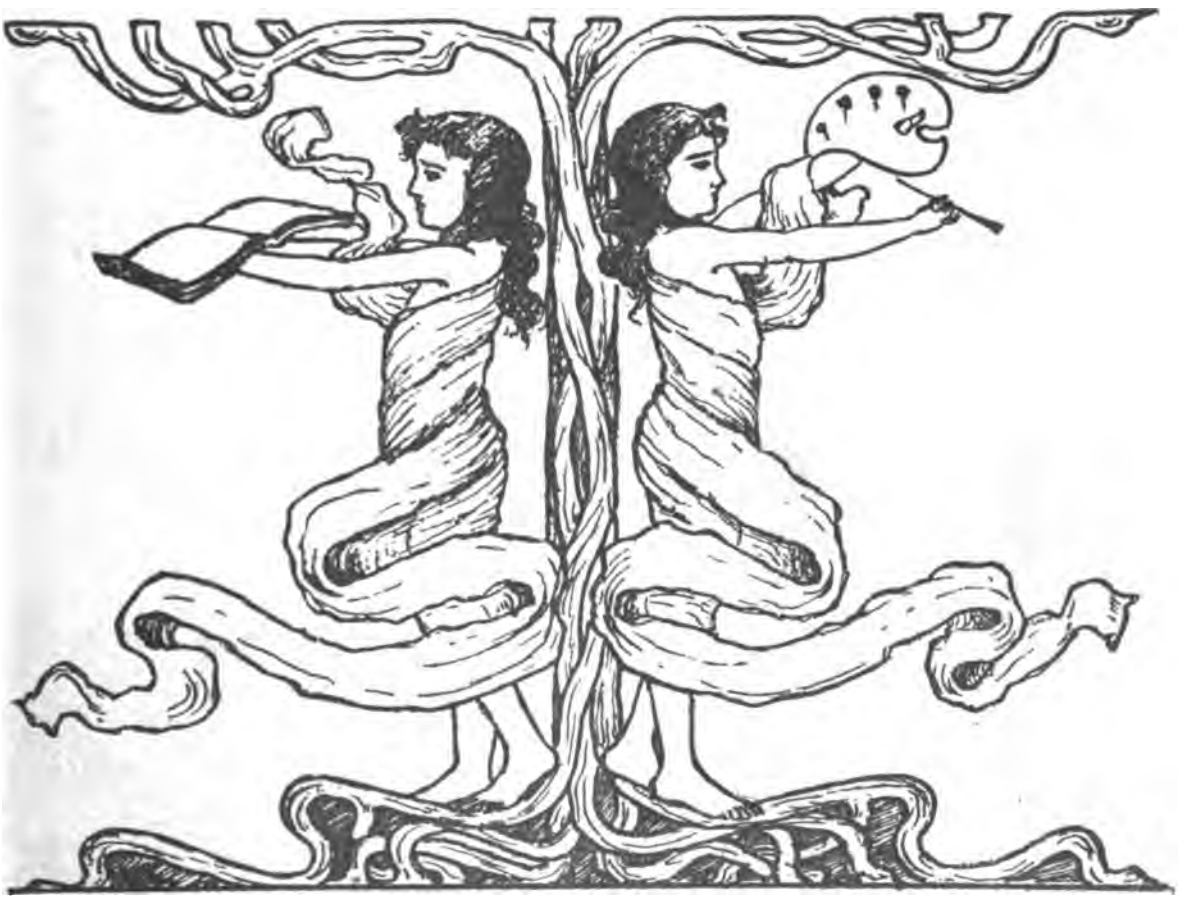
THE MASTER PAINTER



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SUBSCRIPTION PRICE, ONE DOLLAR A YEAR, IN ADVANCE.

Mr. Painter and Decorator

THERE are personal and business reasons why you should become interested in MARVELO WALL PAINT. A few of these are as follows:

1—IT IS ABSOLUTELY NON-POISONOUS, and gives a sanitary "DEAD FLAT" even finish, with soft, rich, water-color effects, with more washable qualities than other "flat" oil paints. IT REQUIRES NO STIPPLING.

2—It does away with many drawbacks where White Lead is used for a flat paint.

3—It makes the best ground work for enamel on any surface.

4—It is more dense or opaque, covers better than other oil paint over dark surfaces, thereby considerably further reducing the cost.

5—MARVELO WALL PAINT colors are especially made for high class interior decorating, and stamp originality on the painter's work, to further interest his customers or prospective customers. The same effect cannot be obtained with ordinary colors ground in oil.

With our guarantee that it will last longer, give better results at a saving of at least 25 to 30 per cent., we solicit your inquiries and orders.

MARVELO WALL PAINT is made in paste form, in white and ten deep colors, and packed in 12½ and 25-lb. pails and 100-lb. kegs.

THE MURALO COMPANY

SOLE MANUFACTURERS

New Brighton, Staten Island, N. Y.

San Francisco Chicago Los Angeles

THE MASTER PAINTER

Vol. XII DECEMBER, 1907 No. 9

The Painting of Structural Iron Work.

Much has been said and written upon the subject of painting structural metal work, and much more upon the matter of rust. The whole subject, however, may be reduced to a few simple and well-proven facts.

The structure must be freed from rust, scale and all other foreign matters. Make the surface as clean and bright as possible, and almost any paint will do, roughly speaking. . Neglect this preparation, and no paint will wear well on the surface coated. Corrosion will continue under any paint, yes, even under the so-called anti-rust paints. This has been proven time after time.

Therefore, before beginning the painting of structural work, use the steel wire brush and the sand blast, to remove scale, rust, etc., and if the work has previously been painted, remove this old paint as far as possible. Rust may be beneath it. Don't try to remove the rust and scale by means of acids, for they may cause future troubles by not being entirely removed. Plates that were placed in an acid bath and afterwards well washed and dried were found to rust much more quickly than plates which had not been so treated.

It is important that the oil used in a paint for structural work should be perfectly pure, and not boiled, or at least not boiled too much, and care should be had that not too much driers are used.

The pigments most favored for anti-corrosive paints are those derived from lead, principally the two forms of red or oxide. and white, or carbonate.

White lead is a basic carbonate of lead, it is not a stable compound, is somewhat easily decomposed, being readily attacked by impurities in the air, such as sulphuretted hydrogen, or sulphuric and other gases. It combines with the linseed oil to form a lead soap (linoleate of lead), and thus soon loses its opacity, in which condition it is easily disintegrated by the weather. Perhaps its greatest fault is that it is not galvanically related to iron, and hence when a break occurs in its surface galvanic action is begun, this aiding in the formation of rust. The best that we can say for lead carbonate is, that with oil it forms a good elastic film, which is good as long as it remains intact.

Red lead, which is the oxide of lead, is the most popular of all pigments for coating iron surfaces. It is really a mixture of oxides, which fact is unimportant here. It is not particularly a stable compound, and is difficult to mix and apply, as all painters will agree to. Little should be mixed at a time, for it has a habit of settling to the bottom of the pot, and easily becomes hard there. But this defect is less where the lead has been prepared with more careful grinding, and fineness is a good test for red lead that is to be used on structural work. It is crystalline in structure, a fact that renders it open to some objection as a paint for iron. It is the heaviest pigment that painters use. Has little body and covering power. It is a powerful oxidizing substance, and hence we may suppose it to be capable of conveying oxygen to the iron surface coated with it. It resembles lead carbonate in forming lead soap with oil, and in causing galvanic action when its skin is broken.

Upon the whole, lead paint may be looked upon unfavorably for the purpose of painting iron. True, if the painting is looked after and kept in good condition, we may reasonably look for very fair results from lead paint on iron.

No ordinary paint is suitable for painting iron work. Where so much depends upon the painting for the preservation of structural iron work the subject under discussion should be well understood by

those who have such work in hand. Blacks and such pigments are not fit to go on paints intended for the preservation of such surfaces. Lamp black possesses good paints [illegible] for iron work, being extremely fine of texture, while graphite and peroxide of iron enter into the composition of the iron or steel. But these do not work well with red lead and the presence of either of them is fatal to its [illegible]. Lamp black may, therefore, be left out of our list of suitable pigments for structural painting. Though it may be added to red lead in a ratio of one to ten, and do very well. It has been so used by some railroad companies on bridge work.

Painting On Brick Work.

Brick walls may be painted either to enhance the beauty of color or to preserve them against the weather. The treatment is different in the two cases, but the preparation must be the same. That is, the walls must be made perfectly solid and free from loose matter. It may be necessary to scrape and sweep down the walls, when the surface should be perfectly dry. If the paint is to be all color, then prime the work with some red lead, made quite thin with linseed oil, with some driers to hasten the drying. If the surface is old and somewhat soft, then, after the priming coat, a filler coat (that is, a paint that will fill up the spongy surface). A paint of some kind is always necessary. The first coats should have a perfect drying and hardening oil, and then the paint may be applied where needed. Sometimes seems to offer the best one for this purpose [illegible].

Get as much of the oil as possible as dry will take, and especially where the sun's most direct against them, where efflorescence occurs wash it down with dilute muriatic acid. A white wash brush is best for this work, say a seven inch brush. Mix enough paint to go over 100 feet, in order to secure uniformity. Be sure to work so as to [illegible] joints.

Varnish [illegible] of one part oil, two parts turpentine for the coats. Any color ground in oil may be used in the finishing coat. There is no objection to boiled oil.

If the work is to be [illegible] there will be need for more than two coats of paint, one of the finishing coat. Always there should be an unevenness of the gloss, showing that the paint had sunk in in places. Then another good coat. The dull, flat finish is produced by using almost all turpentine in the finish. For a lead finished red wall stripe along the mortar lines with white paint. For Milwaukee brick color use black striping, or dark red. Sometimes no striping is used, but for the so-called Philadelphia brick effect the work will look richer with the lining in the bricks. By the way this lining should not be run directly on the mortar joints, but along the upper edge of each course of bricks, for this will give a smoother surface to line on than the mortar will.

The Covering Capacity.

The covering capacity of different forms of paint, stains, varnishes, etc., is a variable quantity, something depending on conditions of surface. But we may approximate the same, thus:

Paint, for exterior use, on an average painted surface, will take about one gallon to cover 900 square feet.

Priming coat, average surface, about the same.

Red lead paint, on structural steel work, from 800 to 700 square feet to the gallon.

Enamel paint, for interior use, will cover about 800 square feet to the gallon.

Floor paint will require about a gallon to 400 square feet of average floor surface.

One gallon of ordinary roof paint will cover about 800 square feet of surface.

Cement coating will cover about 400 feet to the gallon.

Oil stain will cover from 700 square feet to the gallon and upwards, depending on nature of surface.

Shellac varnish or filler will cover about 550 feet to the gallon.

[illegible] will cover about 900 feet, over [illegible] and sometimes less over paste [illegible].

Water stain will cover about half the surface that an oil or spirit stain will cover. The cheaper grades of varnish are not lasting in body, nor in brilliancy, [illegible] instances they will wear very well inside. Never so outside. The finer

and costlier varnishes are thinner boiled, as a rule, and may be spread out very thinly, and here is where a mistake may be made by the user. If a good effect, and not mere economy, is desired, then do not spread a good varnish too much, but get as full a body on as possible. Given a well-filled wood, and a full coat of heavy bodied varnish will give a very good job. But the expert varnisher will take the thinner article and achieve the full effect with that. The finish is always richer for several coats of good, well-rubbed varnish; they give depth to the effect, and besides which the varnish acts as a buffer for the beautiful wood that it covers. But the varnish should all be alike, from the same lot in fact, so that there will be no danger of having two or more shades of varnish, and which would cloud the luster. It will take about 6 gallons of raw linseed oil to mix 100 pounds of dry white lead. For keg lead, 5 gallons will be enough to mix it into paint. . A half-pint to a pint of good liquid driers should dry this much paint.

Rubbing Interior Varnish Work.

When the architect specifies that the hard wood finish shall be rubbed to an egg-shell gloss he means that it is to be rubbed with oil and flour pumice stone until the natural luster of the varnish has been removed. Why is the operation not thus definitely stated by the architect? What is the difference between an egg-shell gloss, and a dead finish? None whatever. In very cheap jobs there will be no rubbing to a dull finish at all, but a flatting varnish, so called, will be used; this varnish is made to dry without gloss. It is no more than it pretends to be, a cheap finish.

Simple as the operation of rubbing a varnish seems to be, it is one that requires extreme care and skill in the doing. The expert will use oil with the pumice stone, but the man who is not an expert had better not use oil, for the reason that unless the varnish is hard-dry, and which it never is, at least not on new work, he will rub up the varnish, the oil softening the varnish and causing it to give way in small spots; the water rubbing is the safest for him, for instead of softening the varnish it really tends to harden it. The operation is substantially as follows: Have a shallow dish of fine flour pumice stone, using the best, for there is an American variety that will scratch and is not good for fine work. It is usual to mix some water with the pumice, in the dish, but it may also be used dry, soaking the piece of felt in water, then dipping into the dry powder. Rub lengthwise of the wood, and with an even and not hard pressure be very careful to not rub too hard at the edges, where it is liable to cut through. Start at one side of a panel, say, and gradually rub over to the opposite side, rubbing no more in one place than in another. Once in a while you will need to dip the felt in the pumice, and be careful to not let the rubber become dry. Use plenty of water and pumice, which is not costly. After rubbing a while clean off with a wet rag and examine the surface; a little practice will determine when the varnish has been rubbed enough. Be careful to not rub too much, as this decreases the coating of varnish, impairing the wear; rub only enough to remove the gloss from the varnish. After having rubbed enough and cleaned off the surface with plenty of clear water, using sponge and chamois, a semi-gloss may be restored, if desired, by rubbing with a little crude petroleum oil, or with linseed oil, though the rock oil is the better. Rub this dry, and you will have a fine egg-shell gloss.

—At Cincinnati a steeple jack, William Rothwell, fell 100 feet from the top of a smokestack, and was killed. His twin brother was on the scaffold with him, and was so affected by the accident that he fell in a faint and toppled off on to a roof. He will recover.

Ready-Mixed Paints.

A ready-mixed or factory-made paint is always to be preferred to the shop-mixed article, provided the ready-mixed paint is high-grade, and of which the market offers some very fine examples. It is very finely ground, pigment, base, medium and all, and is ready for use when you open a can, requiring no straining, and being perfectly free from anything

calculated to mar a smooth effect. The finer ground a paint the better will it wear, and the finer will its color be. Fine grinding improves the color of almost every one of the painter's tinters. Another of the many good points of the ready-mixed is, that you may always depend upon getting the same color if you happen to run short on a job. Some painters, the writer included, can match tints or shades perfectly, but many others cannot, and in any case it takes time and a good deal of it, to do so; hence the economy of ready-prepared paint, it is always there. But these statements have no reference to inferior grades of ready-mixed.

Shingle Stains and Shingle Staining.

The artistic effect of stained shingles is never questioned, we believe, at least not by educated people; but their economic value is another matter, questioned in some quarters, but as a rule admitted to be established. Creosote stains possess the advantage of being rot-proof, to a great extent at least, and they stand exposure and hold color well under very trying conditions of weather. They are in use on the sea coasts as well as in the interior parts of our country, and usually look well after several years of exposure. The real creosote stain contains even more oil than ordinary paint does, and like paint, it depends upon oxygen to dry it. To an extent a creosoted shingle is fireproof. It never blackens; some stains do, but that shows the presence of petroleum oil.

The shingle stain should be transparent of color. It should not contain water. It should be free from poisonous matter, and there is no need for using poisonous pigment in its preparation.

When using shingle stains on a house, use as few colors as possible. If you may, do the entire job in one color. The greenish shades, brown, and olive give more general satisfaction than any other because they harmonize more perfectly with nature. Avoid a reddish brown on a pronounced yellow, or even a strongly yellowish brown with a green roof. A greenish roof should be combined with a cool grey, or with a greenish brown or grey. A green roof is very difficult to make permanent of color. Especially when the green is made, as sometimes occurs, with Prussian blue, will the green be made fugitive.

A beautiful effect may be had by taking a pail of quite thin red and one of quite thin green, and with one brush apply the colors alternately, which will give the vanishing effect of red and green as seen upon autumn leaves.

Shop Mixing of White Lead.

When a keg of white lead has stood for some months the lead becomes denser, owing to the soaking away of the oil into the wood. In this condition, while it has undoubtedly improved in quality, it has at the same time made it more difficult to work it up into a smooth paint. To remedy this to a great extent take a stout narrow paddle, and put it into the lead, till it strikes the bottom, then work it back and forth, from side to side, for a few times, and the mass will soon become quite plastic, and then it may be removed into pots for further breaking-up and thinning for use. This will save much time over the usual way of first taking the lead out of the keg, and breaking it up in the pot.

White lead should always be beaten up before adding thinners, and then the japan should be added, and be well beaten up with the lead; after which, if possible, let the mass stand a few hours; then the thinners may be added to the desired amount. This will render the straining of the paint unnecessary, unless skins are present. If colors are to be added, better beat up the colors separately, and thin out so that they will unite readily with the paint.

Varnish and Paint Removers.

The best paint and varnish removing compound seems yet to be invented, and there is a fortune for its lucky discoverer. It will come. Great advance has been made in this direction since the days of not so many years ago, when the charcoal burner was used, and before which was the lime-and-potash compound, both crude enough. The blow torch, too, has its limitations. For one thing, people ob-

ject to the danger of fire when it is used around a building. Carbolic acid removers are very objectionable on the score of smell and burning of the flesh when it comes in contact herewith. Fusel oil removers do good work, better indeed, than the carbolic acid compounds, but the smell is vile and injurious, and it is very costly. But there is one varnish remover, cheap, odorless nearly, and open to none of the objections that the others have, and that is glue. Simply glue. Make up a liquid glue, quite thin, and apply it hot to a varnished surface, and let it be where the temperature shall be not lower than say about 70 deg. Fahr., and let the object that has been coated with it stand for twelve to twenty-four hours, and the varnish may then be brushed off.

A Cheap Glass Sign.

A method recommended for the production of a cheap but durable glass sign is the following: Take a piece of bevelled plate glass mirror of a suitable size. It will be cheaper to get this ready-made than to go to the trouble of making it, unless the sign writer is an expert at the job. Paint the back over with some quick-drying material. This is designed to protect the back of the sign, and should be allowed to dry hard enough to scratch with the point of a knife without peeling or scratching easily. Next, scratch in any letters, scrolls, etc., on the back of the glass, using preferably a pricked pounce pattern. Then scratch out the lettering, removing both paint and mirror backing, and leave the glass perfectly clear in these spaces. There should be no specks of material left, as these will show when the job is completed. If a gold letter is desired, instead of the usual gold leaf use fancy gold foil. This is cheaper, and produces a more striking effect. Use fish gelatine for size, and wrinkle up the foil in the hand if only the plain can be had. Where the foil can be obtained with a ready decorated surface the wrinkling process will not be necessary. If it be desired to make block or other colored letters with a gold or silver border, paint the letters in black inside the clear spaces, leaving just enough border to allow the gold or silver to show through. Gold letters with black scroll centres, gilt letters with black borders, etc., may all be made with an equal degree of ease by painting in the required portions previous to applying the foil. Signs with backgrounds of black or other colors may be made in the same way, except that plain glass is used instead of the mirror. The last step is to back up the sign. Take a sheet of re-dipped tin or some such material, cut enough larger than the glass to turn up and crimp down over the edges for about a quarter of an inch. The sign is now ready for framing and delivery.

The Importance of Putty.

Pure linseed oil and whiting putty is essential to the good result of painting as the paint itself, almost at least. It is made and is not difficult to buy. But there is much false putty on the market, and as it is usually a penny or so cheaper than the good article there is danger of the contracting painter using it. The best putty is made from the best finely bolted gilders' whiting, or English cliff-stone whiting, and pure raw linseed oil, usually in the proportions of 85 pounds of whiting to two gallons of oil. But it is important that the two ingredients be well kneaded together, for upon this depends the working and wearing qualities of the article, in addition also to a sweating that it must have after it has been sufficiently kneaded; this consists in allowing it to lie in a mass for two or more days in a warm room. To make a putty that will harden and dry quicker, add some dry white lead to the whiting. A still harder putty is made by the addition of dry red lead. For sky-lights add white lead and some glycerine, to make the mass somewhat more elastic.

Painting Cement.

The following method of painting a cement wall was described at a recent convention of master painters. The building had become discolered in places and the joints were of a different color from the surface of the blocks. Two parts of Portland cement were mixed with one part of marble dust and mixed with water to the consistency of thin paint or a thick whitewash. The wall must be well wetted be-

fore the application of this paint and kept constantly wet while the material is applied, and then must be kept for a day longer, in order to make the cement wash adhere to the cement surface. The wash was applied with ordinary whitewash or calcimine brushes, and a man was kept busy playing a hose on it while the work was being done. The whole secret of success lay in keeping the wall constantly wet. A price could not well be quoted on such work, but on a scaffolding job should be worth less than a dollar a yard.

Surfacing With Draw Putty.

This differs essentially from "stopping," although putty is used in both cases. In stopping, only the faulty places, holes and depressions are locally treated; in the other case, draw putty covers the whole surface. Surfacing consists in applying a sheet of putty over the entire surface, to quickly level it for the reception of paint. It should dry quickly, lie solidly, cling firmly, and rub down easily. Japanners' gold size is used to bind it, because this makes a hard surface, capable of being rubbed smooth. Rubbing varnish is used with the japan to check its quick-drying properties, and to cause the putty to be manageable; but it must be remembered that the more rubbing varnish is added to the putty, the harder it is to cut down with the pumice-stone and water. Sometimes a small portion of boiled oil is added to check the quick-drying properties of japanners. Whiting is also used to cause the rubbing down to be easier. A little turpentine is sometimes used to help the ingredients to amalgamate. The ingredients require to be well pounded, as it is then less tough, and not so liable to be affected by moisture. Draw putty for surfacing may be made of two parts of dry white lead and one part of keg lead in bulk, mixed together with equal parts of rubbing varnish and japanners' gold size, then thinned to a workable consistency with turpentine. A draw putty easier to rub down than the former may be made up as follows: A quarter whiting and a quarter dry white lead, thinned with equal parts of quick varnish and japan gold size. This may be put on with a chisel, knife or trowel. Putty for surfacing may be composed of dry white lead, mixed to a slate color with vegetable black. This is suitable for dark-colored finish, and is used to level the color, hiding patches. It is made workable by a quarter japan gold size to three-quarters raw linseed oil, with a small portion of paste driers added. A draw putty may be made up of three parts of keg lead and one part of finely ground pumice-stone, bound by half rubbing varnish and half japan gold size. The pumice will help to harden the putty, creating a surface which is easily rubbed level by pumice-stone and water, which will neither shrink nor crack. It is generally applied with a broad chisel knife, sometimes with a stiff brush. If it should be too thick to be easily applied by a brush, and too thin to be applied by a knife, it may be applied by a stout piece of cloth or leather, and rubbed down till it is solid and level; when dry, to be bound down with a thin coat of color. Draw putty is used for a very faulty surface, or where an extra good job is required. As putty is liable, from its nature, to be more or less absorbent, it is liable to draw the oil out of an ordinary coat of color applied over it. It is therefore necessary to seal it down by a thin coat of paint after it has been rubbed level, such coat of paint being designed to stop suction. Such a coat of color may be made up of three-quarters raw linseed oil and one-quarter turpentine, which will prove a good binder to draw putty.

Care of Locomotive Jackets.

There is nothing that adds more to the good appearance of a locomotive than a well kept jacket. The painting may be ever so nice, but the jacket, constituting as it does such a large portion of the engine, if it shows a lack of attention, presents about the same appearance as a man with new hat and shoes and a shabby suit of clothes.

Being unprotected by paint or varnish, constant care is necessary to prevent rusting. The treatment of a jacket on the road and in the shop is or should be somewhat different. In the shop, preparatory to painting or varnishing the painted parts of an engine, the jacket should be thoroughly cleaned with benzine or gaso-

line, and the more stubborn parts, such as where the grease has become baked, should be removed with concentrated lye. After thorough cleaning it should be rubbed over with a piece of waste only slightly moistened in valve oil, this should be allowed to remain until the painting is completed, after which the jacket should be lightly wiped off with clean waste, leaving just a scum of oil to protect the metal, and to present a slight luster.

On the road, the jacket should never be without a slight film of oil, or in other words, it should be wiped with dry waste, but should contain just sufficient oil to clean and at the same time to leave a deposit to protect against moisture.

An excess of oil on a jacket is about as unsightly as the jacket that is never cleaned. This is not only unnecessary but is a waste of material.

The jacket that is once thoroughly cleaned, and constantly kept cleaned, can be kept clean with very little cleaning.—*Railway Master Mechanic.*

The Use of Paint and Varnish Remover by Practical Painters.

The practical man to-day in every line of industry is looking for the best tools and the best methods to use in doing his work. His experience teaches him that only by taking advantage of all that invention and science place at his service may he be able to keep at the head of the procession, and do his work as well and as neatly and as quickly as others who are alive to all the help which they may receive from improved methods and devices. The painter, perhaps, in the mere tools which he uses, has not noticed that there has been much improvement in them. He has always used his putty knife, his scraper, his burner and his brush. Usually when doing a refinishing job, either economy or necessity had compelled him to put the new finish over the old work. Every practical painter knows that this is not satisfactory. Old coats will become rough and the mere piling on of paint or varnish does not help the matter, but aggravates the condition. To-day, however, there is really no need for doing work that necessarily must be unsatisfactory when finished. By the use of paint and varnish removers manufactured by responsible concerns, who have the right to manufacture under modern inventions, the painter may, with economy and with the least possible delay, remove the old coats of finish clean to the wood without in any way destroying the surface of the wood, or making sandpapering necessary. These removers in no way injure the subsequent coats of paint. They are natural and do not injure the hands or discolor the wood, raise the grain of it, or injure the finest fabrics, so that, with the advent of this modern discovery, the painter has little excuse for doing an unsatisfactory job. Every painter who has a reputation for doing good work should be careful to do no work which will destroy that reputation. The mechanic's reputation for good work is his stock in trade.

Fillers and Filling.

Some finishers first coat the wood with raw linseed oil, adding only a little driers, and when the oiling is quite dry they apply the filler in the usual way. There are special filler brushes made for the purpose, having short, but not stiff bristles. It is a mistake to have too stiff a brush. When the filler has set well take a broad knife and scrape away the filler crosswise of the wood, pressing it well into the wood's pores. Wipe off the surplus filler with tow or waste. That which has been used is the best, for it will be full of the filler and will not be so apt to pull the filler from the wood. The work should stand for a day or two to harden, when it should be sandpapered smooth, using No. O or OO paper. Dust off carefully and varnish as desired for finish.

When cornstarch is used in a filler it should be cooked, as otherwise it will show up white in the pores. When it is used add two ounces of magnesia in the following formula:

1 qt. of boiled oil,
1 qt. of raw oil,
1 qt. of gold size, japan,
1 qt. of turpentine.

Add any color desired to produce the right shade. Add sufficient pulverized silica or cornstarch to thicken to a stiff paste; the cornstarch is to be boiled, with the magnesia, for 15 minutes.

HARD WOOD FINISHING

Antique Furniture in the Making.

A cabinetmaker who chooses to withhold his name from publication presents sundry comments upon the Continental methods of meeting the demands for so-called antique furniture. He intimates that a part of the demand is met by other than Continental manufacturers, but avers that the crude production by peasantry means has not been handicapped as it apparently ought to have been by the uncouth design and finish. There has been some demand for a better quality of stuff and this sentiment has grown. Among the processes introduced for this purpose, he describes the following:

In the case of oak, as each job is made it receives a coat of white lead paint, which is allowed to thoroughly dry. It is then completely removed by the aid of caustic potash and a steel wire brush, which not only cleans off the paint but tears away the softer fibers of the wood and at the same time considerably darkens it.

Sometimes it is necessary to give the work the appearance of having been exposed to strong sunlight for a considerable time. This is effected by bleaching it with either dilute hydrochloric, sulphuric, or oxalic acid. When it requires to be darkened it is put into an air-tight chamber and subjected to the fumes of ammonia until it becomes the required shade.

In finishing off, a wax polish, to which burnt umber has been added, is applied and so manipulated that, while the flat surfaces of the job are quite clean, the corners are dirty-looking, thus giving it the appearance of being carelessly dusted for a considerable time. A preparation of butter of antimony is then applied to harden the wax and the job is ready for a customer.

Mahogany is treated in very much the same way as regards the painting and subsequent scrubbing. When it is thoroughly dried after the removal of the paint it is smoothed down with coarse glasspaper, using the hand only instead of a flat glasspapering cork. The effect of this is to remove all traces of the previous operation and to leave the surface of the wood quite coarse. It is then carefully washed over with a saturated solution of potassium bichromate to darken it and develope the figure or markings of the wood. The next operation is to give it several coats of boiled linseed oil, to which terebene driers have been added. When this is thoroughly hardened it is smoothed down with glasspaper and finished off with a thin coat of French polish. Walnut is treated the same as mahogany, except that carbonate of soda is the darkening agent instead of potassium bichromate.—*Wood Craft.*

Ready-Made Stains.

Manufacturers of wood-finishing supplies during late years are more than filling "a long felt want" by placing upon the market ready-made stains of uniform strength and color. After all, some of the stains—such as are not readily obtainable from solutions of coal tar colors—are best bought ready-made by all but the very large operators, who are properly prepared to make stains in large quantities. The average wood-finisher whose time is worth anything will not save enough to pay him for the trouble of making some of his stains and the satisfaction of having standards upon which he can rely to match up anything and at any time is of itself a big item in favor of ready-prepared materials.

The defects of water and spirit stains are that they will raise the grain of the wood and that one must be careful in applying them for they will double up and show up darker at laps and joints if one has been careless or too slow in doing the work. The above admissions are only too true—on can only sigh and wish it were otherwise—but with all these faults, we must admit that after all none are so bad but that with a little care and extra labor these annoying consequences can be rem-

edied and nearly eliminated. . If the grain *is* raised, it has one good feature in that it has opened up the pores fully so that the filler can penetrate into them more readily. Sandpaper will cut the raised grain well away and later operations will wipe it out.

Let the strength of the stain be tested on a bare board before applying it. Then if the workman has a good elastic brush, he will find it an easy matter to quickly fill up panels or other large surfaces so as not to go over the parts more than once, before they can dry sufficiently to show lapping at joints. If he will be careful to cut his color to the edge of the joint and not over the line, he will have no trouble there again. After all, these difficulties are more applicable to woods of a soft texture than the average hardwoods, where little trouble is experienced in applying stains. The job should stand till perfectly dry, then be sandpapered with medium fine paper, when it is ready to be filled.—*Wood Craft.*

Filler Formulae.

OAK FILLER.—
Gilder's whiting, 5 lbs.
Plaster Paris, 2 lbs.
Burnt sienna, dry, half an oz.
Raw linseed oil, 1 qt.
Benzine, 1 pt.
White shellac, half a pt.
Mix well together; apply as usual.

WALNUT FILLER.—
Burnt umber, in oil, 3 lbs.
Burnt sienna, in oil, 1 lb.
Turpentine, 1 qt.
Brown japan driers, 1 pt.
Mix, and use in the usual way.

FOR LIGHT WOOD.—
Gilder's best whiting, 5 lbs.
Plaster of Paris, 3 lbs.
Corn starch, 1 lb. .
Calcined magnesia, 3 ozs.
Raw linseed oil, half a gal.
Turpentine, 1 pt.
Brown japan, 1 qt.
Tinge with yellow ochre and mix.

FILLER FOR CHERRY.—
Gilder's whiting, 5 lbs.
Plaster of Paris, 2 lbs.
Burnt sienna, dry, 1½ ozs.
Venetian red, dry, 1 oz.
Boiled linseed oil, 1 qt.
Turpentine, 1 pt.
Brown japan, 1 pt.
Mix, and use as usual.

Rules For Filling Woods.

Burnt umber is a good filler color for walnut.

Vandyke brown does fairly well as a filler color for walnut.

Venetian red darkened with black is not recommended for a walnut filler color.

Fillers for mahogany, cherry, California rosewood and similar woods, should be stained with burnt sienna.

Pulverized charcoal in oil is a good filler stain for rosewood.

Rose pink is right for vanilla or Brazil wood.

In making paste filler, take the lightest colored ingredient first, mix with the oil; mix separately the colored portion with the spirits, add to the first batch; then add the balance of the thinners.

Golden Oak Finish.

A correspondent of *Carpentry and Building* desiring instructions for the production of "that rich golden oak finish on quarter-sawed oak, such as we see on high-priced sideboards," received this answer:

The following method of producing "golden oak-polish finish" is furnished by an expert in the furniture business: The tone "golden oak," after several years' use, appears to be the standard color in finishing oak, and for that reason is easily obtainable in the stain itself and in the tinted filler used with it when the filler is desired. The effort on the part of the color mixers to standardize this finish leaves little doubt regarding the brand for which to ask, and for a small piece of work it would be a waste of time to experiment in making up a mixture.

As the information desired by the correspondent above is for "golden oak-polish finish," the work in the white should be smoothed as carefully as possible by hand sanding, as it is very important that there should be no scratches or saw marks visible. It is also important that all parts of the wood should be thoroughly dry, otherwise black spots will surely develop

after the stain is applied. The work should be done under favorable circumstances, that is, in a warm, dry place, and should not be chilled in drying.

Polish finish being the end sought, the stain and filler combined should be used, and having coated the surface in a thorough manner allow it to stand for about half an hour, when with coarse rags or pieces of burlap proceed to wipe off the excess of material, rubbing rather across the grain to more effectually fill the pores of the wood. When wiping against fillets, corners and raised places a stick may be used to advantage. After the work has been wiped over to an even tone, allow it to dry a day or two, when a coat of orange shellac may be applied and another day allowed for it to dry. Lightly rub over with No. 0 sandpaper, more for the purpose of striking off any pimples or roughness than anything else, and then apply the first coat of any good quick drying interior varnish. Allow two days or more to elapse before putting on the second coat of varnish.

Plenty of time in finishing operations will pay in the end, 18 days generally being given to a piece of work from the white to polish finish. After the second coat apply the last coat of good copal furniture varnish, allowing more time for this to dry than the previous coats, as a perfectly hard surface is necessary in the rubbing process to follow.

Pumice-stone powder reduced to a stiff paste by water in a tin or dish is used to rub down the gloss of the varnish. This is applied by a thick piece of felt or heavy cloth wet and dipped in the pumice paste. In doing the work use an easy circular motion evenly over the surface, avoiding too great pressure against corners and edges. When a uniform surface is obtained work over in the same manner with rotten-stone powder and water, and after wiping off carefuly with sponge and water, the work after being thoroughly dry is ready for polishing. A very satisfactory polish consists of the following:

Alcohol	8 oz.
Shellac	2 drs.
Gum benzoin	2 drs.
Best poppy oil	2 drs.

Dissolve the shellac and gum with alcohol in a warm place with frequent stirring, and when cool, add the poppy oil. This may be applied to the work by making a cylindrical rubber of heavy felt or flannel torn in a straight strip. Apply the polish to the end and catch up the roll in a piece of cheese-cloth, allowing polish to come through. Proceed to rub over the work in a circular even motion. At this stage of the work "elbow grease" and care are prime requisites for perfect results.

Finishing Room Practice.

The furniture finishing room should have one clean room to be used exclusively for varnishing in, and if possible it should be used for the finishing coat only. It should not be allowed to be used as a storage room. Once a week at least, all finished goods should be removed and the place be given a thorough cleaning. This will demand some sacrifice of time and bother, too, but it will amply repay in the better work and more satisfactory results obtained at the hands of the varnisher.

THE VALUE OF SYSTEM.

Do not make your varnish room a place of all sorts of work, with sandpapering, dust and dirt. Allow no one to have access to this room but those who are at work in it. With a little care in keeping the room clean you will have your reward in work free from specks and grit; you know what that means in time-saving alone. Two rooms are all that are absolutely required for ordinary finishing and cutting the space up hinders the economical handling of stock.

In those shops where white and gold work is done, it is best to separate it from other classes of work. The room in which the work is done should be close and free from drafts of air and not subject to sudden changes of temperature.

My remarks apply to the smaller finishing departments, for the large factories have ample room at their service for all purposes; each particular work has its assigned room. However, the smallest factory should be able to allow a separate room for its varnishing, if it hopes to be able to compete with the larger factories in good work at a minimum cost.

I would call attention also to the value

of system in keeping track of stock, both in the raw, in the process of work, and in the finished product. It is well to keep a daily record of income and output. The data thus obtained are useful in computing the cost of turning out work and it will be time well employed. The department should be systematized in order to lessen the care and bother incidental to the business, if for no other reason; indeed, a very large share of this part of the business would entirely cease with better system in the shop. It pays to be painstaking and accurate.

STOCK-KEEPING.

Let the finishing-room foreman be his own stock-keeper; let him have an accurate knowledge of his stock, both in the white and finished. In any shop there is at times a rapid depletion of the stock and hence the foreman should save himself much trouble by knowing at all times just what he has on hand. Nearly all classes of cabinet work are composed of parts that are taken apart in the finishing room; the larger parts will not be likely to escape attention or notice, but the smaller ones may become mislaid and in a rush to get a shipment ready some small part may not easily be found unless the foreman knows all the time what he has and where it is.

A piano may want the music rack; a casket, the face-plate; a mantel, a tile-lining or cabinet; a side-board, a drawer; a chamber suit, a pair of rails, and so on. It sometimes occurs that a set does not come into the finishing room complete, in which case the finisher is not to blame, though it would be well to examine in all cases to see if everything has come that should be there. Here again it will pay to keep a record of what comes in, so that when a storm brews in relation to some incomplete job, and the superintendent wants an explanation, you will be able to give him indubitable proofs that will clear you of any charge of negligence.

IMPORTANCE OF FILLING HARDWOOD PROPERLY.

We are accustomed to speak of all woods used in furniture and architectural construction as hard woods, though there is no warrant for this in fact; we use the term in its trade significance. Such woods may be placed in two divisions, namely, open-grained and close-grained woods. The former comprises the oaks, chestnut, and ash, for example, the latter includes maple, birch, sycamore, etc. Such briefly are the two divisions, the one requiring a paste filler, the other a liquid filler. In some cases both fillers are used. But as I am not now addressing myself to the subject of hardwood finishing I will merely give the few facts as I have in the foregoing remarks, and speak directly upon the matter indicated by the title.

I may say at the outset that more danger of trouble in the finishing is to be apprehended in the bad filling of hard than of soft wood. The hard or open-grain wood demands a filler of the very best quality, skilfully applied and treated. This is the foundation for the finish; slight this and your finish will show the fact. Make a perfect foundation with a good filler, well rubbed into the pores of the wood, the whole porous structure filled level full, and there will be a subsequent saving of time and labor, and, of course, money.

It may sound strange to say that some finishers belittle the importance of the work of filling, but this is, in many cases, true, proof of which may be found in the fact that they will set inexperienced workmen at this operation, and when the job shows up bad in finish, the cause is not laid at the doors of the doers, but is attributed to the varnish. Now varnish has sins enough of its own without extra ones being added. It is quite a common thing for a really good varnish to be condemned unjustly, or, I may say, ignorantly. The work is usually done by piece-workers, who have their favorites in the varnish line, and if given a varnish that they are unaccustomed to or that they are prejudiced against, they are not likely to give it more than a square deal, if again I may be permitted to recognize a common failing of humanity. Again, they are interested in getting work done rapidly, because the more they turn out the more money they make. It takes too much time to rub a hard filler, so there is the temptation to thin it too much and it loses its binding. You cannot rub a good filler easily and in a jiffy; it takes time and labor. Paste filler should not be thinned down to a liquid condition unless intended for wood that demands liquid filler; neither should it be made so thick that it

might be better spread with a towel. Finally the foreman must understand his filler and then use it accordingly. He will surely find many of his oldtime troubles in the finishing room disappear when he realizes how important it is to fill wood properly.

(*Conclusion next month*)

Graining a Room.

(*Conclusion*)

Supposing that all the panels are done, clean off the molding with a sponge, and take the large sash tool, dip it into the basin and rub in the middle stiles; then take the mottler and mottle here and there, but not too much, and then "badger," as before described. So with the pencil over-grainer go over the work, shaking the hand at the same time; this will give the penciling that wavy appearance so desirable. It must, of course, only be done here and there and running down the grain. When this is dry place the straight-edge on the joints and wipe off the color that is on the cross rails with the chamois leather. Then grain the cross rails much in the same manner, but if one likes the middle cross rails may be done like the panels, but make a contrast in color. This is done to show the joints, as in a real wood door. Grain the outside stiles in the same manner as the middle stiles, only take the over-graining straight down without shaking the hand.

At this point clean the color from the moldings. In graining moldings the work must be carefully done, so as not to touch either the panels or the stiles. Great care is necessary in getting the color on the molding even and free from dirt. Take the one-inch mottler and place it on the molding and while going down shake your hand a little; this gives it that fine "mottling" so necessary. It also helps one to keep the mottling clean.

The door being finished, work up the bay window and panel linings, then grain all other work in the manner described for graining the door. The window sashes are grained in the same manner as the moldings. In working skirting boards, the moldings are done as the moldings on the door, and when dry all color is wiped from the flat parts. In the flat parts of the skirting make a little contrast here and there while mottling, but soften it well with a badger.

At this stage look over the graining, to see if there is no dirt or specks of graining color on any part; if so, get the damp chamois leather and take these specks or dirt out. Above all things in maple graining cleanliness rules the roast. This very important point cannot be overrated. Many a time it carries off indifferent work. But do not let it stand in the place of good graining. Always make it a part of good graining work.

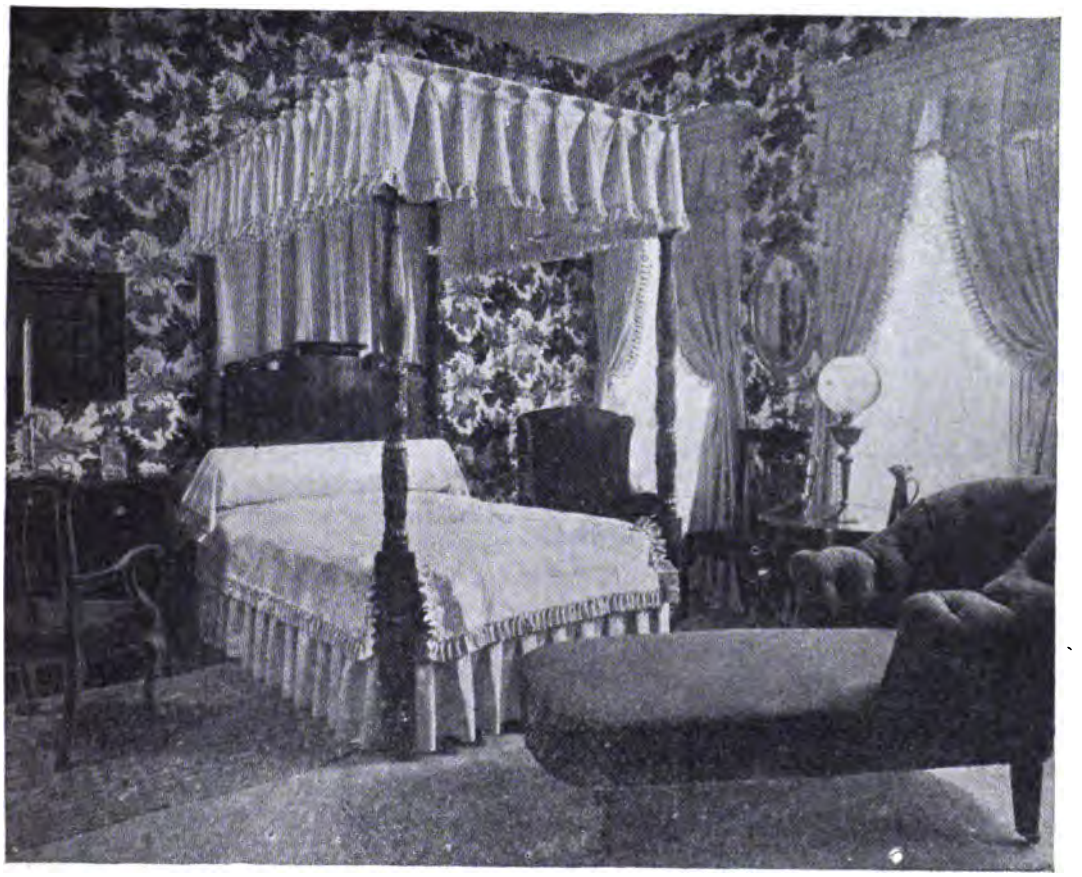
The graining work is now done, so dust it down and sweep up the room. The dust removed, the job is ready for varnishing.

Varnish darkens and grows yellow with age. It is, therefore, necessary to see that the varnish is pale before the varnishing is started. Again, see that the brushes and cans are perfectly clean. The proper manipulation of varnish lies in a considerable degree with the secret of its presenting fullness and brilliancy. One will often see varnish as applied by two different men; their methods of "laying off" will often present so great a contrast in beauty as to give the impression that one piece of work was finished in common varnish, while the other appears to be quite in the opposite direction. Those varnishers who flow on a heavy coat and spread over a considerable space before they level it up produce the best work.

In concluding this article, I confess that among no class of skilled workmen are there greater discrepancies regarding particular methods of working than among painters and grainers, who may cling to certain favorite theories of their own. The hints and instructions I have given are the results of many years' practical experience, and may be safely credited.

On November 16th, President Roosevelt signed the proclamation making Indian Territory and Oklahoma a State of the Union, using an eagle's quill furnished by a subscriber of THE MASTER PAINTER, F. H. Redding, a resident of Norman, Okla. We have subscribers in both sections of the new State.

Department of the Interior



Our illustration this month shows a fine specimen of the old-time high-poster bedstead, generous in its six feet of width, and with upper and lower drapery of creamy white cotton valance, the simplicity of which brings it into delightful relief against the wall of gorgeous flowered chintz. The four posts are exquisitely hand-carved, being of solid mahogany. A little pink fringe is on the upper valance and counterpane. Such a bed tells of wealth and comfort; we who mostly recline on cast-iron beds and corduroy slats know nothing about it. Yet the writer has slept in just such a bed—perhaps not so costly a one as this, but with high posts, valance, and all, with a feather bed annex that would smother you. Among our Pennsylvania Dutch folks they give you two big feather beds to lie upon, with two more piled on top of you for good measure, and to keep you from getting the nightmare.

A very dainty boudoir is possible finished entirely in white and a very pale shade of green. The woodwork and furniture should be of some light colored wood, such as white maple, birch or Circassian walnut. A white enamel finish would also be good. A delicate pattern in pale green on a background of white would be most effective for a wall covering. Very fine white muslin curtains for the windows would be attractive, with an inside heavier curtain of delicate green India silk lined with white and looped back with broad white ribbons. Silks of the two colors are draped in entwining folds about the broad mirror of the

bureau, and the carpet should carry out the same color tones. A few bright water colors framed in some appropriate wood, with broad white mats, will give life and color to the whole room.

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An adjoining bedroom in harmony with the suggestion for the boudoir presented herewith would be pleasing in certain shades of pale lavender and white. The woodwork could be finished in white and gold, furniture of light oak. The hangings should be of lavender in broad bands of white, the same tone carried out in plain or self-toned side-wall and ceiling. A frieze of rich floral design with purple flowers peeping out from among green leaves would give considerable life to the room.

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The possibilities of yellow color tones in interior decoration are oftentimes overlooked by many decorators. One very richly-decorated parlor recently finished by a popular New York shop has the woodwork finished in dull Pompeiian red. The papers were chosen in harmonious tones, a plain reddish-yellow being used for the side-wall, while the ceiling is more of a buff. The frieze, which is quite deep, has a boldly flowering pattern of large flowers in shades from dull brown to old rose. The floor was covered with a rug of Byzantine pattern of old gold and brown tone, and curtains of the same color are hung at the doors and windows. While such combinations as these are very effective if properly managed, they require careful judgment to get the colors so proportioned and balanced that the room is quiet and reposeful instead of loud and flashy.

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There has been a marked advance in the artistic character of the wall-paper shown for several seasons past, and the general standard of the hangings shown this year is unquestionably far in advance of anything previously attempted in this country. It is apparent that the artistic taste in mural decoration is advancing, and styles in wall-papers are getting better every year. More firms are also giving greater consideration to the requirements of the decorator and bringing out special patterns and colorings particularly adapted for original treatment.

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The increase in the cost of raw material and labor made higher prices absolutely necessary, and advance quotations on practically all grades of hangings indicate that manufacturers must get more for their goods than heretofore, if they are to remain in business. The advance in prices this year is not great, however, and the increase is being readily accepted by the trade. The volume of business transacted was greater than ever before, and the orders booked indicate that dealers generally expect more wall-paper will be used during the coming twelve months than ever before.

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Principal Uses and Treatment of Burlap

In the progressives times of to-day the furnishing and decorating of interiors are in many ways entirely different from years ago. The execution of the work, materials and the difficult problems that the decorator has to deal with are sometimes no easy task. To satisfy the eye and give a soothing and quiet impression on the mind is the principal object in the treatment of color combinations in modern decorating.

In former years the decorator or painter merely had to deal with colors and paint, and use them to best advantage in the various styles based on suggesting features and coloring of same. At the present time it is different, and twenty-five years hence we may battle with other ideas, motives and materials. Nowadays a decorator is compelled to have knowledge of the several branches, in carpets, furnishings and draperies, their adaptation, selection and utility; yes, even the building trades, as plastering, advising for rough or smooth plaster surface, relief and stucco work, carpenter or cabinet work, judging of construction, advising treatment, be it either for a fine, dainty chamber with a tinted ceiling and linen crash sidewalls and white enameled woodwork, or a heavy, solid display in a beamed ceiling and massive woodwork and wainscoting, where the wall space is the smallest part, and a material as burlap, leather or Japanese paper may be well applied. He must make himself familiar

with all these things in order to carry out his schemes and effects that he may desire to put in the respective rooms of a modern house.

From a view of excluding any advertising, nor soliciting any certain brand or manufacturer, but simply treating the subject in a fair and open manner, from an artistic appearance as well as from a mechanical and useful standpoint, I will mention a few facts and experiences concerning the uses and hanging of these materials.

The adaptability and usefulness of canvas, burlap, crash, buckram or similar kinds of goods has been often tried, and proven without a doubt, on new, good walls, and old, cracked-up walls, and even on wood partitions. These goods are at times misused, and lose thereby their attractiveness. They are either misused by poor application or wrong treatment and combinations. Any good paperhanger or particular man, with the use of a true straight-edge and sharp knife, and with some experience, ought to hang these materials without a fault. The principal point in hanging is to get a sharp edge or seam and a clean butt joint. Naturally, the paste must have the necessary sticking qualities of a heavy strong paste, with a touch of venetian turps or common brown molasses. That is what I have found in my experience serviceable, and when the walls are properly prepared it usually brings satisfactory results. There is, of course, such a thing as the goods running shaded. This is also very often the case in crêpes and ingrains, and at which we are sometimes put to a great deal of trouble, even though the manufacturers, with the best improved machinery of to-day, try their level best to turn out even colors and shades. If we at such a time, where the goods run shaded, have a careless mechanic to hang such a roll of goods, we are certainly up against it.

The dyed goods of this material have a certain lustre and richness in color that we can hardly imitate either in paint or in glazing colors. In fact, a wall hung with this material helps and adds as part of the furnishing. I had some time ago a couple of large office rooms. They were built as an addition to the main building. The outside part was frame, clap-boarded. The ceiling and walls in that addition were simply made of six-inch boards fitted into each other, and it looked very rough before we started the work of decorating this interior. At first we put on strips of two inch by one-half inch, three feet apart, or the width of crash material, on ceiling and walls, around the base boards and top of walls, then proceeded with tacking on good unbleached muslin on these strips, and sized with a strong glue size. When this was dry it was like a drum. After that the crash material was put on; where these stripes were put up the joints or seams were butted. A four-inch crown molding was put at the top of the wall, and the ceiling was treated with imitation beams in panels, in which also crash was applied, in a soft, greenish cream, set off with small ornamental trimming. The side-wall crash was an olive green, also treated with a small trimming under cornice and above base board in a shade darker. The woodwork was common pine, stained in a greenish brown antique, kept in dull appearance and simply finished in a coat of stain, one coat of shellac and one coat of flatine. After everything was completed on this job the rooms looked just as solid as if done on brick walls, and were satisfactory in every respect. In my estimation, the old boards behind the crash can throw and dry itself as much as it wants to without injuring the sheeting on the true surface, and for the purpose of office use will last a good many years. Now, on ceilings and walls that are badly cracked up, and where large patches of plaster have been added here and there, it is a sure case of cracking again where the old and new plaster comes together; here I always use, if the walls are to be finished in oil paint, a heavy unbleached sheeting. First, of course, scrape and flush up all cracks and bad plaster, and paint the whole surface one coat; then apply the muslin with a heavy oil paint made of remnants and scrapings left over from different kinds of work, dark colors as well as light colors, stirred up and strained, to which is added a portion of mineral white to a consistency of a fairly heavy paste. Sheeting put up with this and afterwards troweled over with a plasterer's trowel with a composition of similar stuff, painted two thin coats and two heavy coats of paint, the last two heavy coats stippled, has proved

to be a very durable and permanent surface. On a badly cracked ceiling, to be finished in water color, I usually put on a lining kona or prepared canvas with a good heavy paste, wheat or rye flour. Add a little Venetian turps, smooth up seams and apply a coat of hard oil size, to which is added a little plaster of paris or white lead, then apply the tint, and I usually have a faultless ceiling. In keeping strictly to the question, for any good work, as the only good thing for cracks not to show through and disfigure decorating, the use of covering materials that are in the market to-day as a ground and foundation on new and old plaster, it is certain it will add to the effect and the keeping of the same.—*Wall-Paper News.*

To Avoid Spots in Hanging of Wall Papers.

In the hanging of papers it very often happens that spots show after a short time, and how to avoid these is the effort of every paperhanger in the trade who wishes to do good work.

Excuses are always easy to make—humid walls, humid weather, frost, fresh lime, etc. Each time you ask the paperhanger the reason he answers that the fault is not his. This happens in ninety-nine cases out of a hundred, but, in fact, it is the ignorance of the paperhanger.

Modern times. makes greater claims upon the skill of theworkman then heretofore. Formerly papers of many colors were used and the colors were harder, unlike the colors of to-day. Wall-paper was produced from rags, fixed with powder, and a frequent impression of mineral colors. This product as wall-paper represented a material less sensitive and giving a better result regarding spots, even if the paperhanger was not careful. To-day only wood stuff is used in manufacturing wall-paper, and as a result a far looser texture is obtained. Aniline colors are used, which are easily dissolved in water, and they are attacked quicker than mineral colors.

The paperhanger ought to put up each strip at once after he has pasted it and not paste several at the same time and leave them. If this is not done, the water which is contained in the paste will pass through the texture of the paper and be dissolved. After the paper is hung all doors and windows should be opened, so that sufficient air passes through and a quick drying is obtained. Many paperhangers are still of the opinion that doors and windows should remain closed so that no bubbles result. This was the right formula when the process of making wall-paper was quite different from the methods of the present.

The modern better papers do not need as much paste as the papers of fifty years ago. Neither should the brush be used as freely as formerly. This was only necessary when a good deal of paste was used. As much air as possible will have a good effect as far as the drying is concerned.

Another habit of the paperhanger is to put the brush on the next strip of paper and leave it there until the one just pasted is put up, and this spot of paste passes through, and when afterwards he begins to paste this strip this place gets too much of it and bubbles are likely to result. The paperhanger should be careful to avoid this in any case. All his tools should be in good shape. The table ought to be wider than the paper, so that the paper does not hang over the edges, for if this is the case these edges get too much paste, and greasy work is the result. The more evenly the paste is laid on the nicer is the work. The walls ought to be as dry as possible before the work is done.

Most people are inclined to believe that the work of paperhanging is more or less automatic and done without special intelligence, but this is not true, because the quality of the papers is to-day much finer and the materials used demand far more subtle treatment. Dealers should control the paperhanger in every instance, so that if the customer makes any claim the merchant will be in a position to answer if the fault is due to the goods he sells. If necessary, he should have a small place papered under his own direction, and there will then be no doubt about the source of any difficulty which may arise.

Sometimes the paper fades, and there is no way to avoid this. The customers ought to be informed in any case that certain papers suffer from air and sun. If rooms are not used daily, the sunny side ought to be covered with shades. The paperhanger ought always to keep the pot

and brush in a clean state, for the contrary will favor the forming of acid in the paste. Needless to say that paste should always be clean and not contain acid.

The Use of Rubber in Paint.

So-called rubber paint has been in use for many years, but in some instances at least, the rubber existed only in the name, none being in the paint. But raw rubber is used in the making of damp-resisting paint for certain purposes. The value of such a paint, however, depends upon the retention by the rubber after solution of the unique properties for which it is used, and experience has shown that the quality of the rubber exerts no inconsiderable influence on the elasticity and durability of the paint. But much depends upon the proper solution of the rubber, for if this is not accomplished right the rubber will not mix perfectly with the paint, but remain in particles without becoming an actual part of the paint in the sense in which it should. The solution of the rubber in solvents is a discussed question with those who have studied the subject, and the weight of evidence seems to support the view that the rubber does not "dissolve" in the common sense of that term, but that the particles simply become jellified, and, in that state, are distributed throughout the paint, inducing in the mass a sort of colloidal condition. But be this as it may, it is certain that different samples of nominally pure rubber yield entirely different results after treatment with solvents, and recent investigation has suggested a probable reason for this. It has been found that a rubber is now obtained from a tree entirely different from the Heveas or true rubber tree, and true rubber is adulterated with this, or is used as a substitute for the true rubber. This new rubber is less elastic than the true, and differs in other respects.

The Para or true rubber may be dissolved in disulphide of carbon, with coal tar benzol, or with turpentine spirits, and in this condition may be mixed with linseed oil. The rubber is first cut into strips and placed in a vessel that can be perfectly stoppered, then the solvent is poured over the rubber to cover the strips; allow the vessel to be in a warm place and shake it now and then. If the mass becomes very thick, add more solvent, to make it more fluid. Then it may be mixed with boiled oil, first straining it to remove sediment: then the mixture may be heated on a sand bath, to effect perfect amalgamation. Solutions with coal tar benzol are preferable to those made with disulphide of carbon, the latter being very volatile, and when it does leave the mixture the latter will be found full of rubber-like particles.

Artificial Shellac.

According to a recent German patent a substitute for shellac, which is in no way inferior to the natural resin, and is in some respects superior to it, can be prepared by the action of formaldehyde on a mixture of carbolic acid and tartaric acid. Other organic acids will serve the purpose, but as they are all dearer than tartaric acid the fact is merely worth mentioning. The process is as follows: 310 pounds of commercial tartaric acid are gently heated in a still with 300 pounds of forty per cent. formaldehyde until completely dissolved. When this has occured 390 pounds of solid carbolic acid are added and the gentle heating is continued until the chemical action sets in. This is shown by a great rise of temperature which lasts until the change is complete. It will then be found that an oily liquid is swimming on the contents of the still; this is skimmed off and washed with hot, weak ammonia until it is free from excess of either formaldehyde or carbolic acid. Care must be taken to keep the substance fluid by heat during the washing. Once the washing is over the mass is poured into cold water, where the artificial shellac solidifies. Unlike natural shellac, the new product is insoluble in alkalies, but it dissolves freely in either rectified or methylated spirit in acetone and in ether, even in the cold. It is insoluble in cold benzole and only sparingly soluble on heating. It is quite insoluble in benzine or oil of turpentine, but will dissolve in castor oil. Not only is the artificial shellac cheaper than the natural substance, but it dissolves in a proper solvent without leaving any residue. Whatever solvent may be used for the natural resin there is always a large amount of waste due to the presence of insoluble matter.—*Drugs, Oils and Paints.*

QUESTIONS ANSWERED

"He that questioneth much shall learn much"—Bacon.

GLAZING PUTTY FOR SHOW CASES.—"I have seen in THE MASTER PAINTER some time a formula for making a putty for setting glass in show cases, and I cannot find it now. Will you kindly hunt it up for me?"

We have no recollection of having printed such a formula, although it is quite possible we did. We cannot go over all back numbers now to hunt it up, and cannot answer the question. Will any reader who can kindly answer the question?

MILWAUKEE BRICK COLOR.—"I have a brick house to paint, for a very particular party, the body to be Milwaukee brick color, and the trim maroon, light of shade. Will you tell me the way to mix the brick color? The light maroon I judge to be mostly Tuscan red." It will be ever so much better for you to buy the ready-made Milwaukee brick color that we do not think it worth while to give a formula for making the color. Several makers of paint make a good Milwaukee brick paint, and all you will have to do is to thin up to a suitable consistency and apply it. As for the maroon, it is not Tuscan red, but a combination of black, red and blue, with some white lead also. The Standard Dictionary gives the proportions of these colors as follows, in parts of each: Black, 7; Red, 20; Blue, 6; White, 7.

BOILED VS. RAW LINSEED OIL.—"Which do you think is best for outside painting, raw or boiled oil, for the fall of the year?" This from a Minnesota man. Latitude has something to do with such cases. It is cold early in the fall in that State. Opinions of painters on this subject vary; some say that boiled oil is best for a cold climate, and raw oil for a milder climate. Boiled oil seems to give better satisfaction along the sea coast than raw oil. Some prefer raw oil on first coat, regardless of temperature or atmosphere. It spreads easier, they say. But as the boiled article has more body than the raw, and dries quicker, some like to mix the two, half and half. So there you are, and you can take your choice.

MAKING A FLAT BRICK RED.—We would never think of making our own flat brick red, as there are goods of this kind on the market that are far superior to any hand-made article, and they are more economical, too, we think. A rough formula calls for two parts of the best French yellow ochre, one part of white lead, and one part of English Venetian red. The Standard Dictionary gives this formula: Black, 81; Red, 7; Orange, 11; Yellow, 1. In any formula the depth of color may be obtained as desired by varying these proportions.

A BLACKBOARD TROUBLE.—"I have trouble with a blackboard in a school house; it looks as if the paint had been applied without any size under it, and the paint comes off. I did not know about its condition when I repainted it, and the paint has about all come off. I want to know what to do to get the paint to stay; should I glue-size the wall or varnish it." Remove all the old paint, sandpaper well, repair old broken or defective places, making all solid and smooth; then size with gloss oil, and rub lightly off when dry; then apply a coat of the liquid slating. You state that you have to go six miles to this job, and want to do it at one visit. The gloss oil size will dry quickly, and you can do the entire job at one visit.

RENOVATING OLD SMALTED SIGN.—In our November issue we told a subscriber how to clean or remove old gilt lettering on a smalts sign, and he writes to say that the same did the trick very nicely. The method was to mix equal parts of sulphuric acid and water and wash off the letters with a soft bit of cotton cloth. Now he wants to know what to do with the old smalts part of the sign, to bring back to it the bloom of youth. We suggested washing it with benzine, or with clear water, with a hose. The same question has been asked us by a business man,

for whom we propose doing some smalted sign work; he wants to know how to clean it of dust and dirt that will get on it in course of time. We suppose that the hose water would do it.

PAINTED BRICKWORK ON CHURCH.—"I have a brick church to paint; it has never been painted; they want it painted red; what kind of material should I use? Should it be coated first with a filler? If so, what kind of filler should it be? How shall I figure on the cost?" First coat may be any good rough paint, like Venetian red or ochre, in raw oil; then a coat of Venetian red in oil; then if you are to make it flat brick red, apply that, and then pencil with stiffish white lead. Charge for painting brick walls from ten to fifteen cents per square yard per coat; penciling, per square yard of surface, ten to fifteen cents.

WANTS TO JOIN THE ASSOCIATION.—A Pennsylvania subscriber writes for information as he is desirous of becoming a member of the Master Painters' Association. He does not say whether he wishes to unite with the State or International Associations. For particulars regarding the former, address Organizer Titus Berger, 3812 Butler St., Pittsburgh, and for the latter address Wm. E. Wall, General Organizer, 14 Morgan St., Somerville, Mass.

HANGING TIN FOIL.—I have seen it recommended that on a damp wall tin foil may be first laid; what kind of paste is used for this work? Tin foil is very seldom used nowadays for lining a damp wall. It is only used for small areas of the wall, mostly where the damp is particularly bad, and may be attached with the same kind of paste that is used for paper. Sometimes a coat of shellac is applied on the foil, to remedy any possible defects in the tin foil.

MAKING A COPPER PAINT.—There are various copper paints on the market, mainly for coating the bottoms of marine vessels. By precipitating metallic copper out of any solution of a copper salt by introducing scrap iron into the liquid, then mixing the precipitated copper with linseed oil or varnish we get a copper paint.

COLORS FOR MACHINERY.—Some of the best combinations of colors for the purpose are deep blue and golden brown; black and warm brown; chocolate and light blue; maroon and warm green; deep red and gray.

OIL CLOTH FINISHING.—The muslin is first sized with a hot soap size, and when dry apply a size of hot alum in solution; let dry; then paint with colors finely ground in oil; use plenty of driers and a little turpentine. When dry apply a thin coat of copal varnish; harden by subjecting to a heat of about 200 degrees.

The 17th annual convention of the Society of Master House Painters and Decorators of Massachusetts will be held in the American House, Boston, Mass., January 14, 15, 16, 1908. The following papers will be read and discussed: "Has the Advance in Wages Equaled the Increased Cost of the Necessities of Life?" "Trade Literature; its Value to the Master Painter; Should He not Give It His Support?" "Denatured Alcohol Shellac." "Is it Wise to Add the Paperhanging Business to the Painting Business?" "White Lead and Its Combination with other Pigments;" this will inaugurate a series of tests on outside work that will run for from five to ten years. "Is the International Convention a Benefit to the Painting Business in and about the City in which it is held?" There will also be discussions on the ready-mixed paint question, and on painting cement.

Judging from the program this will be one of the most interesting and helpful conventions ever held by any body of master painters.

We have added to our combination offers this month the "Woman's Home Companion," the finest and best of this class of monthlies; it is regularly a dollar a year, and worth two; but we offer it in connection with THE MASTER PAINTER, either new subscriptions or renewals, for $1.60. Get it for your home or best woman friend.

Editorial Department

THE MASTER PAINTER

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By reference to this little square YOU will know the date on which your subscription expired.

Editorial Notes.

—He was painting windows from the top of a long ladder, in an alley way, and every few minutes he had to descend and move his ladder to allow a team to pass. Toward noon he told a driver that he hadn't "been able to do a d—d thing all morning but go up and down that ladder." Verily, painters have their troubles.

—"THE MASTER PAINTER is very satisfactory to me; find enclosed amount for renewal."—J. W., LaPorte, Ind.

—It is now able to be up and around—the ladder.

—A boy explained to his professor that it was no use finding fault with him, as he was cut out for a loafer. To which the Professor replied: "Whoever cut you out understood his business thoroughly."

—"I want THE MASTER PAINTER magazine, if there is any possible way to get it," wrote a Missouri man. He got it.

—At twelve years of age Keir Hardie, the well-known labor member of the British Parliament, could neither read nor write, and the only kind of schooling he received was a rough drilling in the elements of reading, which he obtained by studying books and notices in shop windows.

—"I am satisfied with THE MASTER PAINTER, and am sure it is worth more than a dollar to any painter. I cannot say too much in its favor."—F. P., Greenfield, Mass.

—The Chambers Glass Company, of Pittsburg, through its President, J. A. Chambers, applied for the benefit of the bankruptcy laws.

—The Bill Posters and Billers will meet in Chicago December 2d.

—"It is better to hope and work than to growl and shirk," sagely observes the Baltimore American.

—"Although I receive other journals, I couldn't think of doing without THE MASTER PAINTER."—F. A. K., Winona, Mich.

—Wages are low in France, and living expenses high. Common labor brings from 40 to 50 cents a day, while the best mechanics get from a dollar to a dollar-twenty a day. This should make you fellows feel comfortable with your three or four dollars of eight hours. But, does it?

—"THE MASTER PAINTER is fine, and I am deriving great help from it."—C. M., Memphis, Mich.

—Nearly every Japanese follows the trade or profession of his father. It is quite the opposite in this country.

—Tommy's pop describes a knot-hole as a place where a knot is not.

—One great trouble with this unparalleled prosperity is that it keeps us broke trying to live up to it.

—The passenger cars of the State railways of Germany are painted in three different colors, to indicate the class, a great convenience to passengers.

—"I take this opportunity of expressing my appreciation of THE MASTER PAINTER. It continues to grow more interesting and useful."—A. J. B., Hebron, North Dakota.

—The plasterers was the first trade in Boston, Mass., to secure the Saturday half holiday, and they have been enjoying it eleven years.

—A painter of Ashland, Pa., fell from a third-story swing to the ground, was unconscious for an half hour, then pluckily went back to work.

—"Find enclosed a dollar. THE MASTER PAINTER is very satisfactory."—J. W., Indiana.

—His name by no means indicating his character, Otto Cypher, a Burlington, N. J., painter, dashed through smoke and flame and rescued two women and two children from death by fire. He fell exhausted as he bore out the last one, a six-month's-old child.

—The hod carriers receive five dollars a day in San Francisco.

—The especially valuable feature of the Page eight-hour law in New York, which distinguishes it from any other Child Labor statute in this country, is the requirement that these eight hours must fall between 8 a.m and 5 p.m.

—"Of all the painters' publications, I think that THE MASTER PAINTER is the cleanest, the brightest and most helpful of all. Even my wife enjoys reading it, and she has gotten several hints on interior decoration that she could get nowhere else."—This from the advertising manager of one of the biggest and best technical magazines published in our country.

—For a period of twenty-five years to 1905, the greatest number of strikes in any one industry in the United States was in the building trades, which had more than 26 per cent. of strikes and 38 per cent. of all the establishments involved in strikes.

—"Enclosed find a dollar for renewal. I simply must have THE MASTER PAINTER."—E. W. H., Greenland, N. H.

—The Jamestown Exposition awarded William E. Wall a bronze medal diploma for an oval table top, grained to represent inlaid woods. Mr. Wall has a number of medals of award from expositions for specimens of his work in graining. He is the author of "Modern Graining," a book that we offer at two dollars, the price regularly being three dollars.

—"It is the best and greatest investment any painter or decorator can make. I enclose amount of renewal."—V. C. G., Canton, N. Y.

—The American Federation of Labor accepts the challenge offered by the Manufacturers' Association, and considers ways and means of conducting a fight.

—"Find enclosed a dollar. I love THE MASTER PAINTER, and hope it will come to me promptly every month. I always await it with much pleasure."—C. A. K., Brooklyn, N. Y.

—A painter at Stroudsburg, Pa., has died of lockjaw, caused by abrasion, and although 27,000 units of anti-toxin were injected into him it failed to save his life.

—Three painters sued for wages due them but withheld because the church pews which they decorated with yellow, green and chestnut stripes were entirely too gaudy for the purpose; also, because they were unable to finish a memorial window for lack of proper material; the firm that was to supply the stained glass sent instead a window that was intended for a bar room. All this near Allentown, Pa.

—Because there were no paint signs posted on a newly painted Pottstown, Pa., store, a woman wants damages for a ruined coat that she wore; but the store man contends that as he does not own the building he is not liable. So it goes to court for settlement.

—Mr. Paint Dealer, don't be weak on the price proposition; it's really a secondary matter. Quality is remembered long after price is forgotten.

A Trade School Abandoned.

The Mechanical Trades School, which has been maintained for many years in Philadelphia by the Builders' Exchange, will be abandoned. The Exchange decided to surrender the charter and turn over the funds in hand, amounting to $3,000, to the Exchange. This step is taken in view of the fact that the city is covering the field by establishing trades schools, making the one operated by the Exchange practically useless. The school was established in 1887, and until six years ago large classes were taught in bricklaying, carpentery and plumbing. Up to that time there was a legislative appropriation, but when funds of this kind were no longer available, the school languished.

Painted the White House With Carter Lead.

Early in June, the painters, under Jas. M. McCabe, the Government master painter, began painting the exterior of the President's Washington residence, popularly known as the White House, and by the last of September the job was done. twenty painters having all that time been busily engaged in the work of beautifying the structure with "Carter White Lead," mixed with oil. First, however, all the old paint, the accumulation of the years ever since the building was burned by the British, in 1814, was removed by the gasoline torch, and every inch of the north front was done carefully, including the portico. This laid bare the original sandstone surface. Tons of Carter white lead and barrels of pure raw linseed oil were used in the work. All this was hand-mixed by the master painter and his men. The "jours" were all union men, and every three years the job is repeated. Ordinarily it takes from about June 15 to September 1 to do this job, but this year it took longer on account of the burning-

off required. The building was painted first following its rebuilding after the fire of 1814, and has been repainted some dozen times since. For the past twenty years, or possibly longer, it has been painted once every three years, with the same mixture of white lead and oil. The Washington *Herald,* from which we have taken the facts set forth in this article, adds: "A blind man could almost testify to the fact that the house is white now, for it is resplendent in a coat of immaculate paint that seems whiter than any of its predecessors. The old building fairly glistens in the sunlight."

From Putman's Monthly.

Cardinal Gibbons, in an article in *Putman's Monthly* for October, strongly advises the American workingmen to alter their attitude toward their employers, and adds, in connection with strikes and intimidations:

"Every American citizen has the right to be protected in his efforts to earn an honest livelihood. No man or combination of men should have the power to prevent him from following his vocation, even by intimidation, for he may have not only himself but a wife and children for whom to provide. It is my opinion that the honest laborer who is willing to do work which is proper and in no way conflicts with the interests of the community should be given the opportunity to perform it, and to have the same protection from the authorities which is extended to any peaceful citizen, no matter how powerful or influential may be the person or society which opposes him."

Detroit, Mich., Nov. 9th, '07.

Editor THE MASTER PAINTER:—

The following letter has been sent to all of our agents and travellers throughout the United States:

"Now is the time for us all to be optimistic, cheerful, and ever ready with the glad hand of confidence for those who are weak-hearted and pessimistic. There never was a time when doubt and lack of confidence had so little cause for existence as now. The nation is blessed with good harvests, and high prices to pay for these, and everything points to continued prosperity in the business world. If we will only prove unwavering belief in ourselves, our country and our destiny, we can be the means of spreading the spirit of confidence wherever our men go. All the country needs at the present moment is a few thousand men who believe, who refuse to lay down, and who are willing to try and make others feel the same way. There is absolutely nothing the matter with business. Preach confidence and prosperity first, last and all the time, and ask everybody you meet to do the same.

Yours very truly,

BERRY BROTHERS, Limited,

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General Manager."

There is no finer material for the painter to use than Glutol, one of the staples of the Arabol Manufacturing Company, 100 William street, New York. It is not only cheaper than glue, but it is as much more convenient since it will mix at once with cold or lukewarm water. It furthermore has no smell, and works with greater ease than ordinary glue. As a sizing for any surface it is excellent, and it makes as good a kalsomine as the most fastidious might wish.

Mechanic of the Future.

Our ultimate and permanent dependence for skilled labor is in the American boy. This is a fact which I have emphasized in many addresses and in many connections. We must attach a manual-training department to all our public schools of the primary grade, in which boys of 9 or 10 years of age and upward, under competent instructors, can give an hour each day to the use of the tools employed in the more important mechanical trades. This instruction must be free, but should be compulsory. We must have industrial high schools, also free, into which boys of 14 to 15 who have taken the course in the primary schools may enter for advanced and practical instruction, and from which they can be graduated as thorough mechanics. The object of this manual training in the public

the labor unions' virtual abolition of the apprenticeship system, and to supply it in the best possible way with the best possible material. All the influence of the federation must be used to equip our American boys with a thorough industrial training.—James W. Van Cleve, in the *Engineering Magazine.*

Boycott and Blacklist.

President James W. Van Cleave, of the National Association of Manufacturers, makes an authoritative denial of the accusation that the employers' associations of the country are collecting a fund for the suppression of the labor unions.

In an address delivered at Battle Creek, Mich., October 8, 1907, he said that the charge that the federation which has just been created by the employers and citizens' organizations has been organized to crush labor unions is an absurd accusation and that nothing could be further from the purposes of the thoughts of the federation.

Mr. Van Cleave also denounced both the boycott and the blacklist in these words: "When I condemn the boycott I condemn it in all its forms and ramifications, including the blacklist, which is only a boycott in another form. When used by labor unions to hurt employers or by employers' associations to hurt workers, the boycott and blacklist are un-American, immoral and vicious and have no place in a country like ours.

"I want to put myself on record by saying that in my lifelong experience as an employer and in many years of experience as member and officer of employers' associations, I have never been connected with a concern or an organization employing the blacklist, and I want to put myself on record further by saying that I would not be a member or officer of a corporation or of an organization that employs the blacklist at any time in the future.

"Speaking particularly of the National Association of Manufacturers, which I have the honor to represent as president, I speak for every member of this great organization when I condemn the blacklist not only as much but even more so than the boycott."

Book Combination Offer.

Old and new subscribers to THE MASTER PAINTER are to profit by our revised combination offer, as follows:

	Regular	Our Price
Wall's "Ancient and Modern Graining"	$3.00	$2.25
Thompson's "Show Card Writer"	1.00	.65
Meinhardt's "Practical Lettering"	.60	.45
"Manual of Lettering and Design"	5.00	3.75
"The Kalsominer's Handy Book"	1.00	.80

These prices are only for new subscribers and renewals of old subscriptions; to all others regular net prices are charged. Any book relating to the trade will be furnished on the same basis.

THE MASTER PAINTER,
Malvern, Pa.

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THE MASTER PAINTER

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BY A. ASHMUN KELLY, PUBLISHER.
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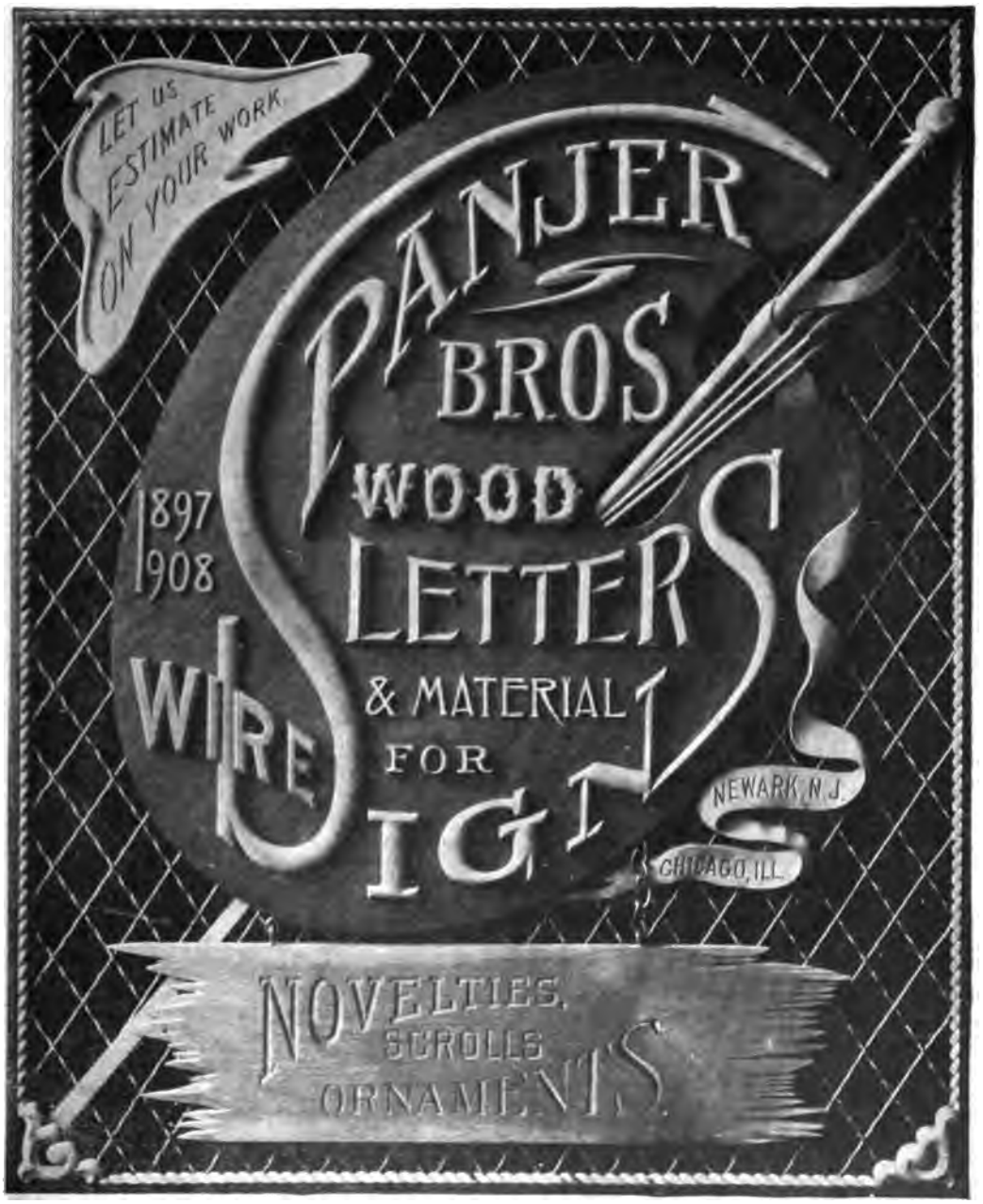

The Coast Manual of Lettering and Designs, $3.00. From Our Chicago Office.

Foot of Center St. Newark, N.J. Chicago, Ill. 281 N. Green St.

Trade School Teachers Wanted.

By A. Ashmun Kelly.

The State of Wisconsin has inaugurated a system of public trade schools that will surely be followed by other States in the near future, for it is the true solution of the question of training boys to the mechanical trades. We predicted this very movement two or three years ago, and of course we are pleased to see this early fulfilment of the prophecy. Now we want to say that there will be need of competent teachers in the schools that are to spring up all over the land, and at present there are very few men capable of filling the position of instructor. This is true at least of the painting trade, and as this trade will be foremost among those taught in the coming trades schools, it behooves all who are ambitions to become instructors—and there are many of these—to become proficient in the particular line that they may contemplate, and it will be useless for any to undertake teaching without adequate knowledge of the work in every detail. My own experience in this matter, and for which I am now more than thankful, enables me to know just what is demanded of the trades teacher; he must know not only how to handle a tool, but in the matter of painting he must know the theory and chemistry of paint and painting as well, and be able to give lectures on these subjects. The salaries of such instructors will be good, and the position will rank as high as any of the professions, so that there is every incentive to our young painters to consider this matter, and to prepare themselves for the work that is surely on the way, that of instructing boys in the different branches of painting. This necessary preparation may be obtained at little cost of time or money, through the medium of the Malvern School of Painting, the only preparatory school of the kind in this country. We will so instruct you that you will be able to take a class of boys in any trades school as soon as you graduate from our school. This is special and additional to our regular courses, the idea being to fit you for teaching, as well as for working, if you should not care to teach. That is, if you want to take the special teachers' course, you will get it and also all that is usually included in the regular students' courses. As an instructor you will need to understand color, etc., chemistry and theory. And will also need to know how to successfully conduct a class of students in a trades school. Having had personal experience myself, in one of the best trades schools, the Technical Institute of Indianapolis, I understand the requirements of the class room and workshop of the trade school, and know just what is needed in the way of equipment and instruction. I had all to learn by personal investigation and experiment, and you can have the benefit of my experience and knowledge if you will. If you feel an interest in this matter, write to me, and let me tell you more about it; ask questions about the work of instructors, and I will enlighten you. I am preparing a special course for those wishing to fit themselves for instructors in trades schools. Such instruction as the trades schools are now giving in painting is very crude, which cannot be helped, for no one was prepared to do such unusual work, no school for instruction for teachers of the trades existed, and hence untrained men are trying to do the work.

It was suggested to me while at the Indianapolis school that the instructing of paint, etc., salesmen would be a clever idea, in a school like the one named, but that is another matter.

Mr. Painter and Decorater

THERE are personal and business reasons why you should become interested in MARVELO WALL PAINT. A few of these are as follows:

1—IT IS ABSOLUTELY NON-POISONOUS, and gives a sanitary "DEAD FLAT" even finish, with soft, rich, water-color effects, with more washable qualities than other "flat" oil paints. IT REQUIRES NO STIPPLING.

2—It does away with many drawbacks where White Lead is used for a flat paint.

3—It makes the best ground work for enamel on any surface.

4—It is more dense or opaque, covers better than other oil paint over dark surfaces, thereby considerably further reducing the cost.

5—MARVELO WALL PAINT colors are especially made for high class interior decorating, and stamp originality on the painter's work, to further interest his customers or prospective customers. The same effect cannot be obtained with ordinary colors ground in oil.

With our guarantee that it will last longer, give better results at a saving of at least 25 to 30 per cent., we solicit your inquiries and orders.

MARVELO WALL PAINT is made in paste form, in white and ten deep colors, and packed in 12½ and 25-lb. pails and 100-lb. kegs.

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THE MASTER PAINTER

Vol. XII FEBRUARY, 1908 No. II

The Sinking In of Paint or Colors.

By A. Ashmun Kelly.

When we apply fresh paint or color to a surface it appears bright and exhibits the true color of the composition; but after a time, sometimes after a very brief interval, the paint or color becomes more or less dull and in the case of some paints or colors begins to show very fine cracks. The cause of this may be found in various directions, the principal cause being the reaction of the air and the moist vapors upon it. Then there is the well known action of smoke, gases and dust upon it. We are speaking now of exterior painting, though the same observations will apply in another degree to interior paint and painting.

Pettenkofer undertook to show that this change of the paint or color's surface was effected by a decomposition of the binder, or medium with which the paint or color was mixed, but it is more probable that it is due more directly to the other causes mentioned, and to the well known habit paint has of "sinking in." This sinking in occurs during the drying process. All paints and colors change more or less during the process of drying. We are all familiar with this fact, having observed that the color will assume a darker appearance after drying; that is, in the case of oil colors, for water colors do not act so, in this respect giving the fresco painter a decided advantage over the worker in oil colors. But as all colors in oil work this way, the effect optically is satisfactory. Now if we apply a fresh coat of paint of the same color as the first to a painted surface that has sunk in or become darker, whichever we may choose to call it, the effect is startling, for the difference of color and brightness will be very great, more so indeed than we had imagined. But very soon this fresh bit of painting will become dull, but it will not however become so much like the first or original coating as to readily merge its color with that; on the contrary, it will be readily distinguishable. The greater the sinking in of a paint or color the less possible it is to patch up or match the painting, when that may be desired.

Now, if we will brush some liquid over the sunken or darkened surface the original coloring will be restored as long as the wetting endures. Water will effect this change, but oil more perfectly. This simple experiment shows, we think, that decomposition of the paint or color has not been accomplished, but that the difference between the fresh and faded parts is like unto that of dry and wet color, the addition of a liquid giving life or lustre to the paint or color. This oil or other liquid we call the binder, and the loss of this binder produces the optical effect of altered color, air having taken the place of the binder.

The experiment has been tried of treating the normal and altered surfaces with a re-agent. For instance, a surface painted with ochre was treated with a few drops of dilute muriatic acid, the result showing that in the case of the normal color the reaction did not occur as soon nor as strong as with the part that was sunken or altered. This is explained upon the theory that in the latter case the color particles are free, being only enveloped by air; whereas in the other case the color particles are protected by the oil. A perceptible reaction was noticed in the one case, and scarcely any in the other.

Why does the paint on the outside of a house sink in? Does it part with its binder, the oil? If so, how does the oil get away? We know full well that the oil does not evaporate nor lose by exposure to the air. Some say that the oil is

attracted more by the coats that it is applied over than to the particles of the paint or color that it is added to, but this is merely surmise, and is not established by indubitable proofs. We do know that color will not sink or change much while drying, but if, when this paint has become dry, we apply another coating before the previous coating is perfectly dry, the color will sink in. Painters say that this is due, as previously stated, to the robbing of the new coating of its oil by the previous coating. This, indeed, sounds plausible enough, because we all know that such sinking in is never, or at least seldom uniform, and this leads to the thought that perhaps colors differ in their power of absorbing oil after being applied to a surface, over another coating. That is, there would be a greater affinity of the colors of the two coats, there being the well known fact that some colors require more oil than certain others in being ground to a paste form.

But this theory is dissipated by an experiment, made as follows: A glass plate was coated with raw linseed oil, and allowed twenty-four hours to become set, it becoming in that time what might be termed half-dry. Then while in this condition it was coated with some color. Next day, when examined, the color had sunk in. Now, there was no color in the first or under coat, for it was pure raw linseed oil only, and yet the binder of the color coating was gone. The color used in this experiment, it should be stated here, was oxide of iron ground in linseed oil, this being well adapted for the purpose. This experiment has been made a number of times, and ever with the same result. It seems to prove that color particles have nothing whatever to do with the sinking of paint or color.

But it is not necessary to confine our experiments to the color in oil, as the drying of the oil itself will answer our purpose. The chemical process of the drying of oil is well understood. Linseed oil absorbs oxygen from the atmosphere and increases thereby the weight, the amount of increase being 10½ per cent. The main factor of the oil, linolein, becomes a solid substance. Present in small quantities are other components, such as palmatin, olein, and myristine; these are oxidized to volatile compounds, namely, carbonic and formic acids, which evaporate. This change of the oil to a solid substance, known as linoxyn, is very slow, and during the progress of this chemical process the physical properties of the oil are also changed. The alteration of the oil thus described is most likely the cause of the sinking in of paint and color. Other and more elaborate experiments have been made to show this explanation to be the true one, but they are too extended and technical to interest the painter, though of great value to the paint chemist. These latter show the gradual increase in weight of oil, of the varying losses and gains made by different forms of linseed oil, at different periods of the experiments. And yet these experiments, tedious though they would be to the ordinary painter, possess great value to one who seeks to discover the reason why paint or color sinks in. Briefly, we know that oil dries at the top first, and that the oxidized heavier linolein settles to the bottom, exchanging places with another stratum or portion of the oil. And so the process goes on, until after the lapse of a certain number of days the coating of oil, no matter whether thinly or thickly spread, is what we call dry; its surface is covered with a skin, and this skin becomes dull or without luster. This lack of original luster is caused by the oxidation of the not-drying principles, palmatin, myristine, olein. The linolein being now solid and not capable of filling the interstices caused by the oxidation of the other compounds, air takes its place, and then we see the sinking-in effect. But this dry skin has a strong affinity for oil, and if oil be applied to it, it will take it up as readily as a sponge will take up water, and as it enters the interstices of the coating it drives the air out, and the surface again becomes full of life and luster. Hence we see that the air caused the optical effect of the dull appearance.

But if, instead of oil, we apply paint to the surface of the oil coating the effect will not be the same. The paint will sink, the linolein skin will absorb the oil and the particles of color will appear dull because they will be surrounded by air, and not by oil. This is as far as we can go in the solution of the trouble which we

call sinking-in of colors and paint, or the dulling of their surface. The writer, in former articles, has advised the oiling of a house upon which the paint was sound as to composition, but which had lost its luster, and he still thinks this a wise thing for the owner to do, if the question of economy enters into the matter. A surface thus treated will indeed be more lasting as to color or luster than one re-coated with paint.

The Crawling of Paint.

By J. F. Thissell.

Your readers will remember that, last Spring, we had up for discussion the subject of the crawling of paint, how could it be prevented? The paint makers seemed unable to enlighten us upon the subject, and only one man would say that he could cure the trouble. that man being the editor of this magazine.

The case that I had, and which started the discussion, was the first that I had ever had. I was told by some of the old experienced painters to wait until warm weather, and that then the trouble would not occur. This proved true, But we cannot always wait for warm weather for finishing a job in. I think the trouble with the paint that I used came from its peculiar character; it was a paint largely advertised as possessing special qualities that, if true, should commend it to every user of paint; but I certainly had my own troubles with it. I made the paint much thicker than the instructions called for, but that helped it very little. The priming coat, when dry, had a peculiar flinty appearance when it was applied in cold weather, and it would crawl; but in hot weather it did not crawl. This brand of prepared lead was new here, comparatively, the house that I painted having been done with it and had gone wrong, so that I had to do the job when it was done over. The three-coat work had peeled some, and the owner insisted on another application of free paint. I rather liked the paint from the first, except its habit of crawling and running. I finished this job, and it now looks well, but as the first job peels, I have my anxiety about this one.

The job of crawling that I have said so much about was the first of the kind for me, but since then, and during the past summer, I have found the same experience with other paints, that in hot weather the prepared paint worked all right, but not so in cold weather. I used the S-W-P, and other first-class prepared paint, and had the same results. I tried to attribute the cause of the hard, flinty look and crawling and running to the atmosphere, and to the possible fact that some of the surface of the job was wet, and so on, for I couldn't see how anything else could make the paint work and look so in so quick a time, and then disappear as quickly as it came. I want to use the prepared paint that comes ready to thin up, but have the paint makers succeeded in making for us the right kind of paint? In the desire and effort to get out something different from a competitor's paint, may some not have produced a paint not adapted for general painters' use? We all know that the painter uses a plain compound of paint, lead and oil, for painting with, with a little driers, and lead, and perhaps some zinc, with oil and color and driers for the other coats, raw oil as a rule being used for all the coats. That is good enough for us. The addition of a lot of other substances, whatever their special merits may be, may be all right for certain kinds of work, and fail when used on any other. Just plain paint for us, and as for the wearing of it, we are not going to guarantee that a job will last any great length of time; we will do the work to the best of our ability, and use the best materials; angels could do no more than this, and the public does not require more.

When You Want the Grainer.

By J. Rockefeller.

If you have a house to paint, and the front door is to be grained, get that door ready first, before your house is quite finished, so that the grainer can get it grained and the whole job be finished together. This will make it unnecessary for you to wait a time longer for your money, as you would have to do if you neglected the door and have to wait for the grainer to get the door done. It is nice to get all of a job done at one time,

avoiding running back and back, to do this little thing and that little thing. And when the job is done, send in your bill, and collect it as soon as you can. There is no sense making any delay in mailing your bill to the party. It is a sort of false etiquette. If you have to wait for your money, let the customer be the cause of it, not you.

Let the grainer know several days beforehand that you want him, so that he can arrange his appointments to suit yours, and so avoid another source of delay. To send one day for the grainer and get mad if he fails to come the next is foolish. Your door is to be done, true, but then there are others. So of the inside jobs of graining.

If you have in view a large job of graining it will be to your advantage to see your grainer about it, and get a figure from him on it. Thus you will know to a certainty what the job will cost, and what you must charge for it. This will also guard against possible misunderstandings.

If you have a number of doors to grain in a block of buildings, or that are all within reasonable distance of each other, see the grainer about a discount, which he usually makes in such cases. But in no case seek to haggle him on price; if you want a low-price job, he will do it and make a very satisfactory job of it; but he won't undertake to give you a first-class job for a second-class rate. He can't do it. Usually he has one wife—seldom more—and from one to a dozen children to support, and in some cases a mother-in-law; he must keep the wolf from the door, and he can only do it by getting a fair price for his labors.

When you prepare a job for him, make it as decent as you can; it will pay you, for he can give you a better figure if the grounding is fine, for he can make a fine job on it with little effort, whereas, on a poorly grounded job he cannot make good, no matter what time or pains he may put upon it. If you have a grainer to do all your work you will come to know just what he wants in the way of color, etc., of grounds, and this will help wonderfully. What one grainer might like, another would dislike, and hence we must get what our grainer likes. If he prefers fresh beer for water color work, don't try to work off sour beer on him; he may have stomach troubles; I have.

Finally, if you can't grain yourself, don't try to; get a grainer, and save time, money and reputation. Some amateur work in graining that we see all too frequently is calculated to give a man the delirium triangles.

Imitation Artist Colors.

Expensive artists colors are sometimes named to suggest the kind of color required for cheap work on which it would be absurd to use costly colors. The colors named can be approximately matched if restricted to the ordinary paintshop pigments as follows:

1. Madder Brown—Indian red and a little brown added to any cheap crimson.

2. Purple Lake—Permanent red and a little common ultramarine blue.

3. Brown Pink—Raw sienna and a little Vandyke brown with a touch of Prussian blue.

4. Aureolin—Middle chrome and lemon chrome with a touch of white.

5. Cobalt Green—White lead, Prussian blue and a little deep Brunswick green; or white lead, common ultramarine and emerald green.

6. Sepia—Burnt sienna and black with a touch of Indian red; or black, Venetian red and burnt umber.

Irono Damp-Proof Paint as a Sizing Preparation for Interior Walls and Ceilings Prior to Kalsomining.

In this respect Irono Damp-Proof Paint gives the practical painter and decorator a material which he finds far ahead of anything he has used heretofore.

For good work, in papering walls and ceilings where lime is in abundance, or where suction is excessive, it is customary to apply either a coat of ceiling varnish or a coat of "Flat" Paint. Both of these are good in their way, but have drawbacks that are not met with when using Irono Damp-Proof Paint.

In dealing first with a varnish size, which is perhaps most generally used, the painter has to be certain that (1) the varnish must be expensive; (2) a varnish that will dry over night; (3) to add a little powdered pumice stone, plaster,

whiting or kalsomine to the varnish when thinned with benzine or other suitable thinner, as otherwise the varnish will be too glassy, *i. e.*, have no biting ground for the kalsomine.

If the varnish is one that does not dry hard, or if the job is one that the painter has to finish quickly, or where it is impossible to allow sufficient time to harden before he applies the kalsomine, it is sure to "alligator" or crack and peel away within a few days, causing trouble and complaint from the customer, and expense in remedying the defect.

The varnish size does not help at all in covering or obliterating dirty walls, because there is practically no opacity in varnish, which on the contrary, will intensify dark spots and stains and if not applied evenly causes trouble, especially if applied in a slovenly manner and beads are allowed to crawl on the surface.

If one goes to the great expense of applying a flat coat or two of oil paint, he is sure of better results provided he can wait long enough for the paint to become good and dry. A flat coat of oil paint is considered better than varnish size on surfaces that show stains, and in isolated cases, even a bad stain has been held back for months with two coats of flat oil paint, although as is well known, this is not to be depended upon.

Flat paint makes an ideal surface to kalsomine over, and the only drawbacks are the extra expense (which makes this method practically possible only for high-class work), and the risk of the oil striking through the kalsomine if good and sufficient time is not allowed for the flat oil paint to thoroughly dry.

Irono Damp-Proof Paint will take the place of both varnish size and flat oil paint as a preparation, inasmuch as one coat does the work of two coats of flat oil paint, for it has:

First—Wonderful covering capacity over dark and patchy surfaces.

Second—It gives a flat, smooth, white finish, making a good biting ground for the kalsomine.

Third—It can be applied over damp surfaces and will harden on same.

Fourth—It will kill most stains and check all of them.

Fifth—It can be tinted to match the following and finishing coat of kalsomine.

Sixth—It is inexpensive, because 100 pounds of Irono Damp-Proof Paint, mixed with ten to twelve gallons of benzine, makes from fifteen to seventeen gallons of paint, sizing or preparation, and it has wonderful spreading properties; the quantity of benzine being regulated according to the condition and suction of the surface to be prepared.

Seventh—It leaves a permanently sized surface for future kalsomining.

Eighth—It destroys the burning action of lime in walls better than varnish size and equally as well as oil paint.

Ninth—It is easy to mix and apply.

Tenth—It is packed in suitable packages, from a 5-lb. can to a 100-lb. keg and 800-lb. barrel.

Eleventh—It is equally suitable for large and small jobs, as it hardens in four or five hours ready for kalsomining.

Before applying the Irono Damp-Proof Paint as a size, care should be taken to wash off all wall paper, kalsomine, dirt, etc., leaving the surface perfectly clean. All cracks should be well cut out and then filled to a level surface with Plaster of Paris, to which a little Calcimo is added to retard the plaster from setting too quickly.

When dry, these patches should be sand-papered down smooth like the rest of the wall or ceiling surface.

All stains, patchy places and dark spots should be touched up with the Irono Damp-Proof Paint size, mixed a little heavier than before mentioned, following in two hours with a good even coating of size over the whole surface.

A gallon of the preparation, mixed as previously mentioned for a sizing, will cover approximately 500 square feet on hard-finished plastered walls.

Painting Cracked Jobs.

This general subject of how to repaint over old cracks is of vital importance to both employers and painters. The first question is, How can the vitality of the old paint and varnish be restored? This cannot be done fully where the cracks are of that kind arising from strains, as upon the seat riser of a buggy, or over the step support or on the neck of a brougham, in

which places they generally appear. We can doctor them up by using the following process: Follow the lines of the cracks with the point of a knife and cut them out; then fill in with new paint, and when rubbed down you leave nothing but new and live material in the place of the old and dead. This method has been tried, and is worked to advantage in the case of those big and long angle worm cracks which sometimes appear in the parts named, or other parts subjected to similar strains. For ordinary cracked work, where it is cracked all over, the best way, in my opinion, and that which has come into general use in first-class shops, is to scrape off the old varnish with carefully sharpened plane iron or wide chisel, the former being preferable, and then rub down the paint with lump pumice stone as closely as possible.

Without touching the wood this reduces to a minimum the size and depth of the cracks, and in many cases they can by this means be entirely rubbed out. We thereby still retain our foundation, which would not be the case if we were to burn the job off, and we can build on this same foundation as originally by curing old cracked work in the above manner. The result will be found to be satisfactory in appearance and to last a long time. To the eye of an expert the cracks may possibly be discernible after months of exposure, but they will not be liable to break through again. This method of course has the advantage of being much quicker and cheaper than burning off.

Cheap Repainting Job.

We frequently have customers come along, who want a cheap job of painting, where the body would varnish out in good shape, and only the gear need painting. The customer thinks the entire job needs repainting, and it would be folly to undeceive him.

Sandpaper the body with No. 0 paper, dust off clean, and—with a clean rag wet with turpentine, wipe it all over. Then putty up all imperfections on body; when dry, touch up all places with color as near a match as possible. If the varnish has turned green, I make the rubbing varnish the same color.

When dry, rub out; black the moldings, if any, and stripe them or not, as you think best, according to the style of the body.

Paint the gear, and stripe in the usual way. The job thus handled will look well, please the customer, and afford you a good margin of profit to offset one of those several jobs on which you lost money.

Carriage and Wagon Painting.

Touching up and varnishing an old carriage is one of the painter's most unsatisfactory undertakings. To do the work nicely is quite a trick. We all know the difficulty of matching colors, of getting the jobs clean, in fact it is almost next to an impossibility to make anything like a good job of some of the work that comes into a shop to be touched up and varnished. The way most painters do is to lead the rims if they are bare, touch up the spots that are bare, sides of springs, etc., then bring up the color, rub down with pulverized pumice stone, restripe the rims and breaks that occur elsewhere in the stripes, then finish. The body is done in the same way. A good plan is to sand the whole gear with fine sand paper, No. ½ or 0, lead rims, etc., then color all over, restripe and finish. Rub the outside of the body and touch it up and give it a light coat of black japan, being careful to get as clean as possible, then rub slightly, wash the whole job perfectly clean inside and out, black and finish the inside with a mixture of black rubbing and wearing body varnish, say one-third of the first, using clear wearing body on the outside. Painters will find this a cheap way of doing the work and one that insures a good-looking job, as there will be no patches from touching up or color showing here and there all over the job.

Burning Off Old Paint.

The best and safest way to burn off old paint is by the use of a burner connected with the gas by eight or ten feet of rubber tubing. If there is no gas in the shop, a copper paint burner is safe enough under ordinary conditions. When burning the paint off a heavy carriage body, try to save as much of the surface

as possible. The under parts are generally in good condition and the door checks can usually be saved, and the job will bring as much money as if the entire painted surface had been removed, while the saving in this way is clear gain in time and material.

Much time may be saved when preparing to paint a carriage if there is some system about handling the work in the paint shop. It will be found best to color jobs in the morning, so that they will be ready for color and varnish in the afternoon.

Graining in Distemper.

BY J. BARKER.

Let us suppose a door is ready for graining, the ground hard but not flat. Personally, I like an egg-shell gloss to grain upon, for in my opinion the smoother the work the better will be the result.

Strict cleanliness must be observed, for nothing looks worse than dirty moulds and cloudy stiles and the tops and bottoms of panels shady.

Never attempt to grain light oak with dark graining color. I am always very careful to know what my ground is and what color my graining is. Nor should any attempt be made to grain light oak with Vandyke.

After the door has been glasspapered and sponged over with fullers' earth and water, it is ready for the graining process. I lay one panel in at once, then belt, comb and wipe out the flower, which must be done with a damp washleather.

The panels being grained, next come the center stiles, then the top cross-rails, lock rails and bottom rail, and last of all the outside stiles.

For a good job I varnish next, adding a little gold size for hardness. Then comes the overgraining, which is quite as important and significant as the graining itself.

In the first place, the door should be sponged down as before, to prevent cissing. I often glaze the work all over (with distemper) and wipe out part of the flower with a washleather, then mottle and soften off. If this is properly done the flower will be toned down and depth secured.

Just a word more. Avoid dark stiles and light panels. Many a grainer spoils his work with heavy overgraining. I keep my stiles about two shades heavier than the panels, and this I think is quite sufficient.

In conclusion, rub the hand smoothly over the work, dust off, and varnish with a full coat of varnish.

Painting the Pacific Fleet.

Now that the great fleet of war vessels that Admiral Evans has started with across the Pacific is on its way, at this writing, a few words concerning the part that the painter took in fitting the vessels for the long cruise will be of interest to the readers of THE MASTER PAINTER. The amount of preparation needed to fit a fleet for a long cruise is something wonderful to the ordinary mind. Each ship has to be placed in the dry dock and thoroughly overhauled at least once a year, the steel plates below the water line have to be scraped and painted once every nine months. And what an enormous quantity of paint is required. The white hulls are white only because they are painted white frequently. The Pacific fleet, before its present cruise, was all repainted, from keel to tip of a signal mast. And yet when they reach the California coast the great fleet of war ships will likely have to be all repainted again, at least from the water line up. This can easily be accomplished by swing stages swung over the sides. Salt water and sea air are destructive to iron and steel, and hence it will not do to allow any part of the metal surface to go a moment unprotected by paint. This will give you an idea of the great importance of paint in the equipment of a war vessel.

We have seen the great ocean greyhounds upon their return from an ocean trip being painted, almost the first thing done after the vessel was docked, and this is accomplished quickly, so far as the hull to the water-line is concerned, by men on a float and with wide brushes on long poles or handles, painting with a very thin black paint. Soon all the dirty gray mass of sea stains disappear and the hull is uniformly black and neat looking once more.

HARD WOOD FINISHING

Filling and Finishing Oak.

Paste filler for oak should be made quite thin enough to spread easily under the brush, and you will find that from 12 to 14 pounds of paste filler thinned with a gallon of turps about right, though there is no need of setting any such standard, for it needs only that you make it thin enough to flow right, and to fill the wood right; this latter matter is the most important, for oak woods vary as to porosity, some being very much more open than others; hence we should thin the filler to suit the wood. Fill the wood, then let it stand until it turns gray, or sets, but let it stand long enough, even though it may be a little harder to rub out; if you rub too soon you will get some of the stuff out of the pores of the wood, especially the large pores. Good filling of the wood is very important, for it is the foundation. Rub across the grain and into the grain. Tow is a good thing to rub with, and when it has gathered enough of the filler to form a pad it is in its very best shape. Let the job stand a day or even two days, then sandpaper with No 000 paper. Begin by getting a smooth surface, and maintain this right along. To get a good, durable finish with three coats there is nothing as good as a good surfacer material, which makers of hardwood finishers' supplies place upon the market. This should have a silex base, which binds it well with the filler, forming a hard surface, and it holds out one coat of varnish better than anything else that I know of. A good surfacer is easily applied, covers well, and is easily sandpapered. After the surfacer is dry and hard, apply a coat of either coach or rubbing varnish. Some finishers produce what they call a "polish finish" on three-coat work, but they must have very clean conditions, such as is not often found. If you can get the last coat free of dust, dirt or grit you may obtain a fairly good polished surface without rubbing. Allow varnish ample time to dry, filler forty-eight hours, first coat thirty-six hours, and so on.

How to Rub Varnish.

Use the pumice stone powder freely when you begin to rub, and rub the full length of a panel; never cross-rub a panel at the end. After this use the powder more sparingly, and lessen the quantity as you near the completion of the rubbing. The great secret of good rubbing is to get it uniform all the way through. When the surface has been rubbed sufficiently, and only experience will determine this point, rub smooth with rottenstone and water, after which wash off with clean water, plenty of it. If the rubbing has been done right the surface will look like satin; then it is ready for the varnish finish. This advice is for the carriage varnisher, but it will be a good pointer for the hardwood varnisher as well.

Tow for Cleaning Off.

Tow makes a very good material for a cleaner for filler, and when it is used properly it is economical. Much tow is needlessly wasted, making it expensive. Here is our plan for saving the tow: After it has been used pull it apart and spread it out until it becomes quite dry, when the dry filler will readily separate from it, and the tow may be used again as a first cleaner.

Imitation of Heart or Sap Oak.

By William E. Wall.

Heart or sap oak is the grain as it appears when sawed the length of the log from bark to bark. As the center of the log is approached the quartered grains begin to appear toward the bark of the tree, disappearing as they approach the heart or center of the tree. In ordinary white oak and in much of the red oak these quarter grains are very pronounced when the log is sawn parallel to what botanists call the medullary rays. These are the hard, bright flakes that appear most plainly in the end of a piece of oak, and which always radiate from the center of the tree towards the bark. In most of the oak used for timber, the log, when cut

in this manner, produces the most beautiful effects in quartered oak. There are, however, some kinds of oak wood in which the medullary rays are so short, although the tree may be sawn perfectly parallel to the medullary rays, the figure produced is so fine as to be almost invisible except at very close inspection. Such oak, when used for interior finish or furniture, is usually sawn to produce the heart grains, which are often very peculiar and seldom as graceful as those of white or red oak.

While it must be conceded that the finest works of art are inferior to Nature's works, yet in imitating the grains of wood it is unwise to spend time and labor in representing the inferior patterns of the grains to the neglect of the superior ones. After we have done our best we are often far enough away from our copy, yet we ought at least to have an ideal, and that ideal should be to faithfully represent the grains of the particular wood we are imitating, and endeavor to produce the effect of the more beautiful figures of that wood; not entirely ignoring the plainer grains, but whenever the finer figures are called for in the work we should be able to reproduce them. This means that all grainers should not only start with well defined ideas of the grains of the different woods ordinarily used in interior finish, but they should also possess panels of these woods and constantly use them. Keep them in view; let them not be relegated to some obscure corner of the shop or office. Add to their number whenever you can do so. They need not be all of a size, but secure them as large as you can.

It is difficult to remove our first impressions, and if these impressions can be made to conform to somebody's idea of the wood we have at least the satisfaction of having started right and are more likely to stick to Nature for our ideals than to the work of the most skilled grainer, and to make all the criticism of all the work of ourselves and others from the standpoint of the natural wood rather than from any technical excellence of the work.

WIPING OUT HEART GRAINS OF OAK.

There are a variety of methods of representing the grains of this wood. It is probably represented more frequently in oil color than in water color, and an excellent representation can be made by either method or by graining in oil and overgraining in water color, or vice versa. For some varieties of quartered oak it is difficult to excel work done with a crayon, rightly used.

In wiping out the heart grains in oil color the same general method is used as for wiping out the hearts of ash. The rag is folded over the thumbnail and the grains are outlined by removing the graining color from the ground color. The heart grains of oak are, as a rule, separated and less rotund than those of almost any other wood. They also vary from very coarse to very fine, and are often found taking an eccentric formation on either side of the main heart. Often there are small knots in the work, but, as a rule, these appear on the outside edges of the board. But it would be impossible to fully describe all that can be done with a rag and comb in wiping out the heart grains of oak. Nothing but diligent practice and careful observation of the real wood will help the learner to become proficient in this method.

The work should be well outlined with a clean-cut outer edge. When the color sets lightly, the inside edge of the outline can be softened with the rag folder, or by covering the point of the thumb with the rag. Do not remove too much color. When the lines are carried out on the sides of the work with a rubber comb the split-tooth comb may be used to further serrate the outer edges of the heart grains, or the blending comb previously described may be used. Blend the work lightly with the rubbing-in brush, and when the work is dry overgrain it to put in any lights or shades. If necessary, use a fine camel's hair pencil to put in the fine checks or medullary rays on the work. The check roller can also be used for this purpose.

Another method of imitating the heart grains is to comb the work with a coarse steel comb, overcomb it with the medium steel split comb, and put in the heart grains with the bristle liner, using some of the rubbing-in color slightly darkened with dry burnt umber. Blend immediately and draw the color to a dark edge

on the outside of the figure. If the lines look too continuous the split steel comb may again be used to cut up the lines to resemble the pores of the wood.

Heart grains of the oak, especially of the western oak, may be well imitated in water color; as a rule, an undercoat of paint stippling is necessary. Use one-third beer to two-thirds water and a little burnt umber. When this has dried the heart lines may be put in with the bristle liner and carefully blended with the badger blender. Care must be taken not to work up the underneath color. The work must be done quickly.

The grains are sometimes put in with oil color on the water color stippling. Nothing but continued experiments will enable the learner to discover the method best suited to his taste, or that in his opinion appears to represent the wood closely.

A thin wash of overgraining color should always be applied over the heart grains to produce the most woody effects.

A very good imitation of the dark heart of oak is made by using crayons in oil color. Rub in the work with but little color in the thinners and make the heart grains with a crayon. Cut up the lines with a split steel comb and blend in lightly with the rubbing-in brush. When dry the work should be overgrained in either oil or water colors.

Crayons can also be used dry on the stippled background in water colors. After the work is outlined, fill a medium-sized overgrainer with clean water and draw it lightly over the work toward the points of the hearts; this will wet the crayon lines. Blend immediately with the badger blender; this will draw the wet crayon lines to a sharp, dark edge, on one side of the work. Steel combs may be used if necessary to break up the lines.—WM. E. WALL, in Graining, Ancient and Modern.

Carbon Tetrachloride.

Forms an excellent medium for removing old paint, but is too volatile to be used alone, according to the *Farben Zeitung*. On the other hand, it has the property of rendering inflammable liquids safe when used in suitable proportions. Recently also it has been made miscible with water, since it forms with sulphonated oil, like Turkey red oil, a gelatinous soap which is perfectly homogeneous, and will mix with water in all proportions. Such a solution containing, for instance, 1 part of the said gelatinous soap and ½ to 1 part of water, when stirred up with 1 to 2 parts of carbon tetrachloride and mixed with alkali and spirit, will form a very good paint remover. Another suitable class of remover is obtained by dissolving caustic alkalies in spirit. For instance, a solution containing equal parts of alkali and water is warmed with sufficient soap to form a gelatinous mass, and diluted with strong alcohol. The soap acts on the varnish covering the paint and exposes the latter to attack by the alkali. A French preparation for the same purpose consists of alkali cellulose, which has been converted into viscose by treatment with carbon disulphide, and dissolving the product in water. The viscose is mixed with alkali, and in this condition will rapidly corrode even the oldest layers of paint, laying the underlying surface bare.

From a School Book.

Looking over a book of arithmetic belonging to one of our boys, we saw the following examples in estimating, and which we leave to our paper hangers and painters to work out:

Find the cost of the paper and the border required for the walls of a room 18 feet long, 12 feet wide, and 9 feet high above the baseboard, the room containing two windows 6x3 feet, and a door 7½x4 feet, the paper to cost 22c per piece, and the border 15c per yard.

Find the number of gallons of paint required to give two coats to both sides of a tight board fence 6 feet high, erected around a tennis lawn 20 rods long by 16 rods wide, if about one gallon of paint is required to give 100 square yards of surface two coats.

Estimating that a pound of pure white lead is required to give three coats of paint to two square yards of surface, how many pounds of this lead would be required to paint with three coats a surface 20 feet long and 18 feet wide?

Department of the Interior

A Handsome Bedroom.

Our illustration shows a room designed for "pleasant dreams," a room with white woodwork and warm gray walls, with graceful sprays of poppies painted in lieu of frieze. The poppy design shows also in the cretonne cushions, over-hangings, and spreads. The furniture is of bird's-eye maple, and a bay of four windows to the south lets in plenty of warm sunshine, making the apartment even in winter a cheery place to be.

Color Sense.

No matter what may be the charm conveyed by design or form, there is a reason for it. We can analyze it. It has an inherent quality of beauty, and there is a definite and distinct reason for our liking it. Color, however, has a subtle psychological influence, exciting or disturbing, tranquilizing or pleasing, inexplicable and inexpressible, an appeal to the senses like an appeal to the passions or appetite, affecting each and all of us differently. One might as well try to explain the love of sports, literature, art or vice.

The sense of color is a nerve sense which varies in the individual. We know that colors that are strongest in direct sun rays, like red and orange, arouse us, while blues and violets will quiet. Red is the color of danger and passion; green has a soothing sense; blue and violet exercise a somnolent influence. Nature provides vast fields of green because most favorable in its effect upon humanity.

Professor Fere, of Paris, and Professor Gierdini cite instances where certain men exposed to the influences of red light showed excitement which gave muscular development fifty per cent. in excess of the power possessed by the same object when exposed for the same period of time under the influence of blue light. The nervous energy was reduced that much.

Color, like music, while subjected to positive rules of harmony, appeals to natures according to the responsiveness of their sense, and the practical decorator, in dealing with a customer, should discover at the outset the character of that nerve sense.

Some natures respond to normal colors, barbaric colors. Some are quickly aroused by the softer tints and disturbed by the stronger tones. A dulled sense requires sharp contrasts; a quickened sense is satisfied with the soft gray tones. So that apart from any question of propriety in environment the individual taste for color must be determined before the individual taste can be pleased.

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Possibilities in Wall Paper for 1908.

(From Wall Paper News.)

The sooner the jobber appreciates the decorative value of his stock the better off he will be financially, for wall paper is no longer a mere commercial commodity; it is decorative material to be utilized, like pigments, according to taste, discretion and experience. Time was when a man would furnish a room bandbox fashion—with "side-walls, borders and ceilings to match," and that was the end of it. To-day the decorator may use a leather effect by one manufacturer for the wainscoting, a damask side-wall from another source, and a border or frieze from still a third stock. He doesn't buy things in sets like a tea service. In the manipulation of the friezes and borders, particularly drop patterns, appliqué motifs, panels and detached figures, a great diversity of effects is secured by *the man who knows how.*

We repeat, the manufacturers this season have with rare skill covered almost innumerable possibilities in decoration. Unfortunately very few manufacturers come in direct contact with the decorator, especially the small decorator who carries no stock; it is the middleman, the jobber and the importer who meets this class, and it behooves this middleman to absorb all that the manufacturer understands, so that in turn their salesman and the retail salesman may use the papers intelligently.

We note that few damasks and ceremonial papers for period rooms are being made with borders or friezes. The room into which such papers go is supposed to be built with a decorative cornice and molding, and where this condition exists there is no positive necessity for a border; the picture molding is sufficient. We hope, however, that the manufacturer will in the near future make borders for this class of goods. We believe that a border is always the proper finish.

This season the mills have more than ever encroached upon the domain of the artist and stenciller. Everything that is undertaken in handwork, hand-painting, stenciling and fabric uses and all kinds of fabric materials are reproduced—silk weaves, wool weaves and cotton weaves, coarse and fine, all being simulated with marked accuracy.

Stencil effects are produced, detached floral and spray motifs, innumerable things that can be cut out and applied—but the manner of their application must be understood.

Friezes are made which can be diverted to many uses; parts of them are turned into drop patterns, parts are used for pendants, sections are cut out for isolated ornamentations or paneling, independent motifs for centers and fireplace alcoves and doorways on plain grounds, spray and vine effects which can run down a ways on right and left of the alcove, stain effects — every conceivable decorative thought has been commercialized; but they are all like a jumble of words in a dictionary—of no use to the man who has not studied them.

More and more every day the wall paper business becomes a business for the specialist; it cannot be undertaken as a side line by the man who knows carpets or furniture, to sell as you would kitchen chairs.

The moment that we concede that considerations of art in the use of papers and technique in the application thereof are involved, that minute we must put a specialist in charge, and to get all there is out of the business the specialist will find *study* in the use of his materials and *study* in the proprieties of decoration a paramount requisite to success.

Bobby burst into the house in a state of high excitement. His hands and clothing were smeared with a liberal amount of some sticky substance, and his face wore a glow of triumphant satisfaction.

"I say, mamma, those new people across the way, don't know much," he exclaimed. "They've got a sign on their front door that says 'Wet Paint.'"

"And you are covered with it. You ought to be ashamed of yourself," said his mother, severely. "That sign was put up to warn people to keep away from it."

"Yes, mamma," persisted Bobby, with the enthusiasm of a richly-rewarded scientific investigator, "but it wasn't paint, and I knew it. It was varnish."

The mother's reply is not recorded.—*Tatler.*

QUESTIONS ANSWERED

"He that questioneth much shall learn much"—Bacon.

BRONZING STOVES WITH ALUMINUM.—A subscriber, Mr. Chas. Middleton, Memphis, Mich., writes regarding the question asked in the January issue of THE MASTER PAINTER regarding the use of aluminum bronze paint on stoves, and he says: "I have not had a very great experience in the matter, but can say that aluminum paint is perfectly adapted to the work he mentions, when used under certain conditions. It will not work well on the top of stoves and ranges, because of the constant shifting of pots and pans and stove lids over the surface, but on any other part of the stove it will work well even under great heat. I coated our range oven, first carefully cleaning it, and it is giving good satisfaction. The Michigan Stove Company, "the greatest makers of stoves and ranges in the world," used aluminum paint on all the interiors of their stoves and ranges. Your statement that steam and hot water radiators need re-coating does not prove that aluminum is not good for same; the radiator should be made perfectly clean by washing with benzine before coating with the bronze, to make a lasting job. I know that the gold-bronzed radiators of the school that I attended are as bright and good after five years of wear as ever, and we did not have to wear mittens in school, either. Our stores are lighted with gasoline gas, and I have seen the tips get red hot, and the aluminum bronze on them is not altered in the least. That is a hard test. I used a prepared aluminum paint, because I believe it is cheaper than to mix it myself. The object to be coated must be made clean. The stove that has been polished with blacking must have the blacking removed, or the bronze will not stay. Even if the stove should need recoating every spring, what is that to the everlasting work of blacking it?"

NOTE.—We would like to say in this connection that what Bro. Middleton says respecting the durability of aluminum bronze on radiators and stoves is of course correct; but on the bronze vs. blacking question we lock horns. A stove will look very nice in skirt and panties done in aluminum, sure, but you want to let it sit in the parlor, with the company, for it will get its face dirty in the plebian kitchen. No aluminum, not even nickle-plate stoves for us; they look well when first done, but soon tarnish. However, we thank Bro. Middleton for his information, which will be of service to others.

ESTIMATING ON BRONZE RADIATORS.—Curiously, this question comes in after the foregoing, as if there were a conspiracy to get us tangled up in the radiator question. But the Standard Oil Company is at the bottom of it. This man wants to know how he shall estimate on a job of bronzing radiators, of which he has a lot in prospect in a new hotel. We have no data showing what to charge for such work, but it is easy to calculate the area by taking one section and measuring it, and multiplying by the number of sections; the paint would cover about 500 feet to the gallon. The time required would be obtainable only by doing a radiator or section. Again we urge every painter engaged in taking work to make memoranda of different kinds of work, how long it takes to do certain work, how much paint or other material is required, and so on, and thus accumulate for himself a table of prices and cost that will always be of use to him.

POLISHING GOLD BRONZE.—A Chicago painter wants to know if gold bronze paint can be polished after it has become dry, and if so, how. Rubbing with a wad of raw cotton will polish it, and if a little dry bronze be used to rub with better results will follow. Better if possible do the burnishing when the bronzing is fresh, by dusting on tacky surface, and rubbing with soft cotton wad.

REMOVING OLD VARNISHED PAPER.—An Iowa subscriber wants to know how to remove some varnished paper from a bath

room. Is there anything that can be put in the water to make the paper come off? If you will catch the paper criss-cross with a sharp tool, but be careful to not injure the wall, then apply hot water, that will soak into the paper and allow of its removal by the scraper. Or you can apply some moderately strong sal soda water, being careful to not injure the woodwork, and that will destroy the varnish and allow the water to soak into the paper, softening it and allowing of its removal by the scraper.

STAINED LAUNDRY CEILING.—A New England subscriber writes that he has a laundry ceiling to do, that it is full of big yellow patches, which were done over last in 1906, but with no good results; everything has been tried to cure the trouble, but all has failed. They have been sized with alum and painted, and still the yellow spots persist in a way worthy of a better cause. Our friend thinks the job of doing this ceiling may fall to his lot this year, and he wants to ascertain whether anyone can help him beforehand. With only the little data furnished by him in a brief letter it is hardly possible to indicate a probable cure. We have great faith in the Sylvester process, which involves the coating of the surface with alternate coats, twenty-four hours apart, of alum solution and castile soap solution, two of each, beginning with the soap and ending with alum. This will no doubt give an impervious coating against whatever causes the stain to come through. Try this and report results to us.

WANTS A GOOD VARNISH.—A subscriber, M. B., of Lone Star, Kas., asks: "What brand of varnish is the best for floors, and what the best for finishing work that is to last long?" If our correspondent will address any of the advertisers in THE MASTER PAINTER who handle floor and other interior varnishes he will have no difficulty in getting the goods that he is looking for. We have used goods of the kind, made and sold by our advertisers, and have had perfect satisfaction with them. Some so-called floor varnish is not at all adapted to the purpose, containing some brittle gum that will not stand shoe marks. A letter by return mail to our subscriber explains all this in detail.

GOLD BRONZE FORMULA WANTED.—A A Michigan friend wants to get a good formula for a liquid for mixing bronze with. He has used rubbing varnish, also what is sold as "Kopal varnish," whatever that may be, but these turn the bronze green in the bottle in which he keeps it. If he will add turpentine to his so-called gold bronze first, and wash out the bronze. repeating this several times, or until it no longer yields a green color, then add a thinner to it, and which may be made from rubbing varnish and turpentine, he will have no trouble, we believe.

UNION SCALE FOR HANGING PAPER.—"What is the Union scale for hanging papers here in Ohio," writes a Buckeye man. A Cincinnati, O., man gives the following as the scale:

Blanks per roll	25c
Wire lap or butting	30c
Ingrains and tints	40c
Burlaps, Fabrics, Lincrustas, per yard	10c
Borders, 9-inch, per yard	1½c
" 18-inch, per yard	3c
Two-thirds or three-fourths work per roll	35c
Wall work, per hour	40c
Moulding, per foot	1c

MOISTURE ON IRON PLATES.—You will find a hint from the practice of ship painters, who prevent the condensing of vapor on the interior iron plates of a ship by covering them with ground cork. The iron is first given several coats of red lead paint, then the cork is dashed on by the hand, and after the paint has taken as much of the cork as it can, and the same has become quite dry, it is given a coat of paint of any desired shade, the paint being made somewhat flat with turps.

PAPERING ON A PAINTED WALL.—If you had used Sisk's Patent Size instead of glue the paper would have stuck all right, and the edges would not have turned up as they did. We have seen it advised to use glue size to which add a little whiting, for such cases, but our experience does

not favor this, as the paper will take up the whiting coating, and come off even more readily than where only the glue is used. A water colored surface is never a safe one for papering over.

PAINTING ON CANVAS.—"I have a job on canvas that is to stand the weather and also be rolled up when not in use. What will be the best thing to size with?" The best thing and the one in general use among sign painters, is made from wax, thus: Shred some white beeswax and cover it over with turpentine; allow to stand a few days to dissolve in the cold state. When dissolution has occurred add zinc white ground in oil, in the proportion of 12 ounces of wax to two pounds of zinc, adding also two tablespoonfuls of a soft soap, and a little japan to dry it a little. This mixture is applied with a broad spatula or knife, filling the texture of the material perfectly, and removing any surplus. Allow this to dry. Then take the same material and thin it with a mixture of equal parts of boiled oil and turpentine to the consistency of ordinary paint. Apply a good coat of this, and perhaps a second coat would be still better. It is ready, when dry, for lettering on.

GILDING ON GLASS.—We have described the process of gilding on glass in the usual way at different times, but the way that we now describe for your benefit is different in that while it is a cheaper or more expeditious way, it is not nearly so certain of being a perfect job. You paint the job first, doing all the painting that is to be done, and when it is dry you lay the gold leaf. As the paint marks the lines, you do not have to true them up as in the usual way, and hence you save that much time and labor. But as we have said, you are not likely to get a first-class job this way, nor can you burnish the job well. Being a hurry-up way, quality of course is not expected.

MOULDING IN BURLAPS.—It is the disposition of fabrics to mould in the presence of continued dampness, and your burlaps are no exception to this rule. There does not appear to be a preventive for the trouble. You can brush off the mould with a stiff whisk broom, after which it might be well to apply a coating of turpentine. This will tend to destroy any spores of mould that may be there, and will not injure the color of the fabric. If the burlap is dyed it can be sized and shellaced or varnished. This will prevent mould, but it detracts from the appearance of the natural surface of the material.

KEROSENE IN THE OIL.—If you think the linseed oil that you are using contains some mineral oil, probably natural petroleum or kerosene oil, prepare a clean bit of glass by painting one side of it with black paint, and when this is dry pour some of the suspected oil on the reverse side, and if there be as little as five per cent. of mineral oil it will discover itself by a bloom or fluorescence that is readily seen by the unaided eye.

PAINTING ON NEW CEMENT.—We have printed a good deal upon this live topic the past few months, which see. An English painter states in a transatlantic exchange that he has for years been using the following mixture with success before applying the paint: Mix together equal parts of blue and white vitriol and dissolve in boiling water, in an earthen vessel; apply two coats, freely, allowing the first to dry before the second is applied. This, he claims, will make a thin film of metal on the cement, upon which paint may be safely laid. But we saw this disputed by another writer in the same journal, his contention, however, being upon purely theoretical grounds, saying that the coatings would not form any metal film, there not being enough metal in the liquid to form a film. It is easily tried, however, and that is what we advise.

LETTERING ON MUSLIN.—Here is a liquid that may be used for water color work on muslin or canvas, for outside use, that will work freely, and stand exposure to the weather quite satisfactorily: In a clean vessel boil a quart of clean water, add four ounces of shredded beeswax to it, and let boil until dissolved. In another vessel have a pint of boiling water, and add to it one ounce of white soap; let it become perfectly dissolved;

then add it to the beeswax mixture. Put it on the fire and allow to boil for a few minutes. Now prepare a mixture of two ounces of white glue or gelatine in a pint of hot water, and add to the wax solution. Mix. It is now ready for the water color, which may be that ground in water without size. Its waterproof qualities may be increased by the addition of ten drops of bichromate of potash to the pint of mixture. In case you wish a white paint, use only white wax and white soap.

Getting a Trade by the New Method.

A student of the Malvern School of Painting, residing in Center, Colorado, writes: "I think I am getting along fine with my sign instruction or lessons, which I took in your school, and have been practicing on the New York Roman letters right along, and am making to the good so well that I feel confident that I shall be able to tackle a big sign in the spring, or as soon as the weather gets a little warmer. I will send you a specimen of my work soon, so that you can see whether I am getting along right or not. I thank you for your favors." We do not attempt to teach sign painting, or any other branch, to those who have no particular knowledge of painting. We do not advertise in any family or general periodical, for we know that there would be no success once in a thousand cases were we to try to teach by mail those who know nothing about paint or painting. We would be guilty of taking money by false pretences. But any painter may take a course in our school with the reasonable assurance that he will make good if he will try. The cost is little. But how can we give for $10, say, what another school asks from $30 to $60 for? That is easily explained. If we were to charge $60 for any one of our several courses we could not give more nor better service than we do, nor can any other school give more. Our system is perfect. Our instructions are perfect. But, we do not occupy a costly special building for our purpose, nor even a more or less costly suite of rooms; we employ no clerks; we do not load you up with a useless set of drawing instruments, drawing board, five-dollar book, and so on, for you do not need these things at all. Again, we do not spend thousands of dollars in special advertising. We do verv little advertising of any sort. We get all the applications that we care to handle at any rate, and if we did business on a more expensive scale we would be obliged to ask a great deal more for our courses.

At present we have students in several different courses, from the east to the west, and teach all by personal instruction—we do not have a stereotyped set of lessons or other printed matter, but treat each student separately, for no two seem to demand the same treatment. A man asks if we give thirty-five plates of alphabets, as one certain school does, and we reply that we do not, but can if he thinks he wants Hebrew, Greek, fantastics, and so on. Plates are comparatively cheap; we give away a great many of them. You do not need many plates, many you may never need, and more you will only need once in a great while. But we will give you all you need. Do not be misled by something you read about some big institution that does things on a big scale. They do not, and cannot give you better instruction than we give or offer to give you, and while we are in no wise jealous of the success of any similar school, but to the contrary wish them all possible success, yet we do think you will do quite as well, if not indeed better, by patronizing our school. I will teach you myself, and that is better than where you are served by a lot of clerks who, it is fair to infer, know nothing of the practical side of the things that they hand out to you in the way of instructions.

The winter is still with us; it is not too late to take up a course with us. There is time enough before spring work begins to master any one of our courses. Remember, that we are the only school teaching house painting in all its branches, and vehicle painting of all kinds. We do not teach fresco painting. We do teach interior decorating, including water coloring or kalsomining work, papering, etc. If you are not expert in the work that you are following, take up the course that will make you master indeed of your calling. Write now for our terms, and don't delay until the spring bids you get to work.

Editorial Department

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By reference to this little square YOU will know the date on which your subscription expired.

Frederick G. Elliott.

A very large circle will mourn with us in the recent death of Mr. Frederick G. Elliott, for he was well known to the paint trade of the United States, and was held in the highest esteem by all. Personally, we mourn as for a dear brother, for we had known him intimately for some twenty years, and for four years was in the employ of the house that he was manager of, that of John Lucas & Co., of Philadelphia. And there was not a moment of all that time that we did not love and esteem him. Indeed, to know him was to love him. From early boyhood he was good, at sixteen uniting with the Thirteenth Street M. E. Church, Philadelphia, or, rather, with the old Central Church from which the other sprang, and for years he was President of the Board of Trustees of the Thirteenth Street Church. Faithful in the employ of his firm, a hard worker, at his office late and early, yet he was not remiss in his church duties, and gave them much of his time, and, we feel sure, though he never mentioned it, much of his means. Mr. Elliott was truly a Christian, in his daily walk as well as in his church services.

Mr. Elliott died January 18, from heart failure, superinduced by an attack of grippe. He had not been well, however, for the past few years: too strict confinement to his work doubtless hastening his end.

Frederick G. Elliott was born in Nottingham, England, fifty-seven years ago, and was brought to this country when but six months old. He attended the public schools of Philadelphia and graduated from Central High School, and then entered the employ of the George Wetherill Co., in 1863, as shipping clerk. Such was his abilities and conscientious attention to his duties that very soon young Elliott was advanced to the responsible position of Assistant Manager; this position he held until 1872, when he became Manager of the large firm of John Lucas & Co., holding this position until the time of his death. Thus he was with the latter firm continuously for thirty-five years.

Whilst with the Wetherill people, who were wholesale druggists, he attended the College of Pharmacy, from which he graduated with a store of chemical knowledge that proved of great value to him in the after years.

In 1905, Mr. Elliott was President of the Paint Manufacturers of the United States, and was also a member of the Scientific Bureau of that association, being deeply interested in the development of paint science in all its bearings. At the time of his death he was a member of the Executive Board of the organization named. He was also a member of the Executive Board of the Paint Manufacturers' Club of Philadelphia, and for sixteen years was an active member of the National Paint, Oil and Varnish Association of the United States.

A quiet, useful life is ended here, to continue through an eternity of bliss. Truly, he was faithful unto death; he died with hands on the plough, not looking back. No true man could well know Mr. Elliott and not admire or love him. His business associates will miss him, for all regarded him as a friend and loyal fellow worker.

Appropriate resolutions have been drawn by all the various organizations to which he belonged, including his former employers, and also by the church organizations and their auxiliary societies, with which he was prominently identified.

Editorial Notes.

—There will be fifty-three pay days in this year, but to offset this there will be fifty-three board bills and a Food Trust.

—There is so much information in your magazine that I do not want to miss a single number, but having failed to receive two certain numbers write to know if I can get them.—J. M. M., Lebanon, South Dakota.

—Two railroad painters left a rope hang down from the stage, and a passing train caught it and tore down the stage, and the two men received probably fatal injuries.

—A Pennsylvania woman worked with her husband on a swing stage and helped paint the entire house, much to the delight and perhaps envy of all her women neighbors.

—If THE MASTER PAINTER should fail to come once a month I would feel as if I had lost a dear friend. It is full of common sense suggestions for all departments of our calling.—W. W. W., Guilford, Conn.

—A California judge has declared against the billboard that in a residential district it may be "just as offensive to the immediate residents as would be the maintenance of a pigsty giving forth offensive odors."

—Painters at work on the dome of the University of Oklahoma, at Norman, Okla., accidentally set fire to the structure, but the students prevented the fire from getting beyond control.

—The total weight of the flag pole on top of the Singer Building, in New York City, is 6300 pounds; it is sixty feet high, and 612 feet above the ground.

—A returned tourist describes the scenery in the great Northwest as being on a gigantic scale, even whiskey signs being as much as twenty-four feet high.

—An Abilene, Kas., new subscriber, in his letter of January 1, added the post script: "I wish you a Happy New Year." Such kindly greetings cost nothing, and yet how they cheer the heart.

—I am pleased with THE MASTER PAINTER, and find it full of good, instructive reading.—H. M. D., Buffalo, N. Y.

—If you want to get the real genuine New Orleans molasses for buckwheat cakes, go to that city on February 18, and while there take in the convention of master painters of the United States and Canada. It lasts until the 21st day.

—It is the best magazine of its class printed.—F. P., Ohio, Ill.

—Have just received my first copy of THE MASTER PAINTER, and am well pleased with it. I want all the help of this kind that I can get.—A. J. K., Worthington, Minn.

—Some fool asks the question whether a deaf mute artist is necessarily a sign painter.

—It is worth its weight in gold.—L. B., Santa Ana, Cal.

—When a painter is wedded to his art he should be true to his colors.

—There is no painters' journal like THE MASTER PAINTER, and I am obtaining great help from it in my work.—O. J. B., Antler, North Dakota.

—To yours sons give a good name and a good trade.—Spanish Proverb.

—The *Technical World Magazine* for February contains 160 pages. It is jam full of new, accurate, and thrilling stories of startling inventions and discoveries in science, the romance of the real. Price for copy, 15 cents; all news-stands; $1.50 per annum. To old or new subscribers of THE MASTER PAINTER, one dollar.

—The *Australasian Painter and Decorator,* of Sydney, N. S. W., one of the most practical and hence useful monthlies of its class in the world, gives THE MASTER PAINTER a nice notice in its October number, complimenting us upon the new design on the front cover, the work of Mr. Leitner, of Brooklyn, N. Y., which it says adds greatly to the appearance of the "excellent publication that it adorns." Thanks, the same to you. It requires six weeks for the Australian magazine to reach us, but it's worth waiting for.

—Superintendent Brumbaugh, of the Philadelphia public schools, has had a request from Moscow, Russia, for information about the public trade schools in that city. Similar requests have come to Prof. Brumbaugh from all parts of the United States and foreign countries since the trade schools were established here, and pamphlets giving valuable information have been issued from the Day Trade School at 12th and Locust Streets, Philadelphia, and have been widely distributed.

—Speaking of the trade school, Dr. Kelsey, of Pennsylvania University, in a recent address before the Philadelphia Mothers' Club, said, among other good things, that "Nothing that has been done in the present school system is of so much importance as the organization of classes in manual training, as this would eventually do away with the prevailing prejudice of the day, which places the professional man upon a higher social level than a worker with the hands. We to-day are actually so blindly following our ridiculous system of social caste to such an extravagant extent that we look down upon men who work with the hands. Why, for instance, should the man who is an expert chef not be placed in the same category socially as a doctor or clergyman?"

—Now that the gold coin with the motto, *"In God We Trust,"* conspicuous by its absence, are at a premium and the President has yielded to popular demand for the motto, it is interesting to recall that the first coins struck by the Continental Congress had this motto upon them: *"Mind Your Business."* Not a bad motto for all who would succeed in the world.

—John Lucas & Co., of Philadelphia, Chicago and New York, issue a snappy little periodical for dealers that is always full of helpful thoughts. Speaking of the business done by the firm in the last year, which went ahead of all other years in its history, this statement is added: "Just as sure as Spring will follow Winter, we are going to do more business in 1908 than we did this year—1907." And this is the right way to think; for, as a man thinketh in his heart, so is he, as Holy Writ declares, and if a man is hopeful he will make good; conversely, he will not.

—The Carter White Lead Co. ask us to insert this notice. It was sent us too late for an earlier issue: "Mr. Guido Kalb, who for so many years represented the Carter White Lead Co., with headquarters at 1001 Chestnut Street, St. Louis, passed away on December 10th. Mr. Kalb had been in ill health for a number of years. His many friends in the paint trade will feel his loss."

—And now there is a school in New York to teach and train boys for office work. The good old-time office boy became extinct, more's the pity, and a new breed has to be incubated. He said, "Yes, sir," instead of "Sure!" He did anything you asked him to do, and he did it quickly. He was succeeded by the office girl. She must go. The new office boy will be well educated, and thus stand a very good chance for promotion.

—Our sincere thanks go to Secretary Wall for special invitations to the New Orleans convention, and the one held at Boston. The former was extended to us as a Life Member of the National Association, we having been one of the few who started the association some twenty-five years ago. We were not in a position to attend the Boston meeting, much to our regret, and it does not look at this writing as though we would get to the New Orleans meeting; but our best wishes go instead, and we hope there will be a good turn-out, not omitting even those old nuts who somehow never fail to turn up in all the conventions and bother other folks.

—There was a state convention right at our very door, early in January, and we did not get to it; sickness in the family. At that time nine out of every ten persons had some form of grip. The good old summer time for us. Brother Alexander, of Carbondale, when renewing his subscription, expressed regret at not seeing us at the Philadelphia meeting of the Pennsylvania convention, saying that many would have been glad to have met us there, and many more would have given in a subscription to THE MASTER PAINTER.

—*Graphite*, that meaty little monthly that the Jos. Dixon Crucible Co., of Jersey City, N. J., issue, says that Turner made 30,000 drawings for his famous picture of the *Slave Ship* before he painted the picture, and achieved immortality. That's all right, neighbor, but remember that it was not, and is not, a perfect piece of work for all that, as it represents a pair of hand-cuffs of iron floating on the waters, and that won't go.

—All who think of attending the 24th annual convention of the International Association of Master Painters and Decorators at New Orleans, February 18, 19, 20, and 21, 1908, should write to Wm. E. Wall, Secretary, Somerville, Mass., for a

program and information as to railroads, hotel rates, etc. This will save so much space here instead of us giving a reprint of the program, etc. Our space is limited, and we believe that this notice will fully answer the purpose that would be served by extended reproduction of program, etc.

—There is hardly a wall paper man who cannot find use for a wall paper cleaner in his trade, and hence we direct attention to the adv. of the Jewel Mfg. Co., of Chicago, whose adv. appears in another part of the magazine, and who make a wall paper cleaner that is said to do the work perfectly. It is said to be the oldest cleaner on the market, and the best. If your customer will not or cannot afford new paper, sell her the paper cleaner. A bird in the hand, you know. Get a free sample of it, and investigate.

—If you use Sisk's patent sizing you will not need to wash or scrape the walls to make the paper stick. It contains also a germicide that will destroy all microbes, insects, etc. It is fifty per cent. cheaper than glue size. Tell your people that you use it, instead of stinking glue, and you get their trade every time. Address the R. J. Sisk Mfg Co., New London, Conn., for circulars.

—There is no paste that will beat in convenience, good and uniform results, as well as economy, the Condensed Paste Powder, made by the Arabol Mfg. Co., 100 William Street, New York, as it gives a snow-white paste, is ready in a minute, always smooth and takes just long enough to dry. It makes a good job all around. All paper hangers who have tried it are pleased with it.

—Sign painters should send to Jos. F. Eberhard & Son, 298 Pearl Street, New York, for their catalogue of goods and prices. They carry a full stock of the *Brook Bulletin,* paint, made expressly for out-door sign advertising, by men who were years with the biggest bulletin sign painters, and know what is needed in this line and supply the need exactly. They also carry every needed sign making or painting thing.

—The Muralo Company, of New York, largest manufacturers of wall coatings in the world, issue some very original and attractive advertising matter. Their calendar for the year is certainly out of the SIX—Painter
rut of such commonplace things; it consists of angular leaves painted in various of their water colors, and will adorn the finest office as well as the ordinary paint shop office. Their little Christmas cards, with holly leaves and berries, contained this rhymelet:

To be in luck
Don't tempt your fate;
Use CALCIMO
In nineteen eight.

—One of the handsomest calendars received by us comes from our old friend, Mr. Julius Lotz, of Eudora, Kas. It is of pressed paper, in the shape of an eagle with panties on, and has a wall pocket that will hold things. Mind you, Bro. Lotz is only a painter and paper hanger, though he has a store also. Few paint makers get out so expensive a calendar.

—He got into the manager's office by sending in his individual card, and met with a warm reception, as the manager saw a possible customer. After the exchange of a few pleasantries, the visitor began talking paint. The manager was taken by surprise, but quickly recovered himself and administered this stinging rebuke:

"If you are a bigger man than the company you represent I don't want anything to do with your company. If you are ashamed of your company I don't want anything to do with it. I don't know which of these two reasons prompted you to send in to me your personal card instead of the business card of your company, but I do know you can't interest me in anything by such methods. Good-day, sir!"

—Sears, Roebuck & Co. are now manufacturers of paint, with their own factory, and they have chosen a Mr. V. Michaelson, said to be a practical paint man, for President of the concern, which is called the Illinois Paint Mfg. Co. They are to make their dry as well as other colors, and will put out a full line. They have also their own wall paper factory, they say. All of which is interesting to the trade, as it means close competition in the open field, but particularly among the householders. Painters likely will not be reached.

—When a heavy grade is to be climbed by a train, do they attach a light locomotive to it, or a heavy one, and why? When the chauffeur comes to a hill, does he shut off power, or put on more power, and why? Advertising is the motive power of all business, and the time to put on more power is when you come to a hard or difficult place, business depression, for instance, and not shut it off at the critical moment. *Verbum sap.*

—About the charming city of Wilkes-Barre, Pa., in the heart of the hard coal region and loveliest of vallies, a number of signs have been placed, saying: "All dogs running at large on the public highways of the city, without being properly muzzled, will be shot." This is all right, but some wag has added the word "at" to the last word of the sign, making the sign more accurate than before, albeit somewhat mirth provoking.

—The Pennsylvania Railroad Company have furnished the Manual Training School in Altoona with free instructors from its force of skilled mechanics, and is giving the sons of its workmen a rare chance in the industrial field possessed by no other place in the world.

—The Bosch line of wall paper and interior decorations for 1908 is even finer than that of 1907, and will make big money for those who handle it. Papers for every taste and prices right. This is the kind of a line that you want. Henry Bosch Co., New York and Chicago.

—Last month we told of a Dutch sign that was seen fifty years ago in Pennsylvania, and here is its mate, in use to-day: "Take this rote to Port clinton you cant trive over the Pintecreck Brige. She is too Poore, and she is fenstup. Suporwiser."

—It having been suggested to us that an index of contents would be a useful addition to THE MASTER PAINTER, we beg to say that owing to the great and increasing cost of paper and labor we are obliged to economize in the space wherever possible, and we suggest that you do as an Ohio subscriber says he does in the mat-

ter. "I have a book that I use as an index, noting down from each number as it arrives the important items that I may wish to refer to again; this is the only way to do it."

—I have learned much from THE MASTER PAINTER, and it has settled for me many a disputed point.—A. B., St. Mary's, Ohio.

—We have been favored by Mr. John Dewar with a pretty little pamphlet containing the address he made before the Master Painters' State Association last month, in Philadelphia, on the subject: "Conditions Confronting the Master Painter and Decorator of To-day." Any of our readers that would like to read this valuable paper may obtain a copy by addressing us.

Resolutions of Respect.

The following resolutions were passed by the Merchants' & Travelers' Association of Philadelphia, of which Mr. Fred. G. Elliott was President at the time of his death:

WHEREAS, Death has removed from among us our worthy and highly esteemed President, Mr. Fred. G. Elliott, and

WHEREAS, By his sterling worth, his upright integrity, his manly qualities and unblemished character, he endeared himself to all with whom he came in contact; therefore be it

Resolved, That the Merchants' and Travelers' Association, through the Board of Directors in special session, bear testimony to their high regard and esteem for their deceased colleague, and that they keenly feel their personal loss in the death of Mr. Elliott, who was one of the organizers of this Association.

Resolved, That we convey to the sorrowing family our heartfelt sympathy in their bereavement, and that a copy of these resolutions be sent to them.

Effective War on Child Labor.

Since the strong campaign against Child Labor was started in 1906 by the *Woman's Home Companion*, in conjunction with the National Child Labor Committee, legislation for the protection of children or for compulsory education has been passed in seventeen States of the Union. In the State of Missouri, for instance, laws have been passed prohibiting night work for children under sixteen years of age, and prohibiting the employment of children under sixteen years of age in manufactures involving the use of specified poisonous materials.

—An Ashland, Pa., painter fell from a third-story swing to the ground, took the count for an half hour, then pluckily went to work.

—A Toledo, O., woman set some furniture polish on the stove and it exploded, enveloping her in flames and causing death.

—Wisconsin is the first State to incorporate independent trade schools in the State school system. A recent State law makes the Milwaukee School of Trade a part of the public school system, and provides a levy of a half mill tax for its support. The law also provides that any city in the State may establish such a school and maintain it by public taxes. An auxiliary body, which shall serve in an advisory capacity, shall be appointed in every city where such a school exists.

—Four valuable cows ate wall paper that had been scraped from the walls of a house at Mt. Airy, Philadelphia, and died. The paper was heavy embossed, and had been thrown into an adjoining field, and a veterinary surgeon said they died from arsenical poison, which was then traced to the wall paper.

—Paint and painters have a spreading habit, sure; we have just received a letter from a firm of painters and decorators in Juneau, Alaska, who send a dime for a sample copy of THE MASTER PAINTER. The letter is printed by typewriter on a letter-head finely and tastefully printed, and the firm carry a stock of wall papers, paints, glass, etc., and do a general painting and decorating business. It is wonderful. We have lately added to our subscription list from Italy, Mexico, and other strange places, but none seem so strange as that in frozen Alaska. These painters should open up a first-class painting business.

—Enclosed find a dollar, for which please send me THE MASTER PAINTER. I was very much pleased with the magazine,

and hence want to renew for 1908.—M. T. V., Mexico, Mo.

—Enclosed find money order for $1.00 for your valuable paper for one year. Also send me catalogue for your school of painting.—J. R. L., Weathersford, Okla.

Change to Net Weight Packages.

Leading paint, color and white lead manufacturers have changed all packages of their products sold by the pound from gross weight to net weight. This change went into effect January 1, 1908. Heretofore it has been the custom of the trade to put up all paste form goods in gross weight packages, although liquid goods have been sold by all reputable manufacturers for some years full U. S. standard measure. This is a step in the right direction, because it fixes a definite standard regardless of the shape or weight of the package in which the goods are sold, and enables the customer to know how much material he is buying. A number of paints and colors are already on the market bearing net weight on the labels. All reputable lines of this character will be affected as soon as the various makers can carry out the necessary changes.

The Manufacturers' Platform.

The National Association of Manufacturers has compressed its policy with reference to the labor question into a series of negative propositions, as follows:

No boycott,

No closed shop,

No sympathetic strike,

No limitation of output,

No compulsory use of the union label,

No sacrifice of the independent workmen to the union,

No restriction as to the use of tools, machinery or materials except such as are unsafe,

No restriction as to the number of apprentices and helpers when of proper age.

The members of the association stoutly insist that in pursuing the line of policy indicated by this recital of the things they oppose the great mass of employes are no less benefited than employers. They declare that no more than five per cent. of the total mass of labor is organized for the purpose of offense against the employer, but this five per cent. presents demands and exercise an influence prejudicial to the interest of the remaining ninety-five per cent.

Color Values Compared With Painting Values.

By L. J. Fasquelle,

Assistant Director Professional and Industrial Section Bureau of Promotion and Development Paint Manufacturers' Association of the United States.

(Paper read before the January Meeting of the Master Painters' Association of Pennsylvania.)

In discussing this subject it shall be my aim to treat it broadly, and in drawing conclusions, which will, I hope, demonstrate values, I shall endeavor to cite instances which, while they may be well known to you, will serve to prove these conclusions. I felt that we might get some benefit by discussing "Color Values" along lines which are of such vital interest to the craft at the present time, and which are being so thoroughly discussed because of the revolution which is now taking place in the paint world. The agitation which the paint laws, both in force and in embryo, are causing at the present time, seems to make the occasion ripe for a discussion of values. If I shall make any statements or suggestions which serve to open up a discussion at this meeting which will bring out but a single point of value to the craft, I shall feel that my efforts have been well repaid. But lest I be misunderstood, let me assure you that this paper in no way refers to so-called "Mixed Paints."

In order to more logically demonstrate "color values," it would seem advisable to speak briefly of those white pigments which are used in connection with colors to produce paint, or in other words, to demonstrate wherein colors may have greater or less value when used in suitable combinations with base pigments as painting material.

You all know how much the paint world has been agitated within the last two years by the laws which have been passed, and the resulting discussions

which have taken place regarding chemical purity as against reinforced paint. While it is not my intention to discuss anything from a personal standpoint, nor to touch upon one manufacturer's products as compared with another's, it shall be my aim to still further justify in your mind, opinions which many years of experience in the paint business have proved conclusively to me to be thoroughly justified. It shall be further from my intention to attempt to disqualify any known pigment, nor shall I aim to uplift any one product to the detriment of another, but in attempting to meet the issue squarely, I ask that all prejudices be laid aside in favor of a free and frank discussion which may prove of mutual and lasting benefit.

Naturally, when one thinks of painting pigments, the first thought is of corroded white lead, that old friend of yours which has proved so staunch and true, and which has carried you over many an obstacle, and which to-day stands pre-eminent as the base of all good painting material. Far be it from my thoughts to decry it. It is, and has been, and perhaps always will be, your best friend in a business way. But being your best friend, and recognized by you as such, would you, or could you, call it faultless? And if you are its true friend, is it not the part of true friendship to recognize its faults? In fact, you will not contradict me when I say that it has faults, and faults which you, as practical and successful masters, have been correcting in your expert way for years. In the past you have improved your friend. You have helped to hide its faults by combining with it zinc oxide in varying proportions, according to the conditions to be met and your personal judgment and opinions. As you well know the paint manufacturer has gone a step farther than most of you, and has, with the aid of his skilled chemists, and his laboratory and practical tests, found that certain combinations of other pigments with carbonate of lead and oxide of zinc have produced results which have greater value to the painting materials furinshed you, and these values have been judged not only from the standpoint of dollars and cents to you, but from the standpoint of the durability and satisfaction which, through the medium of their use, you were and are liable to offer to your customers.

These other strengtheners which have developed during the past years have been known by various titles, first as adulterants, then as negative inert materials, and finally, as their value has been fully demonstrated and justified, they have now shown their positive value as reinforcing pigments. But let me assure you, that if used to excess, they immediately revert back to the first name and become again adulterants.

Modern conditions and modern methods are constantly bringing about changes. You, as progressive masters, are studying your profession more closely. Competition and conditions have made it necessary for you to use products which a few years ago would have been cast aside as unworthy of your notice. Just as to-day the cloths from which your clothes are made are woven upon looms, fashioned by tailors, and stitched by machines, because your mothers, and your grandmothers and your great-grandmothers have found that they could not weave the cloth by hand, and fashion the garments and sew them together as well or economically as modern machinery and methods can do it for you.

The development of the high-grade paint making has been along the same general lines, except that its evolution has been by slow stages. For centuries white lead in oil was the concrete of the paint business. White lead for paint has many useful qualities, but like concrete for building, white lead for paint has inherent defects which make its use alone as a single pigment for painting, unsatisfactory. Its physical structure is of such a nature that it is too porous, not successfully excluding moisture from the surface to which it is applied. It chalked badly; on account of its active chemical nature it destroyed some of the tinting color necessary to produce some of the popular tints. When used for straight white painting, the sulphurous gases in certain atmospheres caused it to discolor. There is something lacking to make it a perfect pigment. It needs something to offset or correct its defects and take advantage of its merits. It needs the "twisted steel rods" so essential to the

concrete for the other purpose. Years ago, manufacturers of high-grade paints, realizing all this, commenced the use of a percentage of oxide of zinc with carbonate of lead as a base (just as you did). While carbonate of lead is too soft in its nature, oxide of zinc is too hard and brittle; when applied to the exterior of a surface exposed to rapid weather changes, it is not sufficiently elastic to prevent it from checking or cracking. In the past it seemed that a proper balance of the two, one offsetting the defects of the other, would make a perfect paint; and it did produce a better paint than could be made with any single pigment. But there was still something lacking. That "something is a percentage of what are chemically known to-day as reinforcing pigments."

In other words, to use another illustration, these reinforcing pigments are the alloy which strengthens and welds and gives better value to the paint you use. There is no one in this audience who has not about him some gold which is alloyed to make it serviceable. Who among you would forbid his jeweler to give him alloy gold in preference to that which is chemically pure?

Again, you would not take a layer of coal tar and mix it with sand for a road dressing and expect to get any wearing qualities from such a coating, but if you took, for instance, cedar blocks and cemented them together with the coal tar and the sand and rendered them more or less impervious by covering them and soaking them with the tar, you would get a pavement which would last for years and prove reasonably satisfactory.

The railroads, the carriage builders, the manufacturers of implements and machinery have joined hands with the paint manufacturers in producing standards which have proved of infinite value in the finishing of their wares, and the experience of past years has proved to their satisfaction that the use of reinforcing pigments is not only advisable, but that it has improved the working and wearing qualities of the paints which they have used.

The Paint Manufacturers' Association of the United States, recognizing that the requirements of the metropolitan master are even more vast than those mentioned above, has called upon its Bureau of Promotion and Development to study this subject and to solve it; and I am glad to be able to state that during the past year representative masters and a committee from the Bureau have held a number of meetings which have proved of great mutual benefit, and the master painter will now find that the manufacturer realizes more fully than ever before what he must do to meet your conditions as they exist.

I have made these statements regarding reinforcing pigments and I want to show you wherein it is consistent for you to use reinforced whites with colors which are reinforced, for we would satisfy you as masters just as we have satisfied the great corporations; we shall not, however, attempt to offer you products which we supply to those corporations, because of the wide difference between your proposition and theirs.

On account of the better understanding of your needs, and the closer relations now existing between masters and manufacturers, we are to meet your conditions with a new product which we assure you will prove itself both practical and of great value to you.

Taking up "Color Values" we will begin with Chrome Yellow. This color is not an ideal painting pigment when used in its chemically pure state on account of its spongy absorbent characteristics, and because of its peculiar quality of carrying an excess of linseed oil, its excessively light gravity making it work mushy or fluffy. When these facts are taken into consideration, the actual value of a chemically pure chrome yellow lies in its tinctorial strength. However, chemically pure chrome yellow, combined with a proper base of logical reinforcing pigments, will give you far greater painting value than if it is used alone. This combination, would, of course, lack in its tinctorial strength to the extent of the white lead and other pigments which it contained. Using this painting yellow in connection with strictly pure lead, the value of the paint will be greatly enhanced because a suitable reinforcing material with the chrome yellow has the quality of greatly strengthening the layer of paint when applied to any given surface.

(*Conclusion next month*)

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