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COLOR.

WHETHER it be the result of an æsthetic craze, of a closer study of nature, or a recognition of the expressive power of color, there is an encouraging degree of interest manifested in the study of it at the present time. The public eye views color effects more critically than it has hitherto been accustomed to. The desire seems to tend toward tones which are subdued, restful, pleasing; nothing garish, nothing harsh, is sure to meet with favor. Much fine work is done, too much, perhaps, in a spirit of rivalry among those who possess wealth and delight in display, and few thoughtful minds can reflect upon this disposition without feelings of regret. But the artists whose services are brought into requisition by this rivalry are thoroughly in earnest, conscientious, honest; the work of their hands may be in no sense depreciated by the conditions under which they labor. Those who behold their work are delighted, elevated, instructed, led on a few steps in the pathway of artistic refinement. Thus is the beauty of the ages in form and color reproduced in measures attuned to the time and place; thus does Art teach her children.

We learn by means of these better conditions how the colors are related the one to the other; how one adds to or detracts from its neighbor; how differing conditions of light and surroundings affect favorably or unfavorably the appearance of decoration; how the judicious use of a little bright color among dull or subdued shades heightens the effect; and how the introduction of a similar quantity of discordant color as effectually detracts from it. So much depends upon the delicacy of feeling and the natural gift of the artist in discerning color values and relationships that it is difficult to establish precedents by which all of the questions which arise in the use of color can be satisfactorily answered. Laws of harmony and contrast there are,

which are theoretically as precise as could be desired, but the quality of pigments and the lack of uniformity in conditions render necessary the exercise of a discriminating judgment wherever color is used. A brief synopsis of various color effects is given below, which abounds in wholesome suggestions for all who use color:

The color of a substance is that color of the prismatic spectrum which it reflects to our eyes. A substance appears blue because it reflects blue rays only and absorbs all others. White reflects and black absorbs all rays.

The natural eye is so constructed that it is not satisfied with inharmonious coloring.

Harmony is an arrangement of colors in agreeable contrast.

The harmony of color is analogous to the harmony of music, but the analogy is not generally well understood.

Harmony is only secured when the three primary colors, blue, red and yellow are present in proper proportions, either alone or in combinations.

Primary colors cannot be formed by the admixture of any other colors, while all other colors result from the admixture of these three.

Colors formed by the admixture of two primaries are called secondary, those formed by the admixture of two secondaries are called tertiary.

Red and green combine to yield harmony, because green is formed by uniting blue and yellow.

Blue and orange combine to yield harmony, because orange is formed by uniting red and yellow.

Yellow and purple produce harmony, because purple is formed by uniting red and blue.

Colors in perfect purity produce exact harmonies in the proportions of eight parts of blue, five of red and three of yellow.

The law of harmonious combinations may be expressed as follows:

PRIMARY COLORS.	SECONDARY COLORS.	TERTIARY COLORS.
Blue, 8	Purple, 13	Olive, 24
Red, 5	Green, 11	Russet, 21
Yellow, 3	Orange, 8	Citrine, 19

To illustrate harmony by rule:

Red, IIIII. } Bluish crimson harmonizes } Yellow, III.
Blue, II } with yellow green, } Blue, IIIII.

The bluish crimson is formed by all the red (3), and two parts of the blue. The yellow green is formed by all the yellow (3), and the remaining six parts of blue, thus we have used the lawful proportions, eight blue, five red, and three yellow.

The areas occupied by different colors may vary with corresponding variation in intensity. For instance, blue (8), and orange (8), form perfect harmony when both are of prismatic intensity, and we still have perfect harmony when the orange is reduced to one half its strength with white or black provided sixteen parts are now used with the eight of blue.

Colors are inherent and transient; the former any colored substance, the latter decomposed rays of light.

Pigments are imperfect representations of color, therefore *absolutely* harmonious combinations can never be produced with paints.

When colors are juxtaposed (placed side by side), they are influenced and do not appear what they really are.

Whatever primary color is not in view will be created in the eye and this induced color will be cast upon whatever is near.

Colors which perfectly harmonize improve one another, and are thus complementary.

Inharmonious combinations are by juxtaposition rendered still more inharmonious;

for instance, blue and purple are both injured when placed side by side.

Complementary colors in juxtaposition mutually enrich each other, receiving a double modification first as to depth, the light appearing lighter, the dark darker and second as to hue, each being tinged with the complementary color of the other.

When a light color is juxtaposed to a dark one the light color appears lighter and the dark one darker than it really is.

Dark gray on white appears much darker than it really is.

When red and green are juxtaposed the red will appear redder and the green greener than otherwise, because they, too, contain the three primaries and are complementary.

When blue or bluish black are juxtaposed to jet black the first is slightly improved while the jet black appears rusty from the orange tint created by the eye, the other two primaries, red and yellow, forming the orange.

If we look upon red, green is formed in the eye, and if we look upon yellow, purple (blue and red) is formed, the induced colors affecting those in juxtaposition.

By any artificial light (as gas), blue becomes darker, red brighter, and yellow lighter than it is.

Gray increases the brilliancy of all primary colors when in juxtaposition with them. Cobalt, raw umber and white produce a good gray.

Blue is a cold, receding color. Red is a warm, exciting (but stationary) color. Yellow is an advancing color.

Colors may be combined to produce the idea of gladness, sadness, purity, richness, poverty, etc., analogous to the sounds of music.

GRAINING AND GRAINING TOOLS.

The severe criticism to which the practice of graining with oil or water colors in imitation of natural woods has been subjected by Mr. Ruskin and others, on account of its being a more or less imperfect resemblance to the really beautiful work of nature, may have done something to diminish the popularity of graining, and may be said to be fairly well sustained by the arguments deduced in support of it.

But there are still important uses for graining where dark colors are desired, or where for some good reason it is impracticable to use the natural woods.

To be an expert grainer, one must be familiar with the various woods which he will have occasion to copy, skilled in draughtsmanship, and master of the tools used in this branch of the business. The necessity for mixing the colors has been

removed by the enterprise of paint makers, so that it is now possible to procure almost any color desired ready for use.

The methods of graining according to the old process are performed with common brushes, and as soon as the ground coats are dry the process called *over-graining* is commenced. This is executed by a variety of tools, consisting of broad, flat and thin brushes, used either spread, turning the hand or edgewise—hair pencils of

veins, knots, etc., are then touched and re-touched until the desired effect is produced, the work being subsequently varnished.

It should be borne in mind that graining is one of the difficult phases of painting, and in its demands upon the skill of the grainer ranks above plain painting, and that no person can become an expert grainer who servilely follows written instructions. He must think for himself, must closely study nature, and must have clear



FIG. 1.

various sizes, combs and ribbers, which being, as occasion requires, dipped into turpentine or water, are passed quickly and lightly over the paint, so as to leave the streaky grains, curls and knots intended to remain, untouched, according to the skill and fancy of the grainer, when it is immediately wiped off with a rag, which takes up the upper coat of the paint when dissolved by the turpentine or water, leaving the graining as required, and exhibiting the ground between; the various lines, eyes,

ideas of the effects produced by light and shadow. It would be well for him to form a small collection of specimens of woods or veneers, small pieces are as good as any, perhaps, and glue them on common boards, and French polish or oil rub them. These will be in convenient form for study and reference, and will doubtless be worth many times what they cost.

The ground color used should be of the general color of the wood to be imitated, but lighter, and, when dry, should be

covered with a coat of transparent color, of the proper hue and full depth, prepared either with turpentine or water color.

OAK.

The groundwork for oak is yellow ochre and white lead, or Venetian red, yellow ochre and white lead, according to the shade desired. The graining color is a mixture of turpentine, linseed oil, patent dryers, and raw or burnt umber with black, according as the oak is to be light or dark.

the work is then to be "cissed in" with whiting and water. The process of *cissing* is done by passing over the work with a sponge moistened with beer or water and rubbed with whiting. The graining color is to be Vandyke brown mixed with water; it is then to be rubbed in with a tool and mottler. When the color is quite dry take a sponge dipped in beer, and damp the whole well with it, and when this is dry commence the over-graining. The color for this process is Vandyke brown and



FIG. II.—GRAINING HEART PIECE WITH PLATES.

The work is to be well rubbed in, level and clear; then, with a gutta percha comb, pass over the parts required to be veined; then with a steel comb repeat the process with a wavy motion. Next wrap a piece of soft rag over the thumb, or over a piece of horn (called a "thumb piece") shaped like the end of the handle of a spoon, and wipe out the light markings, taking care that no dark edges are left where the color is wiped away, a result which is achieved by moving the cloth over the thumb or thumb piece after each stroke. The over-graining may now be

drop black mixed with beer. With a light tint of this mixture, just enough to show, and a hog's-hair over-grainer sketch the general design of the grain, and soften. When dry, with the same tools, the over-grainer, being divided by a comb, and with a darker shade of the same color, work up the graining to the required design, softening continually during the work. After this, a good effect can be produced by dabbing the work with a damp piece of coarse sponge, and then softening upwards



KNOTTER.



BLENDER.



FINE COMB.

FIG. III.

commenced by well damping the work with a sponge dipped in fuller's earth or whiting and water. The color to be then used is Vandyke brown mixed with water, and applied with a broad hog's hair over-grainer, to be drawn straight down the figured work. On the stiles, etc., of doors a mottler may be used in order to darken certain parts, the whole being well softened and subsequently varnished.

WALNUT.

The ground for walnut is mixed of Venetian red, yellow ochre, and a small quantity of burnt umber with white lead;

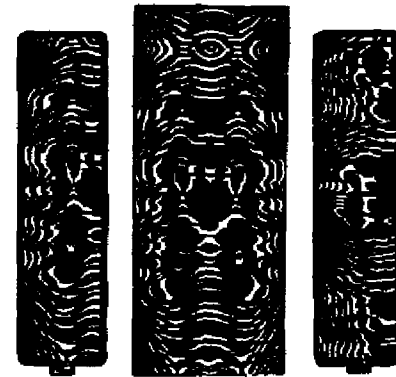


FIG. IV.—OAK LIGHTS.

or in the direction taken by the grain. In fine work this must be varnished, and, when dry, the whole should be washed over with Vandyke brown or burnt sienna

and water; it is then to be mottled and well softened; after this, another coat of varnish is to be applied.

OTHER WOODS.

Ash.—This wood somewhat resembles oak in grain, though it is, perhaps, somewhat finer and inclines more to a reddish brown. The imitation of its grain is effected in much the same way as oak, with such variation in the colors used as may be required.

Rosewood.—This wood is sometimes imitated by the grainers in this country, but not so often as the other varieties. It is imitated sometimes for burial cases, but it is so elegant and varied in form and color that it is deemed best to offer a few suggestions concerning graining in imitation of

substantially the same as the one above given. The graining color is formed of Vandyke brown and rose pink, ground very fine in beer; this is laid on with a common tool, but not too thickly; then taking a common quill, draw the feather in various directions over the wet color, giving the hand a tremulous motion in parts where it is desired to give a wavy appearance to the grain; then take out the small bright lights with the chamois or cloth, and afterwards blend the whole with the softener. When this is dry, which will be in a few minutes, give very dark touches under the light parts with Vandyke brown and rose pink nearly opaque. The whole is to be well varnished when dry.

Still Another Rosewood.—The ground is chrome yellow, vermilion and white lead. The graining color is composed of ivory black, with burnt sienna ground very fine, the whole being well softened after laying on. When dry, over-grain in a curly figure with a small graining brush and ivory black; shade up the knots with a camel's hair brush, and finally glaze with rose pink.

These examples will give an idea of the method of graining in imitation of the more common woods. The list might be enlarged, but the processes of manipulation are much the same in the case of other woods, the grainer being able usually to vary both the color and manipulation to



Showing the under-combing required. The plate to be used. Finished Crotch or Feather.

FIG. V.—FEATHER WORK.

it. The ground is prepared with Vermilion, lake and flake white, mixed into a rosy tint, partaking more of pink than scarlet. When the ground is quite dry and smooth, take Vandyke brown, nearly opaque, and with a small tool spread the color in various directions over the ground, then with another dry tool beat the color, whilst wet, against the grain—i. e., in the opposite direction to that in which it was laid on. Before the color is dry take a piece of moist chamois, spread over the thumb or thumb piece, and with great



FIG. VI.—HUNGARIAN ASH.

freedom take out the lighter veins; have ready the darkest tint of Vandyke brown, and with a sable pencil give free and strong touches under the parts taken out with the chamois, and other parts where required; blend off the whole with a badger softener, and varnish when dry.

Another Rosewood.—The ground to be



FIG. VII.—FRENCH WALNUT.

suit the requirements of the case in hand.

Among mechanical inventions for the use of grainers, some of the more recent are tools consisting of stencil plates made of metal of different patterns, for different woods, and for different features, like knots and heart pieces, of the same woods. Through the courtesy of Mr. J. J. Callow, of Cleveland, O., the patentee of perhaps the best device of this kind, we are able to present a few illustrations of work done by his process. The advantages claimed for them are that they facilitate the work, and the tools are so easy to use that persons of moderate skill can do creditable work with them.

In Fig. I is shown the manner of using

the plates while graining a door side. Nothing but plain, clean combing is needed on the stiling, except on the lock or knob rail; more than this is said to overdo the work and spoil the good effect of the job.

Among other appliances are the graining

and marbling rollers. These consist of cylinders fixed in frames, by means of which the pattern engraved on the roller is repeated. They are no doubt efficient in certain classes of work, but are said to be less durable than plates.

MINERAL COLORS—II.

[Translated for THE PAINTER from the German of I. G. Gentile, by Percy Neymann, Ph. D.]

Pulverizing.—When the material, after floating and drying adheres together so that it cannot be broken by pressure of the fleshy part of the finger, but can be broken by pressure of the thumb nail and reduced to powder, fine pulverizing, reducing to an impalpable powder, is often of great advantage and much increases the value of the product. A product not pulverized can be easily employed for distemper or water color, but not for oil color or paint. When the pigment has not been floated it requires pulverizing in all cases. Floating should hence not be resorted to when the material again "cakes" after the operation. The methods and apparatus employed in pulverizing are manifold, and are adapted to the quantity to be pulverized, to the hardness of the material, to the available motive power and the capital required.

On a small scale the operation is conducted in a mortar, and the ground material passed through a hair sieve. The same method is applicable on a somewhat larger scale by an arrangement consisting of a larger mortar and a more advantageous utilization of the power. A block of sandstone is hewn out kettle shaped. The upper edge should reach to about the middle of the chest. The diameter may be 60 to 66 centimeters. The pestle consists of a ball of hardwood with a long handle which is held by means of a ring fastened to the wall. The handle when moved violently acts as a sort of lever, and great force is communicated to the ball which pulverizes the material. When sandstone blocks cannot be had an iron or copper kettle will suffice, which can be hung in a frame to give it more stability. If the material is not hard and will bear crumbling by pressure of the thumb nail one man can pulverize several hundred weight per day. For pulverizing on a large scale there are numerous arrangements. A very good

apparatus for pulverizing most all grades of material are the so-called rolling or tumbling barrels—barrels which revolve around their axis. The barrels are half filled with balls of some hard material; the remaining half is filled with the material to be pulverized. By revolving, this is intermingled with the balls, which by being constantly made to rise and fall and turn, pulverize the material. In order to have the ball take effect in this manner the motion of the barrel must not be rapid enough to give the balls a centrifugal motion, in which case they would remain in one spot and do no work. No matter what the diameter of the barrel may be, the rapidity of motion on the circumference must not be greater than 1.3 to 1.5 meters per second. It is of advantage when the velocity can be regulated. If the hardness and chemical condition of the pigment permit it the barrels can be made of wood and held together by hoops. If the material is not harder than sulphur the balls may be iron musket balls or of the same size in brass. On account of the abrasion, it is better to line the interior of the barrels with sheet iron, zinc, brass or copper. For earth colors sheet iron is generally sufficient. For other colors sheet copper lining and brass balls are preferable.

When gypsum (sulphate of lime) or barytes (sulphate of barium) are to be pulverized it is necessary to have the lining of the barrels and the balls of still harder material than that mentioned above. For this reason hard mineral colors are rarely pulverized in the above manner, and only barrels lined with a very hard porcelain and balls of the same material are employed. They pulverize burnt quartz, burnt flint, etc. Whatever material tumbling barrels are made of, they require the following arrangement to adapt them to practical use:

1. An opening on the circumference

through which the material can be introduced. The opening can be square, and should measure about 18 to 24 centimeters.

2. This opening must be closed by a blind or door fastened by bolts so that the cylinders are kept well closed.

3. As it becomes necessary to empty the contents of the barrel through the same opening, a wire screen must be provided which will allow the fine material to drop out, but retain the balls.

4. The barrel should revolve in a box capable of taking up the ground product. It is best to have the entire apparatus enclosed in a tight wood box so as to catch all dust. In order to clean the barrels perfectly they are allowed to revolve a number of times after the door has been opened.

5. The barrels are best revolved by means of pulleys fastened directly to the axis. There should be a loose pulley over which the belt can be shifted when it is necessary to stop the barrels.

6. It is best not to have the shaft pass through the center of the barrel but to set the latter in a frame work and allow the ends of the shaft to rest in this. When, however, the material is very heavy, or the barrels very large, the shaft should pass through the barrels, otherwise it will be very difficult to make the apparatus hold together.

7. The barrels should not have a great length. It is far better to increase the diameter; with it the action of the balls becomes more effective, but the tax on the motive power is also increased. The harder the material the greater must be the diameter of the cylinder. A diameter of one meter or a little less is applicable to most all cases.

When the material is harder than sulphur it must be reduced to the size of peas before it is placed in the barrels, in order to enable it to get between the balls. The pieces of material are best reduced to a suitable size by undergoing a stamping or crushing operation, which is most easily accomplished by means of a mill such as is used for crushing cotton seed or linseed, termed chaser mills.

A material not particularly hard is rapidly reduced to a fine powder by the barrel process, and when the operation is conducted long enough, sifting may be dispensed with, and a product is obtained which can barely be made as good by any

other process. With very hard material it is better not to prolong the operation and resort to sifting. The residues are again put into the tumbling barrels.

An apparatus constructed entirely of iron upon the same principle as the tumbling barrels is sometimes employed when but one grade and kind of color is manufactured. The cost of an iron ball mill of this kind is about six times that of an ordinary tumbling barrel. Another good arrangement for performing this operation is the grinding mill.

When an earth color is abundant and readily disposed of, mills such as used for grinding grain are employed. Their construction is known to most everyone. These mills are more particularly used for pulverizing gypsum and barytes; both, however, require previous crushing, by means of a stamp or stamp mill, or chaser mill. The grinding stones for gypsum can be made of a very quartzose sandstone or granite, while those intended for grinding barytes are preferably made of cast steel with a corrugated surface.

The grinding appliances herein discussed are provided with a sifting arrangement which produces several grades of fineness of material. The refuse, or that which does not pass through the meshes is again transferred to the grinder. The sieves are best made of brass wire gauze of various sizes. The gauze is wound around a cylindrical framework so as to form cylindrical sieves which are kept in rotary motion by proper mechanical devices. The sieves are enclosed in a box which collects the siftings while the residues pass out of the end of the cylinder and are carried back to the mill. To facilitate the production of different grades of fineness the sieves are arranged so that the first meter of the frame work is covered with the finest gauze or bolting cloth, the second meter with the next coarser number, and so on. The frame work has an inclined position. Care must be exercised not to have this inclination too great, otherwise some of the fine material will fail to fall through its proper sieve. The velocity of rotation must also not be too great to prevent centrifugal action on the coarser particles which do not fall through the meshes. It is very advantageous to give the sieves a shaking motion besides the rotary motion.

Formerly the so-called wet mills were used for grinding gypsum and barytes.

The coarse powder was ground with water and the fine powder produced was then floated off. The coarse material was again ground.

Dry mills are also employed for grinding other earth products which are used for the preparation of fillers. These must also be the finest powder so that simple mixing with oil or varnish perfects them for use at once.

Bone black and ivory black when intended for use as a pigment are also frequently ground on these mills.

In smaller factories the chaser mills do the pulverizing. When the stones or chasers are of sufficient diameter they crush the hardest materials and often produce a powder in part which is sifted out at once. When the material "dusts" easily the grinding is effected very slowly. A mill of this kind consists of a round stone or iron bed plate. The chasers are made of the same material as the plate. The plate is provided with a flange or edge so as to form a sort of flat dish. There is a vertical axis set up on the center of the plate which is rotated by means of suitable gearing at the other end. This axis has a horizontal axis attached to it at either end of which one of the chasers is fastened.

The motive power acting upon the gearing is transferred to the vertical axis, and by the friction and their weight the chasers are made to revolve around the horizontal axis. The chasers are frequently made to stand still and not revolve around their own axis, while the plate is then made to revolve. This arrangement is not so effective, but the material can easily be shoveled out after the operation is perfected.

The most troublesome part of the process is the emptying of the mills, and it requires considerable skill to do this without stopping the entire machine. Iron bed plates are best, because they are more easily cleansed, owing to their smooth, non-porous surface. When the material to be crushed is very hard and the object is to prepare a product to be treated furthermore by grinding, the chasers should have a large diameter, but should be comparatively narrow. The object of this is to have the greatest possible weight on the smallest possible area of the surface of the bed plate. For a material easily crushed the chasers are prepared much wider. It is not necessary to have the chasers equally distant from the horizontal axis and is often better to vary this distance so as not to have both chasers follow the same track.

To be continued.

WHAT CAUSES PAINT TO BLISTER AND PEEL.

THE subject of blistering of paint has, from time to time, engrossed the attention of practical men; but so far as we can follow it in the literature pertaining to the building trade, its cause has never been clearly laid down, and hence it is a detail enshrouded in mystery.

W. S. seems to dwell mostly, in his explanations on blistering paints, on steam raised in damp wood. Also an English painter, according to the *Painters' Journal*, lately reiterates the same theory, and gives sundry reasons how water will get into wood through paint, but is oblivious that the channels which lead water into wood are open to let it out again. He lays great stress on boiled oil holding water in suspense to cause blistering, which is merely a conjecture. Water boils at 212° F., and linseed oil at 600° F.; consequently no water can possibly remain after boiling, and

a drop of water put into boiling oil would cause an explosion too dangerous to be encountered.

It will be shown herewith that boiled oil, though in general use, is unfit for durable painting, that it is the cause of most of the troubles that painters have to contend with, and that raw linseed oil seasoned by age is the only vehicle to bind pigments for durable painting; but how to procure it is another trouble to overcome, as all our American raw linseed oil has been heated by the manufacturers, to qualify it for quick drying and an early market, thereby impairing its quality. After linseed oil has been boiled, it becomes a poor varnish; it remains soft and pliable when used in paint, giving way to air pressure from the wood in hot weather, forming blisters. Turpentine causes no blistering; it evaporates upon being exposed, and leaves the paint

in a porous condition for the gas in the wood to escape; but all painters agree that blistering is caused by gas, and on investigation we find two main sources from which gas is generated to blister paint—one from the wood, the other from the ingredients of the paint. The first named source of gas is started in hot weather by expansion of air confined in painted wood, which presses against the paint and raises blisters when the paint is too soft to resist. Tough, well cemented paint resists the pressure and keeps the air back. These blisters mostly subside as soon as the air cools and returns to the pores, but subsequently peel off.

W. S. and others assert that damp in painted wood turns into steam when exposed to sun heat, forming blisters, which cannot be possible when we know that water does not take a gaseous form (steam) at less than 212° F. They have very likely been deluded by the known way of distilling water with the aid of sunshine without concentrating the rays of the sun, based upon the solubility of water in air, viz.: Air holds more water in solution (or suspension) in a warmer than in a cooler degree of temperature; by means of a simple apparatus sun heated water, when the air saturated with water is conducted into a cooler, to give up its water again. But water has an influence towards hastening to blister paint; it holds the unhardened woodsap in solution, forming a slight solvent of the oil, thereby loosening the paint from the wood, favoring blistering and peeling. There is a certain kind of blister which appears in certain spots or places only, and nowhere else, puzzling many painters. The explanation of this is the same as before—soft paint at these spots, caused by accident or by sluggish workmen having saturated the wood with coal oil, wax, tar, grease or any other paint softening material before the wood was painted, which reacts on paint to give way to air pressure, forming blisters.

The second cause of paint blistering from the ingredients of the paint happens between any layer of paint or varnish on wood, iron, stone or any other substance. Its origin is the gaseous formation of volatile oils during the heated season, of which the lighter coal oils play the most conspicuous part; they being less valuable than all other volatile oils, are used in low priced japan driers and varnishes. These volatile oils take a gaseous form at different tem-

peratures, lie partly dormant until the thermometer hovers at 90° F. in the shade, when they develop into gas, forming blisters in air tight paint, or escape unnoticed in porous paint. This is the reason why coal tar paint is so liable to blister in hot weather; an elastic, soft, coal tar covering holds part of its volatile oil confined until heated to generate gas; a few drops only of such oil is sufficient to spoil the best painted work, and, worse, when it has been applied in priming, it settles into the pores of the wood, needing often from two to three repetitions of scraping and repainting before the evil is overcome. Now, inasmuch as soft drying paint is unfit to answer the purpose, it is equally as bad when paint too hard or brittle has been used, that does not expand and contract in harmony with the painted article, causing the paint to crack and peel off, which is always the case when either oil or varnish has been too sparingly and turpentine too freely used. Intense cold favors the action, when all paints become brittle—a fact much to be seen on low priced vehicles in winter time. Damp in wood will also hasten it, as stated in blistering, the wood sap undermining the paint.

To avoid peeling and blistering, the paint should be mixed with raw linseed oil in such proportions that it neither becomes too brittle nor too soft when dry. Priming paint with nearly all oil and hardly any pigment is the foundation of many evils in painting; it leaves too much free oil in the paint, forming a soft undercoat. For durable painting, paint should be mixed with as little of a base pigment as can possibly be spread with a brush, giving a thin coat and forming a chemical combination called soap. To avoid an excess of oil, the following coats need turpentine to insure the same proportion of oil and pigment. As proof of this, prime a piece of wood and a piece of iron with the same paint; when the wood takes up part of the oil from the paint and leaves the rest in proportion to harden well, where at the same time the paint on iron remains soft. To be more lucid, it need be explained; linseed oil boiled has lost its oleic acid glycerine ether, which form with the bases of pigments the insoluble soap, as well as its albumen, which in boiling is thrown out. It coagulates at 160° F. heat; each is needed to better withstand the action of wind and weather, preventing the dust

from attaching itself to a painted surface, a channel for ammonia in damp weather to dissolve and wash off the paint. In later years linseed oil has been extracted from linseed meal by the aid of naphtha and percolation, product of a very clear, quick drying oil, but lacking in its binding quality, no doubt caused by the naphtha dissolving the fatty matter only, leaving the glycerine and albumen in the meal.

All pigments of paint group according to their affinity to raw linseed oil, into three classes. First, those that form chemical combinations, called soap. This kind is the most durable, is used for priming purposes, and consists of lead, zinc and iron bases, of which red lead takes up the most oil; next, white lead, the pure carbonate Dutch-process-made, following with zinc white and iron carbonates, as iron ore paint, Turkey umber, yellow ochre; also faintly the chromates of lead—chrome green and chrome yellow—finishing with the poorest of all, modern white lead, made by the wet or vinegar process. The second class being neutrals, have no chemical affinity to linseed oil; they need a large quantity of drier to harden the paint, and include all blacks, vermilion, Prussian, Paris and Chinese blue, also terra di sienna, Vandyke brown, Paris green, verdigris, ultramarine, genuine carmine and madder lake. The last seven are, on account of their transparency, better adapted for varnish mixtures—glazing. The third class of pigments act destructively to linseed oil; they have an acid base (mostly tin salt, hydrochloride of tin, and redwood dye), form with the gelatinous matter of the oil a jelly that will neither work well under the brush nor harden sufficiently, and can be used in varnish for glazing only; they are not permanent in color, and among the most troublesome are the lower grades of so-called carmines, madder lakes, rose pinks, etc., which contain more or less acidulous dyes, forming a soft paint with linseed oil that once dry on a job can be twisted or peeled off like the skin of a ripe peach. All these combinations of paint have to be closely observed by the painter to insure his success.

Twenty-five years ago a house needed to be painted outside but once in from five to seven years; it looked well all the time, as no dust settled in the paint to make it un-

sightly. Painters then used the Dutch-process-made white lead, as a base and raw linseed oil, a fat acid, which formed the insoluble soap. They also put turpentine in the following coats, to keep up the proportions of oil and pigment. All held out well against wind and weather. Now they use the wet-process-made white lead, neutralized by vinegar, with oil neutralized by boiling, from the first to the last coat, and—fail in making their work permanent.

W. S., in the *Building News*, relates an unaccountable mysterious blistering in a leaky house, where the rainwater came from above on a painted wood wall, blistering the paint in streaks and filled at the lower ends with water, which, no doubt, was caused by the water soaking the wood at the upper ends where there was no paint, and following it down through the fibers, pushed and peeled off the soft, inadhesive paint. Green, sappy and resinous wood is unfit for durable painting, and to avoid blistering and peeling, wood should be well seasoned and primed with all raw linseed oil, some drier, to insure a moderately slow drying, and as much of a base pigment as the painter can possibly spread (much drier takes up too much oil acid, needed for the pigment base to combine with), which insures a tough paint that never fails to stand against blistering or peeling, as well as wind, weather and ammonia.

The coach, car and house painter can materially improve his painting where his needs lie by first oiling the wood with raw oil, then smoothing the surface down with lump pumice stone, washing it with a mixture of japan drier, or, better yet, gold sizing and turpentine. The explanation is: The raw oil penetrates the wood and raises the wood fibers on the surface to be rubbed down with pumice stone, insuring the best surface for the following painting. To harden the oil in the wood it receives a coat of japan drier, which follows into the pores and there forms a tough, resinous matter, resisting any air pressure that might arise from within, and at the same time reacts on the first coat of lead as a drier. This mode insures the smoothest and toughest foundation for the following painting, and may be exposed to the hottest July sun without fear of either blistering or peeling.—*Scientific American Supplement*.

WALLS AND CEILINGS.

THE wise old saw tells us that "walls have ears;" if they had tongues as well, we should be deafened by the outcry of their protest against the æsthetic decoration (desecration) that is plastered and daubed and piled upon them to the utter destruction of comfort, good taste, grace, beauty and refinement.

We have our house built—it may be in Queen Anne style, with its pseudo-classic prettinesses, pettinesses and vulgarities; or castellated-Gothic, with a draw-bridge over the gutter, a man in paper armor with a penny trumpet to sound the approach of visitors and signal the fall of the portcullis when necessary, and some poor old palmer, with scallop-shell on shoulder, pottering round the curb-stone, telling his beads; or it may have the grace, the beauty, the symmetry of the Italian-Gothic Renaissance, or imitate a Greek temple or Egyptian tomb, or be of the dry goods-box or Saratoga-trunk pattern, large, square, with holes pierced in it for windows, and compartments for lunch-box, night-dress, dinner-toilet, etc., or perhaps it is in the Front-step style, so prevalent in Chicago, where the grand, high, monumental structure of the front steps is the chief feature, and the house is attired as an after-thought.

But whatever be the style of the house, when it is finished there are the walls and ceilings staring down upon us in dumb, hard whiteness, and demanding with aggressive iteration: "What will you do with us?" In the answer to this question lies the whole art of decoration.

"Chacun a son goût" was a good rule for the immortal old woman who kissed her cow; it is a good rule, also, *with reservation*, for the decoration of walls and ceilings. The gist of the French proverb lies in that one word, "*goût*" (taste) in which the French people are preëminent. Go with your own, individual taste to an artist decorator, and advise with him as to material, as to combinations of color, as to the thousand-and-one things that go to make an elegant home, and the result cannot fail to be satisfactory. Use your own taste, and outgrow its results, and try again, and you will have endless satisfaction. We went once on a time to a gentleman's house to see one of Turner's paintings; it was the

only painting in the house, and the gentleman explained this apparent singularity and incongruity in a very elegantly appointed home, by saying: "This is the first picture of my third collection; I have outgrown two collections and sent them to auction." His taste had grown with the use of it, increased knowledge had changed and modified it, and yet it had given him perpetual satisfaction. He had enjoyed his collections until he outgrew them, then he had put them aside and made others by the light of a wider knowledge.

Tinting is not to be despised, it makes the house cheerful, and gives a good background for pictures and furniture. Soft rose-gray walls, with rose tinted ceiling, make a pleasant combination. When Whistler painted his rooms in white and bright yellow, the canons of taste were violated, and an outcry of dissent went up through the whole art world, but he held his ground, and so conquered the canons, and to-day when he decorates in warm gray and flesh color, his knowledge and good taste are conceded on all sides.

From kalsomining we come to papering, and here a wide field opens before us. Wall paper gives you more for your money than any other form of decoration, and its great beauty cannot be denied. At the cost of a few dollars your walls and ceilings are changed from a dull waste of grim whiteness to fields of soft color and harmonious form. The paper designers draw their inspiration from all things in earth and heaven, the stars, the snow-flakes, the crystals, the vines and flowers, landscape and architecture, the blue expanses of air, the aerial depths of space, the glories of cloud and sunset, as well as the wide stretches of mountain heath and green meadow, they catch form and color from them all, and, fused in the ores of genius, they come forth like refined gold to beautify the walls and ceilings of our homes. Design has made an immense stride forward, in this direction. It is not many years since the colors and patterns of cheap papers were hideous, and the more important rooms of a house were covered with the heavy velvet and flock papers, dark green, deep maroon, dull crimson; they acted like a pall upon the spirits, like the

cloud of ashes that fell from Vesuvius on Herculaneum and Pompeii; the green poisoned us with its arsenic; we groped in the darkness of the maroon; moths corrupted them, and we all breathed freer when they were scraped off our walls and flung away. Then it was that the house-keeper rejoiced in a blue room, a crimson room, a red room, the paper giving the key note, and everything else, even to the soap in the soap dish, following after. But we have changed all that, all tastes can now be suited excepting bad taste. You can, if you choose, paper your room in pale olive green tints with a sunflower in the corner, a frieze of peacock feathers, an Easter lily preaching aesthetics from its pulpit of the book case, with a brass warming pan suspended over the mantel, and the sofa cushion turned lining up, because its silk and flowers do not "compose" well, or you can choose flowers galore, and vines rich as the grape, or delicate as the cypress or the passion vine. You can have your paper embossed in pale cream tints with golden star or flower, with frieze of delicate tea roses, or you can have, on dull gold ground, damask and plush, and cloth-of-gold in all their vivid splendor. If you are cultivated to that artistic point that you "do not wish nature in art" then you can select from all conventional forms. Or if you are still in the barbarism of nature, you can have flowers that seem to breathe perfume, and leaves that the wind seems to lift. And just here comes in that great battle, fought through all time, between the supporters of the conventional and the advocates for the natural. "Decorative art must not be pictorial," cries one side, and "Why not, forsooth?" answers the other, and proceeds to draw up its line of battle, headed by the greatest wall and ceiling decorators the world has known. Here is the battle cry, the proclamation of the conventionalizers, and it is a good and strong one, entirely convincing until you hear the other side. I take the statement of their principles from a little book published in London, called "How to Decorate." Most people know that there are two very distinct manners of painting; these are usually called decorative and natural. Natural art refers to that manner of painting when the artist takes every thing direct from nature; he tries to copy what he sees as correctly as he can, and calls in the aid of perspective, foreshortening and

aerial effects, and especially he strongly accentuates light and shadow. This is, in fact, the sort of painting usually seen in pictures, in which each object stands not against a mural background, but detached and apart, with the air all around it, the picture represents a series of planes converging and vanishing toward the horizon. This is obviously unsuited to mural decoration, in which objects are represented on one plane.

Decorative art allows every scope for beauty of form and of color, but dispenses with aerial effects, and to a great degree with shadows. The wall behind the painting is understood to be there; there is no attempt at deception in any way. The outlines are all most carefully drawn, and are accentuated by a decided line of color of some warm, dark tint all around each object. Chiaroscuro would be as much out of place as perspective, carried to any marked point; though in all drawing, however flat, a knowledge of the laws of perspective must be useful. Flowers (of course single ones are preferable) should be drawn with great attention to structural form, but should be treated in a conventional manner, *i. e.*, with a certain amount of stiffness and regularity, not rambling about as the plant from which they are copied may have elected to do. In short, decorative art, though it refers to nature, does not copy exactly all that it finds there, but selects what is best adapted to its purpose. This regularity, with the absence of strong lights and shadows, and with the few colors employed (at least at one time), may seem calculated to render art that is severely decorative also somewhat monotonous and uninteresting, but this will not be found to be the case in practice. Variety is not always charming, it is quite capable of jarring. No one would admire a sentence supposed to be English, but interlarded with French and Italian, and with, perhaps, a word or two of German thrown in. There is a repose, very grateful to the nerves in this conventional art, and in these few subtly contrasted colors, and restful quiet in art is a very high quality and is especially needed and prized in these days of bustle and scurry.

One hears a great deal about "flatness" in decorative art, but that does not mean distortion; the absence of strong light and shadow, and of perspective, and the broad edging lines, will make objects flat enough

without squeezed-out drawing. It will be seen that though in some respects decorative art may seem simpler than natural art, it yet demands most careful and correct draughtsmanship, there being no vapors or dark shadows to hide careless drawing; any mistakes are distinctly visible. It will be admitted also to be much more suited to wall decoration than its sister art. There need be no rivalry between the two, their aims are so very distinct; there is also no reason for despising decorative art, or looking on it as merely a handicraft. It may not hold out the great prizes to its students that pictorial art is able to do; it has no galleries or academies in these days, but many a city in Italy can show its greatness, and its antiquity is beyond dispute. The thoughts and lives of men, and the histories of the world have been written in decorative art characters from the earliest ages; this has been the unspoken tongue of every nation, conveying ideas, as it does, from the eye to the mind; as a child understands pictures before he understands spoken words.

Decorative art is no child's play, invented in these latter days to beguile a few weary "aesthetes;" it is incorporated with, and it has given outward form to some of the greatest events in the world's history; it shows how from all ages the love of beauty has struggled to express itself, and the very art itself, in some countries—in Egypt, for instance—was a religion. All may worship at this temple now, though all cannot be priests; but on each one who approaches art reverently, knowing her to be something more than the amusement of a few idle hours, she will freely bestow delights that never weary, showing subtlest forms of beauty in unexpected places, giving to her followers eyes to see and hearts to understand.

Thus far the proclamation of the army of conventionalism: but the hosts of the opposing army, the army of nature, form their line of battle and charge with overwhelming power. All art, they say, is one, and all art is decorative art. You call a wall without decoration a "dead wall," but frame a picture and hang it thereon, and it ceases to be a dead wall through the life of the decoration placed there, the picture becomes a wall decoration. The simplest tinting strikes the key note of wall and ceiling decoration, and from that we pass up through the richness of oil colors,

the iris tints of glass, the prettiness and comfort of paper hangings, the shine of tile, the shimmer of silk, the sheen of satin, the glow of velvet, the magnificence of stamped and gilded leather, the gorgeousness of cloth-of-gold, the glitter of silver tissue, the splendor of polished marble, and the wonders of Persian, Arabic and Turkish design, up to the last and final note in this grand gamut, to the work of those great masters, who used all their cunning of eye and hand, all their skill and knowledge, all the inspiration of their genius, to beautify the walls and ceilings of churches, palaces and homes, and who have left these mural decorations, these glorious pictures, these divine and immortal works for the wonder and admiration of all centuries to come. Not one great decorator has ever conventionalized. They have always followed nature as humble disciples and imitators. If we look at the grand age of mural decoration we shall find that pictorial treatment was the rule. The three supreme wall decorators were the Greek Phidias, who sculptured the frieze of the Parthenon; Michael Angelo, who awed the world with his "Last Judgment," and Raphael, whose "Transfiguration" is considered the greatest picture of the world. Michael Angelo was called a giant, Raphael an angel, and Phidias a god. This is the range of wall and ceiling decoration, from the brush of the kalsominer to the chisel of a god, in purpose a unit, in variety of treatment infinite. Beside the immortal three, there are other grand leaders to marshal the hosts of the opposing army. A crowd of brilliant men, most of them wall decorators, gathered around Cosmo de Medici, the two Lippi were there, and the two Piselli, there were Massaccio, Binozzo and Ghirlandajo. All Florence caught the spirit of the Medici and the genius of Donatello, Brunelleschi and Ghiberti lighted Italy and shone throughout the world. Giotto's frescoes decorated the walls of the Campo Santo, and Leonardo da Vinci painted his masterpiece, the "Last Supper," on the walls of the convent of Santa Marie delle Grazie, at Milan. Perrigino frescoed the Vatican for Pope Sextus V, and all these pictorial wall decorations are left for our admiration and imitation. Do they not teach us to do our best? If it be conventionalized work, then let us conventionalize, but if the artist power be upon us then let us use it in that higher work of which the great

masters have set us the example. It takes taste and feeling to put into a ceiling the flush of sunset, or the gray distance of twilight with the stars gleaming through; but let not the man who can do only this, sneer at the master who can make that ceiling an open gate to heaven, through which we see the ranks of angels and the great white throne.

There was a time when we found Moorish rooms in a Moorish house, and Persian rooms in a Persian house, and Gothic rooms in a Gothic house, and Queen Anne and Colonial rooms in Queen Anne and Colonial houses, and classic rooms in Greek houses, but now that our houses unite all styles of architecture, to go through them is like a journey 'round the world. We step from Japan to the Alhambra, from Persia to Egypt, from Queen

Anne to the first empire, and rush all the way down the centuries as we go from our vestibule to our dining room. It is amusing, this living in museums, and we can only say again, *Chacun a son goût*.

There are men in Chicago far richer than were the Medici, either Cosmo or Lorenzo, and yet Cosmo de Medici formed Italian taste, and Lorenzo (called "the Magnificent") made Florence the art school of the world. Why not some Lorenzo the Magnificent here, who will be great enough to use his money for great purposes, and make Chicago famous by using his "rascal counters" for noble ends; to encourage artists, to bring into the city's coarseness the beauty and refinement of a great school of decoration?—*Francis Le Baron, in Inland Architect and Builder.*

DISEASES ATTENDANT UPON PAINTING.

It is commonly known that painters are liable to particular diseases arising from the nature of their work and the materials they handle. This renders a correct understanding of the physiological effects of the materials used, as well as great caution, necessary in order to avoid serious consequences. The chief danger arises from ignorance of the symptoms of disease, and the want of proper precaution and due attention to them in the beginning.

The principal poisonous substances used in painting and varnishing are compounds of arsenic, mercury, verdigris and lead. The first mentioned, arsenic, is found in *realgar* and *orpiment*, which are therefore very objectionable substances in the painting catalogue. Mercury enters largely into the composition of amalgams used in lacquering. The dangerous properties of verdigris are well known; and of lead poisoning we shall speak at some length. It must be remembered that mineral poisons are as readily taken into the system through the pores of the skin or by inhalation as by actually swallowing them, and that their effects, though less rapid, are equally fatal; so that care should be taken to handle them as little as possible, and to avoid leaning over any such mixture in the course of preparation unless under a current of air. As it will be impossible to avoid this contact under all circumstances, it is well to be

able to distinguish the primary symptoms of metallic poisoning.

When arsenic has impregnated the system, a burning and pricking sensation is felt, accompanied by thirst and sometimes vomiting; while the victim will experience a pain in the bowels without any consequent purging. If these symptoms are noticed after handling arsenic, small doses of finely powdered charcoal should be taken; the bowels should be kept open, and an emetic administered.

The poisonous fumes from mercury produce like effects to those of arsenic, with the addition of salivation, foul breath, gripping pains and severe purging. In this case the white of an egg dissolved in water is one of the best remedies; and a good emetic is prepared by dissolving one ounce of carbonate of magnesia in a pint of water, taking a wine-glass of the mixture every few minutes till the desired effect is produced.

The effects of poison by verdigris are corrosion of the stomach and nausea—the best remedy being brown sugar eaten in large quantities.

The most common and the most dangerous disease among painters is that arising from breathing in the exhalations, and from handling the different preparations of white lead. This malady is commonly known as *painter's colic*. The first symptoms are a pain at the pit of the stomach, gradually proceeding downward to the bowels and

increasing in severity. The victim will belch frequently, have a constant thirst, a quick pulse, and obstinate constipation of the bowels. At the first appearance of any or all of these symptoms, a large dose of castor oil should be immediately taken and repeated until laxation is produced. If this does not operate, it should be alternated with some strong purgative, or, if necessary, employ a clyster composed of three grains of opium in solution with ten ounces of senna. In case of spasms relief may be obtained by applying warm fomentations in flannel cloths to the lower parts of the stomach. The patient should be kept as quiet as possible; he should strictly abstain from malt liquors or spirits of any kind; should eat no solid food, but confine himself to light diet and copious draughts of diluent drinks.

There are few maladies which progress more rapidly than *painter's colic*, and if the first symptoms are neglected, the certain consequences will be something terrible. The violence of the pain becomes so unbearable that the slightest touch is agony. The interior muscles of the abdomen become twisted into knots, and the bowels so contracted as to hinder the application of a clyster. When this happens, and it becomes impossible to remove the costiveness, inflammation ensues, and almost certain death is the result. So quickly do these successive stages follow upon each other, that it is of the utmost importance to note the earliest indications of the approach of this disease, at which time only can the remedies we have prescribed be used with any hope of relief.

The use of tobacco by chewing has been found to be a preventive against poisonous substances which produce spasmodic action. It acts in such cases like opium, in suspending the muscular action of the stomach, and is not attended with the same danger as the last mentioned drug. So that, if the habit be not indulged in to excess, tobacco-chewing may be safely recommended to painters as a check upon lead poisoning. On the other hand, no greater error can be committed by any worker among lead than to indulge in fermented or spirituous liquors; all acid and effervescing drinks are also injurious, having a strong affinity for the lead that may have been absorbed, and forming compounds that act injuriously upon the stomach, and yet it is quite common for a painter, when he feels a griping sensation,

to have recourse to a glass of whisky for relief, and by so doing only hasten and aggravate the symptoms of the incipient disease. There is no more fatal mistake in the world than the vulgar notion that spirits taken inwardly are a safeguard against the effects of lead fumes or any other poisonous fumes; and many a good painter has been ruined physically and financially by ignorantly adopting the pernicious habit of a "morning dram." Painters, more than any other class of mechanics, should carefully avoid touching a glass of ardent spirits: for, in addition to the sickness and poverty it brings to others, to the painter or varnisher, it forebodes painful disease and a premature death.

OLD CARS WITH NEW INSIDE FINISH.

Some of the old passenger cars of the Lake Shore & Michigan Southern road have been refinished in such a way as to make them as attractive and comfortable as new ones. Car No. 28 is one of them, and is a good example of this style of reconstruction. The upper part of the roof has a cloth head-lining grained and painted to match in color the lining of the lower deck. Crimson and gold ornaments are used, relieved by shaded green leaves. The whole pattern is bright and effective, and gives the car a cheerful appearance both in the daytime and at night. Leaf patterns are becoming very popular for head-lining decoration, and whether they are altogether conventional or natural, they are about as effective a design as has yet been used on natural-wood ground. The autumn-leaf patterns in this coach have the advantage of giving the designer an opportunity to use colors on a ground which is usually somewhat difficult to ornament. The finish below is of cherry, with maple panels over the windows and ash between them. The window finish or molding is peculiar. It consists of a flat band with three hollow beads and broad chamfered edges. On this chamfer, and half an inch in from the edge, on parts where there is no chamfer, there is a broad, black line, which gives a good relief to the ash, and makes the whole finish very effective. A cherry strip, $3\frac{1}{2}$ inches wide, comes down in the center of the panel between the windows, and has a square rosette at the top instead of being mitered into the horizontal molding. The sections of the molding

are all very simple. The panels over the windows are not spaced evenly, each one extending over a window and a half. This is done to accommodate the old-fashioned ventilators in the letter-board, which it was not thought best to remove. In the spaces between each pair of panels room is given for the ventilator. There are six of these on one side and seven on the other. The end ventilator in the raised roof over the door has a very fairly executed landscape painted in oil. In the ends of the car, the black line, which is carried everywhere through the moldings, is emphasized and made somewhat heavier than in some other portions. This gives relief and boldness to the door and end framing.

COLOR DECORATION FOR CARS.

It is probable that very few car-builders fully appreciate the difficulties encountered by painters and decorators in obtaining color harmonies on the inside of cars finished in natural woods, nor do they perceive why striking and brilliant results are so rarely obtained on veneer head-linings. It is doubtful whether master car-painters themselves understand very clearly the reason of their inability to do such work as they would like to do it. The primary reason cannot, perhaps, be better defined than by saying that it exists in the eternal nature of things, and can not be set aside or disregarded.

There are three—and only three—primary colors, and these, when of equal intensity, balance each other in certain definite proportions. According to Dr. Christopher Dresser, who is very good authority in color analysis, the primaries, yellow, red and blue, bear the relation to each other of three, five and eight respectively, and if they are of similar intensity these numbers will represent square inches of surface required for harmony, but if they are of different degrees of intensity the numbers may be considered as representing such difference. The strength and effectiveness with which yellow asserts itself is fully recognized in striping, and in many other details of decoration it appears to be nearly as powerful as white. In combination, also, its power is equally felt, and unless it

is judiciously used it may easily be made to destroy or very much impair the effect of other colors in contrast with it.

Red is a powerful color, and according to the above analysis it bears the relation of five to three as compared with the yellow, while blue is as eight to three, equal spaces of pure blue having only three-eighths as much power as an equally pure yellow.

The next thing to be considered is: that whatever is to be used as a groundwork must be a subordinate element in decoration or coloring. It is needless to mention examples. The principle is too well established to be disputed. When, therefore, we find that nearly all the natural woods used for head-linings are more or less yellow in color, and becomes deeper yellows by age, the difficulty of putting suitable colored ornaments upon them is evident. The yellow is almost invariably so decided as to overcome any color which may be placed upon it, unless the quantity of such color is increased out of all proportion. It would be easy, if the yellow were faint, to make the blue or the red tones sufficiently strong to overmaster it and thus obtain such a balance of color as might be desired. Unfortunately, yellow in itself is the lightest of the primary colors, and when diluted with white, as may be said to be the case with natural woods, loses but very little of its power.

There are two courses open for the decorator. The first is one which has been but rarely tried, but its success warrants the hope that it may be used somewhat more extensively than it has been. It is the staining of the wood, as maple, ash or oak, evenly so as to change the color from yellow to a grayish blue, pale red or an olive green. Any one of these tints is easily obtained without destroying the beauty of the wood pattern. With either of these for a background the artist finds little difficulty in working up fine results in color. The second plan is one which has been very effectively employed in a number of establishments, and that is: not to attempt a scheme of color, but really to make what may be termed a harmonious combination of brown and wood colors with the wood itself.—*National Car Builder.*

THE PORTFOLIO.

Pictures and Ornaments.

More truthful than poetic seems to be the charge that certain pictures are made by the yard and furnished in quantities to suit. This was doubtless intended as a playful exaggeration of the method of producing or reproducing pictures for the market. It is well known that the cheap "oil paintings" with which the market is flooded, those which sell with apparent readiness at some figure, those which are hideous in color, drawing, feature and action, void of artistic worth, are merely mechanical productions. It is the brightness of the color, the subtlety of the auctioneer's tongue, or the low price that sells them. They are sold, and manufacturers and dealers thrive on the sale of them. It is thought by some that people learn something of art by means of them; that, though imperfect, they lead to an appreciation of better work, and lead a measure of gratification to tastes which cannot appreciate higher qualities. But to our mind it seems like experimenting with the growth of poisonous weeds in order to learn gardening. There is more discrimination in the matter of food. The craving for art is more easily satisfied; rank weeds will sometimes answer for it, but not for food. Then, besides the mechanics who make pictures, there is a class of "artists" whose chief claim to recognition is based upon the number of their products; not the quality. They can make so many landscapes, so many heads, and so many "studies" of still life in such and such a time. And, no doubt, they can. But what landscapes, what heads, what still life studies they are! A few months' work would fill a good-sized house. This, also, may be one of Art's educational methods. Arithmetic is taught. Numbers abound; evidence of deftness of hand merely. The thought that lives unfading on canvas is not there. Nature's inspired interpreter does not dwell there. It is not a source of valuable knowledge. None of the great artists worked in this way. Rapid in execution some of them have been in their happy moods. But the moments of inspiration were usually reached after weeks and perhaps months of study and meditation. The canvas was employed as a means of telling the world something it did not know so well before, or had not seen so well expressed; not as a mere pastime.

We favor the employment of good pictures, real works of art, for the adornment of homes. Let there be few, if only they are good, rather than many without excellence. Walls had better be

bare than covered with worthless pictures. Some excellent work of young artists can be had for reasonable prices, if the work of men of great reputation cannot be afforded, and the purchase of it will encourage a very deserving and promising portion of society. Get appropriate pictures of this kind as they can be afforded, and let the choice and position of them be matters of study.

Pictures should be hung from a molding extending along the wall directly under the ceiling, or, if there be a wide frieze, the molding may serve as a separator between it and the dado, by means of hooks and wire picture-cord, so that they will be on a level with the eyes of a person of ordinary size. These means of hanging are not arbitrary, of course, but are as convenient and safe as any, and do not mar the walls. Care should be exercised in arranging a number of pictures having frames of different colors, to have them harmonize and look well. If there be taste or judgment, let it be exercised here; if money is spent to gratify a desire for something artistic and beautiful, be sure to get full value for it.

The collection of aesthetic ornaments of bric-a-brac, etc., is largely a question of mathematics. Quaint objects, and plenty of them, is the desire of many. This, also, is overdone, and the intrinsic worth of many of the specimens is slight; the taste developed by this interest abnormal. Bric-a-brac ornaments, to deserve a conspicuous place in a room, should possess one or more of these attributes of excellence: 1. Historical, representing an interesting phase of art in an earlier period. 2. Artistic, being in their design and execution conformable to the standards of artistic truth and beauty. 3. Social, calling to mind an earlier phase of social life and custom. 4. Personal, association with noted persons, or personal friends and relatives. All of these give value to ornaments, and justify their use. They should be few, judiciously chosen, and tastefully arranged.

A Practical Journal.

Whoever attempts to publish a practical journal, no matter how broad and comprehensive his ideal may be, nor how earnest his endeavors to realize it, will find some persons who know what such a journal should be much better than he himself knows. A class, who apparently stand in constant need of ideas, think that a technical journal should be filled with tricks and hints, which they can adopt as their own, carry out in their work,

and get into cash at once, without the necessity of much mental effort. Another class is interested in but one phase of the art or science of which a journal may be an exponent, and perhaps one of the least important phases at that, and think it is going out of its province when it thus stirs up another part of the large field. Still another class, and happily the largest one, can learn something from all the varied topics which may properly be discussed in the journal of chief interest to them.

There are those in the industrial and professional world who are fitted by nature and cultivation to plan and execute work, to teach and guide lesser minds to perform the work involved in their plans. They stand as the foremost men in their profession. Styles, methods, effects in all arts emanate from them. There is another class less favored by nature and circumstance, unfitted for invention, designing, leadership, who yet do or may possess mechanical skill to do what others have planned. There is still another class of learners, of various degrees of natural ability, constantly being reinforced from the ranks of youth. To place the knowledge of the first class within reach of the other two is one purpose of a technical journal. To impart information which has stood the test of experiment makes a journal to the extent of such information a practical one. Many of its unproved suggestions may be practical. Methods largely, or so far as deduced proof is concerned, entirely, theoretical, may be found practical, for the theoretical precedes the practical and gives life to it; practice proves theory's claim to recognition. Hence such a journal must be measurably and judiciously theoretical.

It represents an industry, and aims to promote that industry and elevate those identified with it. It brings to the obscure workman the thought of his more privileged brother, and shows him how to do better work, and how to do it more easily, by inciting the mind to assist the hand. Its duty is to stimulate thought, to excite inquiry and answer it, and help its readers to a better understanding of their calling.

Manufactured Paints.

In commercial parlance we designate prepared pigments as either Paints or Colors. Colors include pigments ground in oil, japan, water, etc., usually put up in small packages, most of them being used for coloring other pigments in preparing them for the brush. The term Paints is more general, and as frequently used applies to all pigments, but especially to those which are prepared for use, or those which, after tinting or thinning, are ready for application.

The improvements in the manufacture of paints for the last half century have been a steady advance toward perfection. First, white lead was generally used as the base of good paint, and reached the consumer in the dry state, and was mixed with oil which was purchased raw, and boiled in a small kettle. The poisonous effects of the dust from the dry carbon generated a disease often fatal in its results, though rarely known now, called painter's colic. Then came a season during which the sale of white pigments ground in oil in mass or paste form was general. About this time oxide of zinc began to appear in the market; and as there was considerable prejudice among painters against zinc, it was looked upon as an adulterant for white lead, and the prejudice was founded upon this circumstance: Zinc adulterated with baryta was made to resemble white lead when ground, and as its true name was not sufficiently popular to sell it, the mixture was branded white lead, most of it being placed upon the market in tin pails bearing fancy names and labels. So great was the sale of this class of paint during the civil war that several manufacturers made large fortunes. But such business could not long be successful. The deception was carried so far that revolution came.

The lead corrodors saw their opportunity, and one after the other put their goods on the market ground in oil *strictly pure*, each package bearing a guarantee of purity. While strictly pure lead was rapidly supplying the place of "lead," so called, oxide of zinc ground in oil alone found a market, and was used for painting steamboats and for various other purposes. Subsequently some of the large consumers found it better adapted to some purposes than lead, and in some instances still better when combined with lead. But in the meantime, say from 1867 to 1870, prepared paints began to appear in the market sold by the gallon. The first mixed paints offered were not of satisfactory quality, and this fact, together with the common prejudice against new and comparatively unknown articles, brought all ready-for-use paints into disrepute. So desirable an improvement in an important industry in go-ahead America could not, however, be kept back by an imperfect beginning, and the result has been that, while improvement in quality has been slow, the manufacture and sale of prepared paints, from good to inferior quality, has become an enormous industry, and its permanency established beyond question. In these, as in other manufactured articles, the best are the cheapest, and we incline to the belief that improvements in paint-making will continue until the most reliable brands become more celebrated for excellence than white lead has been. A properly prepared paint

should be, and we think is, equal, if not superior, to any which can be produced by hand.

Some of the advantages in prepared paints are:

1. Economy of time and saving of waste by mixing large quantities by labor-saving machinery.
2. Uniform and positive proportions of materials, producing uniform colors, duplicated by sample as wanted by the consumer. By this method of mixing fine grinding and thorough combining of materials are secured, the paint covers better, produces a better surface, and under atmospheric influence changes uniformly, if at all.
3. The facilities possessed by large manufacturers for obtaining the best adapted coloring pigments, driers, etc., and their superior knowledge of the chemical relations of pigments to each other, and with the vehicles used, enable them to make paints which are least liable to fade, spot, etc.

Master House Painters' Association.

An Eastern contemporary records the organization of the Master House Painters' Association of the United States and Canada on the 15th of January, 1885. Various portions of the country were represented, and considerable interest was said to have been manifested in the proceedings. The officers chosen are:

President—Titus Berger, of Pittsburgh, Pa.

Recording Secretary—F. P. Martin, of Atchison, Kan.

Treasurer—W. A. Elliott, of Boonton, N. J.

Corresponding Secretary—A. A. Kelly, of Chester Valley, Pa.

Messrs. Berger, of Pennsylvania; Martin, of Kansas; Beck, of New York, and Kelly, of Pennsylvania, were appointed a committee to draft a constitution, etc. It was decided to hold the next meeting at Chicago, the third Wednesday in July next (22d).

The new society had not, at the time the announcement from which we took the above was printed, made an avowal of their object. We presume, however, that it will be in a general sense much like that of associations in other industries.

The question of prices will be a predominating one, that of information—exchange of thought, encouraging reports of work successfully done, methods of working, principles of decorative work, secondary, perhaps, but still important. Such organizations are encouraging in many ways: 1. They indicate the character, standing and growth of the industry represented. 2. They afford opportunity for making acquaintance of persons and of ideas. 3. They open unusual possibilities for the improvement of the industry. 4. They may combine a strength of brain and means which will prove most potent in its influence upon its particular branch of labor. We trust that all these opportunities may be improved by the new organization.

There is one question which we will venture to bring to the notice of this new society, one which will frequently confront its members as individuals, if not collectively, and that is the relations between these master workmen and their subordinates. There is not enough discrimination made in favor of good, sober, honest workmen. The low prices at which some work is taken and the greed of some contractors apparently begets an indifference to skill and trustworthiness which in our judgment is seriously detrimental to all concerned. We believe the appreciation of people for good work is keen enough and tangible enough to warrant the exercise of care in the selection of workmen, and we believe that only those of proved ability, or those who upon adequate examination evince a sufficient mastery of the work they desire to undertake and the tools and materials used in its execution, should be ranked as qualified workmen, and paid full wages.

A trial of civil service reform principles is being made by some employers with some measure of success, and it seems probable that some general rules may be formulated for all our industries whereby choice of workmen can be made with entire justice to all concerned, and a rate of wage fixed against which there can be no reasonable cause to murmur. We trust this question will not be overlooked by the new association.

PROGRESS OF DECORATIVE ART.

A room appropriated to the collection of Japanese ornamental objects has its entire walls and woodwork embellished with silhouettes with good effect. The surface of pine has a running border of serpentine figure, each alternate waving line holding one of the curious letters or numerals of the Japanese, and some conventional flower. The

molding is of polished black, imitating ebony. The dado is a succession of oriental scenes in bold character, the figures most conspicuous being eighteen inches in length. This is finished with a beaded molding of black, above which the walls are covered with figures four inches square and twelve inches apart, alternating in rows consisting

of various figures of vegetable and animal life. The border or frieze is eight inches deep, and consists of a conventionalized vine with birds and butterflies of curious form. The ground color of the walls is pale buff, the dado two shades deeper, and the frieze black with the design in creamy white. The door panels each contain scrolls and similar frame-work or supports for large figures, the ground being in *café au lait*.

A RIVAL to the Lincrusta Walton has for some time been making its way into favor under the rather odd title of Solid Relief. It is simply papier maché molded to imitate wood carving. It is susceptible to various styles of decoration, chiefly in bronze of different colors, and is said to produce very satisfactory results. It is considered more artistic than Lincrusta. The latter, although attractive and useful as a decorative material, has a mechanical precision in its manufacture, a similitude of size and form throughout a design, and a sharpness of outline which somewhat repels the look of the beholder who seeks repose and artistic refinement in decoration. The Solid Relief possesses in greater measure the variety of form and finish which is more conformable to nature.

A VERY striking illustration of the force of Eastlake's idea of substituting rugs and paint for carpets came to our notice a short time since. We called at the home of a friend who had recently changed his place of residence before he had become fully settled in his new home. Among other causes of delay in getting into that desirable condition was the necessity of purchasing new carpets to fit larger rooms than those the family had occupied. During the three or four days of waiting for the goodly work of the carpet dealer, a few small rugs were conventionally arranged about the fire-places, and the furniture of sitting-room and parlor disposed in an indifferent manner on either side of the rooms, leaving a passage-way for the busy house-keepers. The floor, except where covered with the rugs, was bare and unpainted, but the effect of the contrast between floor and furniture was most striking and picturesque, and to our mind gave to the rug idea an artistic value which it did not before possess.

RUGS are growing in favor, and will no doubt in time largely supersede the use of carpets. Aside from the usual number of blind prejudices which real improvements have always to contend with, there are but two objections to rugs which seem to us to have weight. One of these is the high price of good rugs, and the other is that carpets are

warmer in winter. The first objection attaches to first cost only, as the wearing quality of rugs is greatly superior to that of carpets. The other objection holds good only in rooms not properly heated, and even then partakes more of affectation than of candor. The positive superiority of rugs to carpets in point of cleanliness and of artistic beauty as well is more than an offset to these objections. And sensible people are becoming aware of the fact.

TASTE seems to drift strongly toward light colors for decoration this season, though there are still those who are sufficiently defiant of capricious custom to select darker shades. Shades of cream color, light yellows, light olives and reds inclining to yellow are among the more recent products of the wall-paper manufacturer. There are, of course, some designs which do not seem to grow old, those which are really artistic, and adapted to different apartments of a building; those which express the thought of the artist, and pleasingly suggest Nature's work, such as the English floral designs, the admirable studies in color and form brought out by Morris & Co., of London; the elegant copies of Moorish design from the Alhambra by Beck & Co., of New York, and the chaste productions of Bartholomæ & Co., of New York. The dark colors are still retained in many of these, and they will always find admirers.

INASMUCH as taste cannot always decree the location of a building, nor its size, nor its style, nor its surroundings, a decree requiring the use of light colors would seem somewhat presumptuous. There are places where they would not do so well. But for wall decorations in rooms constantly occupied, and perhaps not highly favored with light, the light colors are usually preferable. They impart to a room a more cheerful appearance, and make a more pleasing impression upon its occupants.

FROM a survey of some of the cheap papers, it would seem that the designers were sometimes put to their wits' ends to invent something which will "take." Artistic value is not always aimed at. It is something which will meet the wants of an uncultivated taste and a lean wallet. Possibly a designer may see an odd ornament on a street sign, or in a show window, or some odd form in nature, and forthwith he "works it up," puts it on paper and it pleases a portion of the public. Quite frequently these watchful designers do some really good work in cheap papers, good enough for almost any house. Then there are cheap repro-

ductions of the more costly papers; cheap, because the designing, the art work in them, sometimes the chief item of cost in the original patterns, is not an item of expense in their reproduction. These cheap papers, whatever their quality, do a good work among the people. They gratify the tastes and the wants of those who have limited means, and they stimulate and enlarge these tastes, until they desire something better. While this is done, and tastes are not vitiated, we may be hopeful.

AN Eastern magazine announces that Moorish tiling is in vogue at the present time. The tiles are made here, in Moorish patterns, and are good imitations, even to the colors which have long distinguished the glazed ware of the North African states. They do not seem to be considered superior to nor as handsome or tasteful as the tiling we have already, but they are novelties, and they "take."

INQUIRY among the architects and builders develops the fact that great expectations are at present entertained concerning the spring crop of buildings. There is a growing activity everywhere precursive of a revival of the building trades, just as we anticipated there would be, and for the reasons we gave three months ago. There is a large amount of money at present locked up that must eventually seek a safe investment in real estate, and plenty of money can be had now at very low rates of interest. Materials and labor have reached their lowest limit. Sensible people are not slow to take advantage of this state of things.—*Building.*

WITH your dining-room furnished in mahogany, let the paper be red in tone, if you want a harmony, or green in tone, if you desire a contrast. With oak furniture you might have purple, brown, chocolate, maroon, or leather-colored dado, with upper portion of walls, or filling, a quiet green. With the room furnished in oak, the ceiling may be colored a deep sage green, divided into panels by a flat oak molding with reed edges; the cornice a dark old oak tint, with cove (if any) deep drab crimson. Have a frieze $2\frac{3}{4}$ feet deep of deep, tawny red, painted under the cornice on the face of the wall, with an oak picture-rod three inches deep at the lower edge. The rest of the wall surface may be painted a rich gold olive, with damask or nament stenciled on in deeper shades of the same color—or use a quiet self-colored paper of simple pattern and free from gold. If you use paper it may be of the same color as recommended for

painting, namely, golden olive in tone. Let the woodwork be painted a deep antique oak color, so as to accord with the furniture.

IN THE decoration of iron bedsteads the paint should not be allowed to shine. Venetian red, chocolate and sage green will perhaps be the best colors to adopt for this purpose.

THE *Architect* comments on the present condition of labor in the United States, and draws the comfortable conclusion that English workmen are just as well off as American workmen. "They are better clad; they live quite as well, but more economically; they are far more independent, are better organized, have more holidays, and seem to be better contented." This is putting it rather strong. Still, there is truth in some of these conclusions.

MESSRS. BRACK & CO., of New York, are introducing new mica papers, which are said to be so brilliant in finish that they would be taken for gold papers. They have the additional advantage of being durable and very low in price. They are brought out in a number of artistic designs, and are recommended as suitable for any room.

A FACTORY has been established in San Francisco to manufacture mantel-pieces, tiles, etc., from the petrified wood found in the West. It is said to be susceptible of a finer polish than marble or even onyx. The supply is drawn from the line of the Atlantic & Pacific Railroad. Several other companies have been formed to obtain concessions of other portions of these forests.

NOTHING adds so much to the cost of building as indulgence in whims. To set out deliberately to do a "queer," "fanciful," or, as it is sometimes called, "original" thing in building is always to incur unnecessary expense. If we look through the books that contain pictures of the architecture of all ages and nations, we shall find that, without an exception, in the times all men of taste are agreed in calling the good times, the modes of building have been sensible, founded on the needs of the case, and that whatever may seem fanciful—the whole of what we call picturesque—when its charm has proved enduring, is the result of what we may call, in every case, "accepting the situation." Nothing has been done in such instances for the sake of being picturesque. Good building, good ornament, never poses.

In building, as a rule, every departure from the rectangular form is an added expense. One of the

things impressed on the mind of a young man who goes into an architect's office to study the profession is that, if cost is to be considered, which it sometimes is and sometimes is not, all excrecences and projections must be avoided. A rectangular house is the cheapest. Bay windows, porches, octagonal or circular, external ends to rooms—all these things cost money; and it is by multiplying these features that the expenses of buildings are often made so great as to deter people from undertaking it, for the things seem so small in themselves, it is not suspected what drains they are on the purse. If a good reason can not be given for any so-called ornamental feature in a house, if it can not be shown that something worth while is to be gained by making it, we may be reasonably sure that it is a fancy which will cost, as the country people say, more than it comes to. And, in the great number of cases, nothing, even in looks, is gained by indulging the fancy.—*The Studio*.

THE method of polishing wood with charcoal, now much employed by French cabinet-makers, is thus described in a Paris technical journal: In the first process they only employ carefully-selected woods, of a close and compact grain; then cover them with a coat of camphor dissolved in water (?) and almost immediately afterwards with another coat composed chiefly of sulphate of iron and nut-gall. The two compositions, in blending, penetrate the wood, and give it an indelible tinge, and at the same time render it impervious to the attacks of insects. When these two coats are sufficiently dry they rub the surface of the wood at first with a very hard brush of couch-grass (*chiendent*), and then with charcoal substances as light and friable as possible; because, if a single hard grain remained in the charcoal, this alone would scratch the surface, which they wish, on the contrary, to render perfectly smooth. The flat parts are rubbed with natural stick-charcoal; the indented portions and crevices with charcoal powder. Alternately with the charcoal, the workman also rubs his piece of furniture with flannel soaked in linseed oil and oil of turpentine. These pouncings, repeated several times, cause the charcoal powder and the oil to penetrate into the wood, giving the article of furniture a beautiful color and perfect polish, which has none of the flaws of ordinary varnish.

THE following scheme of color for the decoration of a parlor having a handsome mantel, and with the woodwork in walnut, is offered by an Eastern paper: Have the ceilings tinted a rich greenish old gold, or papered the same tint. If

paper be used, it should be without ornaments. The cornice may be painted a dark russet-brown. For the walls have a frieze two-feet-six or three feet deep, of rich, "red cedar" color, with ornament either lighter or darker than the ground (no gold). Finish below with golden olive paper with large flowing pattern (no gold). Place a two-inch walnut picture-rod between the frieze and "filling."

THE newest arrangement for window curtains in parlor or reception-room is, first, a small curtain close to the window, of a stuff called grenadine, which is made with open-work linen threads. This comes both in striped and plain. The more stylish is the plain, made up with insertion of Cluny lace and edging to match. Two more curtains hang loosely outside of these, which may be of the same stuff, of fine Madras, or entirely of the lace. The small curtains next the window are always tied back by handsome ribbons. Some people have still another set of curtains hung on the outside of all. These are made of any handsome kind of thicker material, such as raw silk, turcomans, or Persian stuff. These latter, however, are not absolutely necessary, as are the other two pairs.—*Art Amateur*.

MOST of our readers probably know something of the application of luminous paint to match-boxes, key-holes, clock-dials, door-knobs, and name-plates, and have perhaps heard, with some incredulity, about the English railway-car painted on the inside with it, which is said to have been so brightly illuminated that the passengers could see to read without other light; but within a short time the application of the paint has been extended to certain portions of harness, fishing-tackle, fire-buckets, lanterns, compasses, and engineers' tapes. The latter, in particular, are said to have been adopted in the British army for use in laying out fortifications. If a party is detailed to throw up earthworks by night, the engineer officers go first to the spot, and with the luminous tapes measure off the ground, and lay down a shining line around the exact plan of the intended fortification. The working party follows, and finding the ground thus visibly marked out for them, the men simply dig their ditch, and throw up the earth into a breast-work, on the lines formed by the tapes. No lanterns or other lights of any kind are needed, and the entrenchments can be planned and executed without indicating the movements of the party to the enemy. We have an idea that the manufacturers of the paint could, if they wished, greatly extend their market by making the uses and price of their product better known among architects.

It is said that they export large quantities for painting doors and door-handles in countries troubled with frequent earthquakes, to satisfy the demand in such places for some means of indicating quickly the way of escape from the bed-rooms to the street, in case a shock should be felt at night; and, judging from analogy, we should say that the fear of falling down the cellar stairs, which is much more widely diffused among civilized nations than that of being crushed by an earthquake, might, if the mode of alleviating it by painting the walls of the stairway with luminous paint were once pointed out, prove the source of a demand at once extensive and permanent.—*American Architect and Building News*.

THE organ of the sense of color is the first of the enumerated organs which seems to be wanting to the brute creation. The fear which horses and turkey-cocks have of a burning red color is an extreme case, in which even the coarse nerves of these animals are affected. In like manner it is sometimes found that individuals, and even whole families, who have no such sense. The organ lies on the outside of the organ of Place, and appears,

therefore, double. When it is found in an eminent degree, it raises the eyebrow into a pleasing arch, and gives a very agreeable, free and open expression to the forehead, and this, says Gall, is the characteristic physiognomy of painters. Gall asserts he has remarked this organ in all who have a fine sense and who possess a skill and delicate management of color as artists. It is found also in those who are fond of gay and gaudy colors, and oftener in men than in women, and it is characteristic of the Chinese countenance. It is in general found more among Asiatics than Europeans, and is seen but little in Englishmen.—*The Phrenological Magazine*.

Messrs. HEALY & MILLET, of Chicago, have been awarded the contract for decorating the Exposition Building for the Operatic Festival. The extent and character of this undertaking can be fully understood only by those who will be privileged to witness what has been done in less than four weeks. From comments which have been made upon it, we judge that this decorative work will bear unmistakable evidence of the talent and enterprise of the gentlemen who have it in charge.

THE INTERCHANGE.

Inquiries.

CAN you inform me where I can get a book on frescoing, one that has different styles in color?
Welland, O. H. S.

The *Decorator and Furnisher*, published monthly in New York, is probably one of the best authorities on the subject, and gives lithographic illustrations such as you inquire about. Mr. Wm. T. Comstock, 6 Astor Place, New York, can inform you concerning books. The constant changes to which decorative designs are subject somewhat depreciate the value of books of illustrations, and the great expense of really good books prevents them from falling into the hands of many workmen. One good way to get good designs is to procure from dealers in wall-paper, etc., the lithographs issued by the large manufacturers and paste them in a scrap-book. In a few years a very fine collection may thus be gathered, which will be valuable to its possessor.

HOW CAN I mix a good wine color? I have made several attempts, but can't quite get the desired shade.
W. F. R.
Nashville, O.

To produce a wine color on interior finish, first

prime the work with Venetian red in oil; after this has become thoroughly dry and hard, rub down with fine sandpaper and putty up. For the next two coats make a color of vermilion and English rose-pink; mix this color entirely with turpentine and enough japan to set the color and make it dry readily. Mix the vermilion first, then add enough rose-pink to bring it to the desired depth of color; put on two coats of this, let it dry thoroughly, and rub down with hair. For the next coat use about one-half color and one-half good rubbing varnish. Let this dry, then apply one coat of varnish and rub down with pumice stone and oil until the gloss is destroyed and a perfectly smooth surface is secured. This process, if properly worked, and only first-class materials used, cannot be improved upon.

1. How is natural wood finished? 2. How is the filler made, or what is it composed of, and what kind of varnish is used? 3. How is putty made, and what is it colored with to suit the wood?
Conneaut, O. S.

Hard woods are finished in the natural color by the use of wood fillers. These fillers were first used in 1867 in finishing carriages, and have grown

in favor since then. They are used extensively for interior hard-wood finish, for the interiors of passenger cars, etc. They close the pores of the wood, hold the grain immovably in its place, and are so permanent in their effect that neither exposure to dampness or atmosphere changes the grain. The surface to be finished should be as smooth as possible, and all nail-holes or other depressions should be neatly plugged with a piece of wood of same color. All finger-marks, or other soiled spots, should be removed without wetting, and the wood left free from sandpaper dust, etc. It is not necessary, and in some cases would be harmful, to apply oil or anything else to the wood before the filler is put on. The filler may be used of various consistencies, depending somewhat on the nature of the work. When the filler used is well set, or has a soft tack, wipe off all surplus with clean cotton rags or soft pine shavings. Always rub across the grain of the wood, taking care to clean out all carvings, corners, etc.; wipe the lint and refuse filler off, leaving the surface perfectly clean and smooth. Sometimes, to insure against possible imperfections in drying, it is advisable to apply one thin coat of pure shellac, which, before varnishing, is rubbed down with No. 00 sandpaper. The surface is then ready for varnishing. Varnish for this purpose should not contain rosin or naphtha, and should be durable and admit of being rubbed down easily, without sweating, unless a gloss finish is desired, when, of course, a good flowing varnish is necessary. For pine a filling is made by dissolving bleached lac in alcohol, applying, rubbing down and varnishing, similar to the other fillers. 2. The method of making wood fillers is a secret of manufacturers. 3. Putty is made from raw linseed oil and whiting. This mixture can be colored as desired with umber, sienna, chrome yellow, Venetian red, etc., to suit the purpose.

1. Will you please give me the best method for getting a smooth surface on new carriage bodies?
2. How to fill cracks in the varnish on carriage work? 3. The best way to ebonize wood?
Westport, Mass.

A. S.

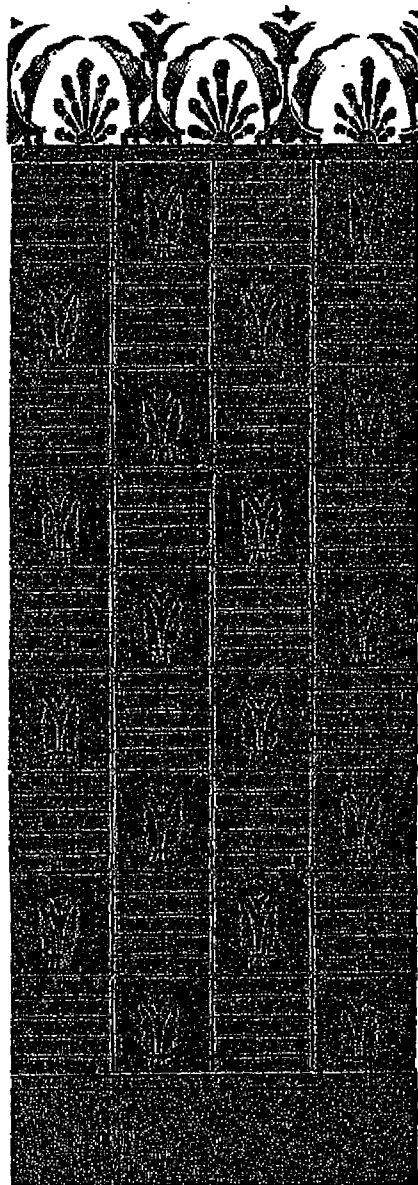
1. Prime with thin oil color, the object being to get as much oil into the wood as possible; then apply another coat of rough stuff and rub down as before. Be sure this coat is rubbed perfectly smooth. Next apply three coats of flat color of the desired shade, and rub the last coat down smooth with hair. Next give one coat one-half flat color and one-half rubbing varnish; rub this down with hair, and

stripe with color mixed about the same as last coat. Never use oil in striping colors. When the striping is thoroughly dry, apply two coats of varnish, which completes the work. 2. The proper way to treat cracks in varnish on carriage work is to remove the old varnish and revarnish. 3. The most satisfactory way to stain wood in imitation of ebony is to give the wood two or three coats of good coach black mixed perfectly flat. After enough black has been applied to make the work perfectly solid, and has become thoroughly dry, rub down very smooth, then apply two coats of good rubbing varnish. After this is dry, rub down with pumice stone and oil until the gloss is entirely removed, and the work perfectly smooth.

CAN you give me some hints on bronzing walls and stenciling in different shades?
Belmont, Mass.

J. B. P.

We presume this inquirer has reference to Solid Relief or Lincrusta Walton. The latter is a substance pressed into a variety of designs in relief for the purpose of wall decoration. Solid Relief is made from papier maché, and somewhat resembles the Lincrusta. Both when applied to walls are in the "raw" or unfinished state, and are colored or bronzed afterwards. Where it is desirable to produce a metallic effect, bronze over the entire decoration with one color of bronze, say the body color; then use lacquers made for the purpose on the parts which are to be changed to another color. These lacquers can be procured in almost any clear color. They are transparent, and produce a very fine effect when used over bronze. For stenciling in different colors, the ordinary method is to have as many stencils in the pattern as there are to be colors. First, use one color for part of the pattern all around the room, then take the next color with the part of the pattern required and stencil in the proper place, and go on until the whole design is in place. Another method is to have the whole design cut in one stencil, and use small rollers for applying the color. Use one color along the base of the design, another along the top, another, or as many as desired, in the remaining space; blend all together nicely, and it will produce a very fine effect without much labor. For instance: Use red for base, yellow for center, and blue for the upper part; put in the blue and red, then run in the yellow so that it will lap a little over the other colors. Experiment a little and you will be able to produce very satisfactory effects.



WALL DECORATION—PLATE IV.