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TRIED BY FIRE

A Work on China-Painting.

BY

S. S. FRACKELTON.



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BY MRS. S. S. FRACKELTON.

TO
MRS. ALEXANDER MITCHELL
AND
WASHINGTON L. MANN,

THE TWO FRIENDS

WHOSE ENCOURAGEMENT MADE IT POSSIBLE FOR ME TO WRITE THIS BOOK,

I DEDICATE IT.

P R E F A C E .

AT the risk of being taken for a new Diogenes in Pithos, I add my mite to ceramic literature, and, if I give you any new truths, you are heartily welcome to them.

If you find them, they are the results of those hardest of teachers—Failure and Experience; and if the rough road over which I have traveled to success can be made smoother for those who follow, or may hereafter pass me in the race, my little book will have achieved the end which is desired.

Since my exhibits in the West, at the International Cotton Exposition South, and the Republic of Mexico, I have been the recipient of so many kind letters of congratulation and inquiry, that the limited time at my disposal has prevented me from leaving the brush for the pen as much as I would have desired, and this method is taken for a universal answer.

There is always room for a tall pine in the woods, while the underbrush stifles at its feet. I am not a believer in "secrets," whether of trades or unions, and therefore take a woman's privilege of "telling those I know."

MILWAUKEE, WISCONSIN, U. S. A., *May 1, 1885.*

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TRIED BY FIRE.

THIS treatise is confined to the different methods of painting and decorating finished pieces of ware—that is, pieces which the potter has dismissed finally from his hands, the surfaces being, in different instances, glazed, semi-glazed, or unglazed.



From the Alhambra.

The materials to be used are enamel colors, bright and matt enamels, jewels, and metals.

The requisite outfit for a beginner in china-painting is first a cotton gown and plenty of nice, clean cotton or linen rags—those which are not fuzzy.

Colors.	Glass muller.	Erasing-knife.
Tar-oil.	Glass slab, 6 × 6.	Erasing-pin.
Lavender-oil.	Palette.	Flushing-silk.
Turpentine.	Hand-rest.	Salt-cellar for turpentine.
Brushes.	Sketching-crayon.	Cylinder of black water-color.

The list of colors should contain—

Orange-yellow.	Emerald-stone green.	Rose Pompadour.
Silver-yellow.	Apple-green.	Deep violet of gold.
Mixing-yellow.	Deep-blue green.	Violet of iron.
Carnation, No. 1.	Victoria blue.	Raven-black.
Brown, No. 108.	Gray, No. 6.	Flux.
Dark green, No. 7.	Crimson lake.	

For one more advanced should be added a larger variety of colors:

Chrome-green.	Yellow ochre.	Yellow-brown.
Green, No. 7.	Brown-green.	Neutral gray.
Turquoise-blue.	Aufsetz weiss.	Crimson purple.
Deep ultramarine blue.	Paste for raised gold.	Purple, No. 2.
Carmine, No. 3.	Brown, No. 3.	Orange-red.
Carmelite.	Brown, No. 4.	Carnation, No. 2.
A gilding-wheel.	Gold-burnishers.	Glass-brush.
Gold.	Bronzes.	Alcohol.
A kiln.	Keramic eraser.	

In commencing to paint on china, do not at first expect too much. My experience with students and beginners has been that they are cruel toward their own efforts, in their extravagant expectations of what they should accomplish at once. No one expects to commence the study of music by an attack on one of Beethoven's sonatas, before he has "wasted" time in learning to read the notes.

Neither should you attempt something rich in gold and many colors until you have first mastered the handling of your brush.

Do not make anything to fire, at your first lesson. This will be the most tedious one that you will ever take, probably also the most useful.

Take one color—carnation is the best—use a good-sized brush, and practice to get the sweep of the brush.

If you have painted many years in oil- or water-colors, do not excuse yourself from this exercise. It is just as necessary as, and even more so than, if you had never painted at all. The technique of china-painting is

peculiar to itself. No amount of practice in other methods of color will enable you to "just pick it up without any bother." It exacts the respect of which it is worthy. Practice in aquarelle is something of an assistance, but the handling of oil-colors is diametrically opposed to the style for china.

The color should be laid in washes, and shaded in that way as much as possible. After you have made one stroke, it must dry before you touch it again, or it will "pick up," and your work will be patchy. It dries very quickly; so there need be no long waiting. Don't yield to the temptation of laboring over and over again in the same place, or your work will lose all its freshness. Avoid patching and piecing your lines.

I will give you an illustration of what should be your first lesson, and, if you are faithful and learn it well, you will have done an excellent thing. On no piece are more than two strokes of the brush necessary.

A six-by-six tile makes a very good palette. Squeeze some color upon it, pour some turpentine into your salt-cellar. Use the turpentine as you would water in water-colors; that is, to moisten your brush and thin the color so that it will work. It will trouble you at first to know just how thick to have the color; but this must be learned by practice. If too thin, it will spread out, and look very weak; if too thick, it will be lumpy and streaky, and will not flow from the brush. A little attention and experience will soon settle this matter.

When your work displeases you, moisten a piece of rag in the turpentine, and wipe it off.

Let me caution you to be very nice about wiping your pieces. Never have the rag wet, only moist, and be sure that the surface of the china is perfectly clean, that there is no thin coat or smirch of color left behind; for this, you must remember, will all fire on, and have a slovenly appearance.



Pottery of Ancient Gaul.

In firing, the color unites with the glaze, and the stain becomes a portion of it; so that, when these "dirty spots" are removed with acid, a little of the glaze goes too, and, by holding the piece up to the light and looking across it, you can see just where the stain was, and this, you know, is not an improvement.

You remember the old proverb, "As the bough is bent," etc.; so attend carefully to all these little things in the beginning, and it will save you an immense amount of annoyance by-and-by.



Egyptian Bottle, Side and Front View.

For the next step take a plate, or cup and saucer—let us say a cup—and put a pretty, conventional pattern on it.

Take a clean brush and wet it over with turpentine. It will dry in a moment; then take a hard lead-pencil and sketch your design. If you can draw freely enough, merely indicate it. If it is possible to avoid it, do not trace; although occasionally it may save some delay, it is an abominable and compromising habit, contrary to every artistic theory.

Tracing-paper is not used in my decorating works, no matter how green the apprentice.

If you prefer to sketch your design in water-color, take your cup, quite clean, and draw the design delicately on it with the brush. This is perhaps wisest for your initial performance, for, if you make mistakes, you can wipe the color off with turpentine without disturbing the sketching, whereas the lead-pencil or crayon marks would disappear with the color.

Do not trouble yourself further about the sketching-lines, but leave them undisturbed—they will be burned away in the kiln.

When a line is rough, or the edge of a leaf needs trimming down, take your steel eraser and scrape the surplus paint away. You are able to correct and give a finish to your drawing by this means, until you have attained a thorough control of your brush. If any little hairs or dust have settled on your work, take your "pin" and pick them carefully out. If you do not, the color will be drawn toward them, and will fire in little ridges, just the form of the hair itself. Set your piece away to dry, where it will be protected from dust. If it is to be sent away any distance to be fired, dry it either in a clean oven or over an alcohol-lamp. I much prefer the oven as the safest and easiest way, but there are cases when an oven is not convenient.

Then light an alcohol-lamp, and move the piece back and forth over the flame, heating all parts equally. Should the flame be allowed to play too long on one place, an unequal expansion takes place, and breakage is the result.

Do not be disturbed if the painting becomes discolored by the heat. It is only that the mediums, thick oil and turpentine, are beginning to carbonize; the color will come from the kiln afterward without injury. Wrap plenty of soft paper around the pieces and pack either in straw, excelsior, or, best of all, old newspapers. If sent by express, always pack in a wooden box. I write this for the benefit of those who live at a long distance, and have no kiln of their own. Pieces have come to me so queerly packed that I feel that there are instances when this advice will be acceptable. After the piece is fired, take some very fine sand-paper, the finest you can obtain, rub two pieces together till the sharpness is gone; then polish your painting with it, and it will feel like satin to your touch. Beware of using coarse or new sand-paper, for it is a very easy

matter to tear the glaze; a piece of favorite sand-paper lasts a long time, and should not be thrown away too readily.

COLORS.

The words *tones* and *hues* recur continually, both in common language and in that of artists; yet they are not so well defined as to be free from ambiguity, or to be well understood.

The word *tone* of a color will be employed exclusively to designate the various modifications which that color, in its greatest intensity, is capable of receiving from white, which *lowers* its tone, or of black, which *heightens* it.

The word *scale* will be applied to the assemblage of tones of the same color, thus modified. The pure color is the normal tone of the scale, if the normal tone does not belong to a broken or reduced scale—i. e., to a scale of which all the tones are made dull with black.

The word *hue* will be applied exclusively to the modifications which a color receives from the addition of a small quantity of another. We shall speak, for example, of the *tones* of the blue scale, the *tones* of the red scale, etc. We say the *hues* of blue, to designate all the scales whose colors, still remaining blue, yet differ from pure blue; each hue comprehending the tones which constitute a scale more or less allied to the blue scale.

The complementary color, and *vice versa*, to green is red; orange is blue; greenish-yellow is violet; indigo is orange-yellow. For these notes on color I am indebted to M. E. Chevreul, for twenty-five years a lecturer before the designers and art-workmen of France, and whose able work on "The Laws of Contrast of Color," and their applications to the arts and manufactures, I most cordially recommend.

Nearly all colors are advertised as being ready prepared to use upon china. But in reality the very best results can not be obtained from them without rubbing down and refluxing.

I shall write especially concerning the La Croix French tube-colors, simply because they are most generally in use. The German tube-colors are more finely ground than the French.

The English are very well ground, but come in powder in glass vials, and

have to be mixed, or when in tubes are mixed for water. The German colors for water come in little glass pans. These are a great blessing to the people who dislike the odor of turpentine.

Almost every make of colors has some specialty in which it excels. I do not confine myself to any one of them, but wherever I find a good color I take it.

For example, I like the German outlining black, and relief white, much better than any others, and some of the English carmines are unexcelled. In the German colors I miss some of the lovely crimsons and violets of the French. The German and French blues are quite different in hue. As you become advanced, these differences will unfold themselves to you, and you can do your own choosing more satisfactorily than any one can do it for you. So, to return to La Croix.

Carmine, No. 3, is a most beautiful and tormenting color. It needs to be reground, one third of flux, and a very little thick oil added; then it will work well.

Carmine, No. 1, needs not more than one sixth of flux; it is much more docile than No. 3, and fires out a lovely pink.

Ultramarine blue needs to be refluxed, one third added.

Deep violet of gold is very gritty as it comes from the tube, and needs patient regrinding, adding one sixth flux. This color seems to have a peculiar affinity for dust, and will manage to collect it in spite of the utmost caution. You can often avoid using it, by taking crimson, or ruby purple, and toning with one of the blues. If painted on very thickly, the violet will split; still, even with these drawbacks you will use it, for it is so lovely.

Yellow-brown is especially poor in flux; add one third to it.

Sepia is a first-cousin to yellow-brown in the characteristic of poverty of flux; it fires out badly.

Mixing or Sèvres yellow must never be mixed with the iron-reds or browns. After the work returns from the fire, there will be little if any trace of the reds and browns remaining; the yellow has drowned them all. It mixes very well with the greens.

Silver-yellow does not harm the reds, and is very useful with them.

Ivory-yellow makes a beautiful tinting tone, if but one fire is used.

But it is treacherous, and strong heat or repeated firings may produce a brown clouding over it.

Silver-yellow, with a tinge of brown, No. 4 or No. 17, gives a very good and safe substitute for ivory-yellow.

The *iron-reds*, carnation, capucine, etc., and pearl-gray, need to be painted on rather more strongly than you wish them to appear, as they lose in depth of color in the fire.

Orange-red holds its own very well, and is beautiful for nasturtiums, the blossoms of the trumpet-vine, etc.

Salmon changes in flushing more than almost any tint, firing out much lighter.

Green, No. 7, is beautiful for producing olive tints, with a little yellow added, and is most useful in painting for grays. Beware of using it too heavily, for it will scale off.

Violet of iron: no color is more useful than this in working over carmine, toning up greens for grasses, which are neutral and warm; and above all, for sea-weed, it is a sort of right bower.

You can not obtain the deep tones of red roses, or the depth of purple for pansies, without at least two paintings. Never add any flux to enamel, or it will become too fat, and bubble or "spit."

All other painting colors should receive an addition of at least one sixth of flux, excepting pearl-gray, No. 6, apple-green, and mixing-yellow. These are very soft colors. Pearl-gray is made by some decorators to answer the purpose of flux. The color is burned away very readily, and is hardly perceptible if only a little is used.

A little chloride of sodium (common salt) always brightens the blues.

I would say to you on this subject, suit your color to your glaze. If it is earthenware on which you decorate, flux more than for china; and, as the different makes of ware of each approximate to one or the other, suit your color to it. This you will soon learn by practical tests in the kiln, and know how to flux a color for a certain glaze at sight; as, for instance, the soft glaze of faïence needs more highly fluxed color than the hard French porcelain; less flux for German china than for English, but more for either than for French.

I can not impress upon you too strongly the value of refluxing. It takes from your work all that dull, ugly, unresponsive look which no amount of "fire" will ever remove. Most amateurs have the erroneous idea that all this dull appearance is caused by lack of fire, or by over-fire, or by some mysterious "something" which is beyond their control.

Carmine is usually the test color to fire by. If under-fired, it will be yellowish; and if over-fired, purplish in hue. If laid on very "thickly," it is almost sure to be yellow, unless it has had heat enough to ruin some of the other colors which are being fired with it, including the more delicate tints of itself. When you have prepared your carmine properly, and it comes out all right, if any other color is dull, you may be sure it is not properly fluxed. If, on the other hand, you use too much flux, it will fade your color and weaken it.

If a piece is to receive repeated firings, it should not be painted with as highly fluxed colors as if it has but one or two visits to pay to the kiln.

Flux is the material which produces a union between the color and the glaze. The plumber or tinner can not solder his metals without making a flux to combine them; neither can we.

The flux most generally used is the No. 8, of Wedgwood, and this is the formula—"Three parts red-lead, two of borax, one of flint, double in the original"—which I copy from the "Pottery Gazette," of London, England.

I do not give you this recipe thinking that you will make practical use of it, for the product can always be purchased; and such materials manufactured by experts, who make a business of it, are far better than anything made by inexperienced hands.

There are innumerable fluxes for different and special purposes, but this is the one with which we shall have most to do. It answers for gold as well as for color.

If colors come from the kiln dull when they have had sufficient fire, they can be retouched with a wash of soft color, or painted with a thin wash of flux, ground in thick oil and lavender. This must be put on cautiously, not allowed to cover the white portion of your ware, or it will look like a varnish, and is quite perceptible.

In mixing your color, add no more fat-oil than is absolutely necessary. In the La Croix colors it is necessary to add it only to carmine, No. 3, and

ultramarine blue, and then in a very small amount. This does not apply to flushing, when the oil must be used generously.

If using the German colors for painting, nearly all of them need thick oil to work smoothly, as they seem a little "poor" to handle. The German colors are much better fluxed than the French.

You will receive great pleasure and benefit from making tests. I may safely say that I have fired, and had fired for me, many thousand kilns of ware; but nearly every day some test goes to the fire, and I expect and hope they will continue to do so. It would be horrible to have nothing to aspire to. Think of the dreariness of desolation, the "*triste, morne, et silencieux*" of knowing it all! But this work is too noble. There is no danger of being fenced in by a limit.

In buying turpentine, it is much less expensive to go to the druggist and purchase it by the quart. You need plenty. Be



The Vase of the Alhambra.

sure that it has little or no odor. There is no necessity for using the rank, vile-smelling stuff which makes so many sensitive persons ill.

You can buy your lavender of the druggist also, if you choose, getting the "garden lavender," which is less rank and fat, therefore preferable for this use. If too fat, reduce with alcohol.

Some persons prefer clove or anise-seed to lavender-oil, and balsam of copaiba to fat-oil. These things are immaterial; if you can procure results more satisfactory to yourself with them, use them. Use anything which works well.

CHOOSING A TEACHER, AND SOME OTHER THINGS.

As I am not teaching, nor to be approached for instruction by students, I feel at liberty to say some things which I should not otherwise do. But, as it is, you can ascribe no personal motive to these remarks.

Do not try to learn this art without a teacher, unless it is impossible for you to have one. You might as well attempt the study of the graceful use of the small-sword before a mirror, instead of with a *maitre d'armes*. Certainly do not do it for economy's sake. You are not hearing something which you never heard before when I tell you that "experience is a dear teacher."

When you go to a teacher, what you pay her for is her experience, and she can afford to sell it to you for a comparatively small price, for she sells it over and over again to a great many people. It is her business capital, and, according as it is rich and varied, so is it valuable.

If a teacher devotes herself to one subject, she attains more proficiency in it than if she attempted half a dozen other things besides.

If you wished a tooth pulled, you would be considered foolish to choose a surgeon to do it; or, if there were a finger to be amputated, it would be hardly the correct proceeding to call on a dental surgeon. Undoubtedly either could manage to accomplish the work of the other, but both would tell you that it was "not in his line."

Therefore, in choosing a teacher, when it is possible choose one who makes a specialty of the thing you wish to learn. If, as in this case, it is china-painting, do not go to one who teaches "oil and water colors, crayon, painting on plush, leather-work, hammered brass, wood-carving, etching, art-

embroidery," etc., etc., if you can get any one of less varied and more concentrated accomplishments.

But take *her*, rather than nobody.

Choose the best, and be content to pay what it is worth, for in the end the best is cheapest.

Now, when you have this "best teacher," don't abuse her. She can only show you, and give you a correct method. She can not think for you, and she should not do your work.

If she does, immediately that you leave her there will occur a reaction, and your work, when alone, will be terribly disappointing to yourself.

On the other hand, remember the *mot* of the immortal Andrew Jackson: "Millions for defense, but not a cent for tribute!" If you find that you are in unscrupulous hands, and are being humbugged by having a great mystery sit veiled before you, don't put up with it.

It has been the fashion always to surround this work and everything pertaining to it in a mystic cloud. Ignorance and mystery go hand in hand. When you find that the wonderful secret, the "*grosse Geheimniss*," is about to be held up to you, it is time to be suspicious. You pay your penny to go into the tent, in response to the general invitation, "Lessons in China-Painting given here," and you have the right to enter. What you find when you get inside must determine the length and value of your stay. But never forget that an Oriental courtesy is to be rendered and received. Never pry.

There is nothing more fascinating and romantic to read than the history of ceramics. There is no guild on earth so old as the potters' guild. Nowhere are there more determined prejudices or more tyrannical laws than here.

These traditions have been watered by the tears and strengthened by the blood of martyrs. They are deep-rooted and old. The potter and his wheel are cut on the Egyptian granite of Pharaoh's time. Therefore we must reverence and be patient with the mysteries and traditions which will not submit unresistingly to be wiped out by the modern sponge of common curiosity held in the hands of the unromantic.

Then, too, as a public, the fault lies greatly with us. We are gullible, we love to be humbugged. We adore things which are imported, and we dis-

trust the things which are our own. We realize our youth, and doubt our judgment. We lack in self-respect. A thing is beautiful only as it is like something from Europe. All that our public wish our potters and decorators to do is to make imitations of Sèvres, Dresden, or Royal Worcester, and sell them cheaper than the "real," while every Swiss village has a Herr-gottschnitzler of its own.

So we fairly wind the shroud of their prejudices and traditions more firmly about them, demand that they keep bound hand and foot, and then revile them because they will not take us by the hand and lead us forth from our darkness into their sunlight.

This is all fast wearing away, and the more each one of you help, the sooner the wall will be torn down. How the children of this generation will laugh at it all in another fifty years, if such strides are taken as there have been in the last ten !

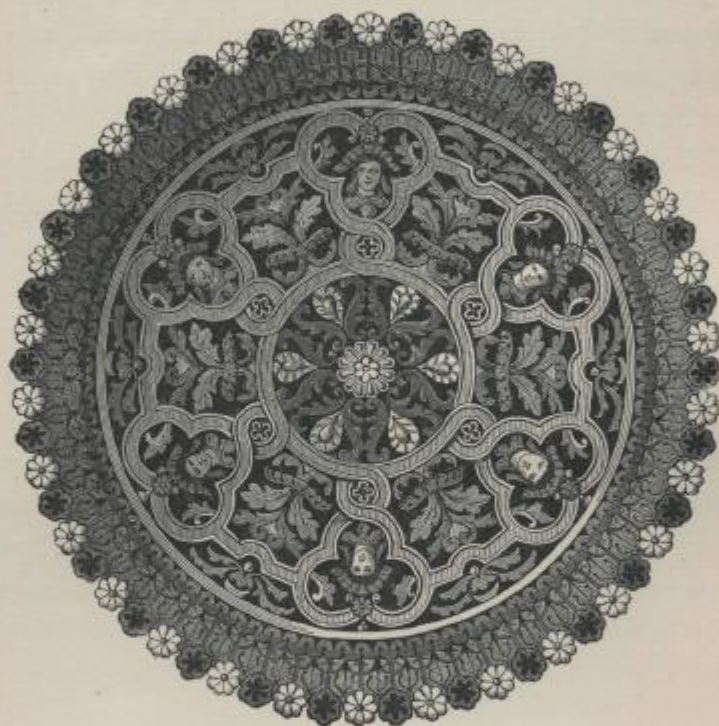
Every student in china-painting is an evangelist in this work, although innocently enough ; but every one who thinks helps to form public opinion.

After you have painted for a time, you will not look with that reverence on the Augustus Rex décor that you once did. The effective poppies and funny tulips will look coarse, and the marvelously drawn windmills, sixty-four-gun corvettes, and bandy-legged sailors, standing by kegs which reach to the second-story windows of the houses on the docks, will proclaim their comicality in spite of tradition. *Und so weiter.*

DESIGNS.

I feel a certain hesitation in expressing myself concerning designs. Too many happy days have I spent in the wild greenwood, in the grand old, self-planted pine-forests of my native State, to bow entirely at the altar of the "purely conventional," and there also have I lost the desire to apply geometry to all the works of the Most High. Even the correct designs on English wall-paper, though they please, and there is great good in them, fail to conquer the hot Philistinism which burns in my blood. It is beyond belief that the circles of the grand poem of the universe can be squared or reduced to paper in strong outlines, flat tints, and—thin washes.

Neither can I bow in single-heartedness at the shrine of the Japanese. And, though I admire this fascinating Oriental in his exquisitely labored pieces, wrought within and without, and sealed with the great seal of patience, yet I love him most in his sketchy hints and dreams of Nature, in his half-thoughts and suggestions, when he sets the mind to wandering after the beautiful, and drives the imagination in spite of itself into activity,



Palissy Ware.

searching for the desired through the dark and heavy mists, or the rosy gold clouds, of the unknown.

There is so much of good and beauty in all these "schools" if given a discriminating following, and so much which is faulty, when a blind worship is rendered, that I hesitate to lose my liberty, and wear the chains of any one of them. Therefore I say, take that which seems most beautiful, and do with it according to your light. Your tastes and intuitions must be your safest guides, as the result to be obtained is a purely personal one.

I am writing this on the basis that it is for the amateur: and by the "amateur" I mean literally "one who does the work from the love of it" alone. That which you paint is for your own pleasure and the pleasure of your friends—not to be made a burnt-offering on the altar of "high art" in the public market-place, subjected to the gibes and jeers of the ministering priests, and to the turning heavenward of the noses of self-sufficient vestals.

Were I writing for professional decorators, I would not raise "*De gustibus non est disputandum*" as a comfortable umbrella to ward off the hot rays of the sun of criticism.

These stand, for the major part, upon a commercial ground, the foundation of which is, at present, the almighty dollar; and until a good deal of evolution has taken place—both monetary and mental—a great amount of discussion will and should exist. If agitation is education, we are not unhappy about it, but we must be prepared.

Do not attempt too much at first. For beginners I would advise designs in one color; later, one color outlined with gold. Beautiful things can be made in this way. I often wish that some good fairy would make all the color-tubes but the red one invisible to the beginner for the first three weeks.

If you would only begin slowly and with patience, you would be more than satisfied with your "goodness" later. Usually the novice is so high-spirited and ambitious that, instead of learning to creep, she wishes not only to walk, but lo! to accomplish that same on stilts!

Plenty of teachers have had students come to them and say, "I wish to take a few lessons in heads. Don't you think I could learn to 'do' one in three lessons?" And when the teacher recovers herself sufficiently, she says, "Are you familiar with the handling of china colors?" They reply, with innocent frankness, "Oh, no—I never painted any at all—and I just *hate* drawing."

The outraged teacher replies quietly that she can not attempt to perfect them in three lessons. Then will they go forth from the door of her tent reviling her, and saying to one another that she is "real mean," and all that she wants is to keep the whole thing to herself; while she who remains

behind the veil knows that Truth lives at the bottom of a well, and that often it is a charity not to disturb her domestic peace. A prophetic voice warns her that this will not be the only time that the thorns of ignorance shall be strewed in her pathway, and the stumbling-block of stupidity rise up before her.

But patience conquers all things, and these memories are soon a thing of the past.

And I must grumble just one more grumble.

Do not commence on a set of mantel-tiles, or a mammoth *jardinière*, or a soup-tureen. Pieces of this scope are invariably the ambition of the unfledged. Let the first fruits of your efforts descend to posterity on the circumscribed surface of a butter-plate, or some equally small object.

You can afford to let me laugh at you, for I committed just that folly, and you shall know how it was.

This first effort was a set of tiles. They were to be for my own dining-room. The design was to be very elaborate, original, and overflowing with poetic ideas; something for the children to grow up with, and remember all their lives. My whole soul "went out into them," and I lay awake at night romancing about them. I was thoroughly interested.

After working for a week with unabated enthusiasm and ceaseless industry, I spread them out, and sat down to contemplate the result.

The result *was*, that each of those tiles was folded in a paper and stowed away in the dimmest attic corner of the house, of which they were to have been the crowning glory. No children should grow up remembering that *fiasco*. Humbly I took an individual, and reverently I painted it in blue. It was three years of daily "warfare" before the distance between the "proper" butter and the ambitious tiles was covered. *Hæc fabula docet*—how mortifying it is to imagine one's self an eagle, and find one's self a hen!

THE GOWN OR APRON.

The first thing to be provided with is a calico gown. The nicest way to make this is in the "Mother Hubbard" fashion—a yoke with a long ample skirt open down the front, so that it may be donned and doffed

readily, a bishop sleeve buttoned at the wrist. Then the entire dress is protected from spots of paint or oil. But, more important, the lint is kept from settling in the moist color while you are painting. It is astonishing the amount of fuzz which is thrown off from any dress of wool, even the finest cashmere.

When a fiber of this settles in the moist paint, all the color seems to accumulate about these unlucky trespassers. They act like little loadstones. And, after firing, it looks as though "our flag was still there," while in reality the mischievous particle was carbonized before it had been in the kiln ten minutes.

When the hairs are seen, they should be removed with an erasing-pin.

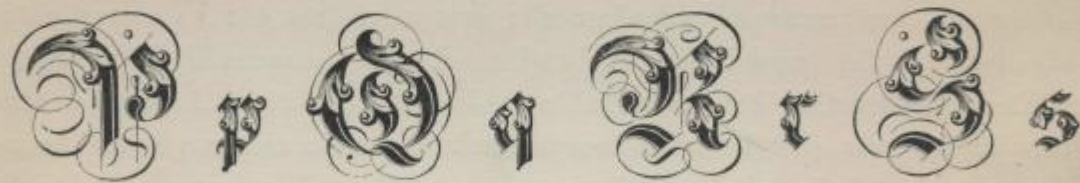
The gown saves nine tenths of this trouble. The room where you work should always be clean and free from dust, and, if possible, uncarpeted.

FLUSHING.

The flushing or tinting of colored grounds is a very simple matter when the "knack" has once been attained. All the colors marked in the La Croix list as grounding colors need extra flux, unless, perhaps, copper-water green. Nearly every one of the painting colors can be used for grounding, but need to be more highly fluxed than the regular grounding colors. Carmine, No. 3, is the most unmanageable of them all; but even that can be coaxed into obedience if the weather happens to be right, and occasionally it is worth while. The weather has considerable to do with flushing. At certain seasons of the year, just before a heavy thunder-storm in summer, it will seem sometimes as if the witches had wrought a spell, and by some abominable incantation had managed to upset all one's preconceived theories. At such times—fortunately, they do not happen often—it is best to put everything aside, and turn your attention to something else. The same thing may occur in winter shortly before electric storms.

The color should be perfectly ground, and, as it is thin and apt to spread over a large surface, it is best mixed in a sauce-plate if any number of articles are to be flushed.

If color is fired without enough flux, it can be refired any number of



times, but will still remain unsatisfactory. Most colors need the addition of one third of flux. Add about the same bulk of thick oil that there is of color and flux together; then rub down thoroughly with lavender-oil. The depth of the tint is determined by the amount of lavender added; do not be afraid of it. Never mix with turpentine; this evaporates so quickly that the piece is almost sure to be "spotty." The property of the lavender is to keep the color open, and so give opportunity to work it longer. I do not like La Croix's lavender; it is greasy. The garden lavender of the druggist is far preferable.

So much for mixing the color.

The next thing to get in order is your pad. To make this, buy the very best quality of sarcenet silk which you can get. Cut it into pieces about six inches square.

Wash it thoroughly in warm water, with some nice Castile soap, and dry it. Toilet-soaps containing arsenic should not be used in the studio. Always be particular to wash your silk after using, before it has a chance to dry, soiled with the color.



The Pad.

The older it grows the nicer it is, until the holes begin to come. Before the silk is washed it does not work pleasantly.

Now take a piece of fine cotton batting, about the size of a peach, cover the silk over it, and wind with a thread where it is gathered together, to save you trouble in keeping it in place.

If it is a plate border which is to be tinted, take a large brush, charge it with color, and paint the ware over quickly, but not hurriedly, without much regard to its evenness, only with the longest strokes you can conveniently take; then, with your pad, touch over the entire surface of your color, padding lightly and evenly.

Don't get excited and pound the plate: not that it does any particular harm—only it is an unnecessary exertion, and sets the dust flying.

You must not try to finish one portion first, but keep padding round and round, turning the plate on the ends of your fingers until the color is all over even alike.

Should the color act "sticky," add more lavender; and if it is greasy and too wet, you have used too much. One pad can be used for a dozen or more plates if the color works well. If too much color gets on the pad, rub it hard on a rag laid over your knee. If little white spots come on the flushing, the cotton has become wet; open the silk and fold the damp side of the cotton in, or take a fresh piece.

When you change from one color to another, it is best to take a fresh silk. When flushing a piece with two or three colors, one pad can be used if a little care is taken, and it is wisely handled.

Let us imagine a plate tinted with rose, lemon, and blue: wash on the rose, then the lemon, then the blue; leave a little clear space between each color. Squeeze your pad into a "longish" shape; use the upper end in the rose color, the middle in the lemon, and the lower end for the blue.

Don't try to finish each color separately, but work on them all in rotation. They will blend into one another perfectly over the white parts which you left; and, if you have handled your pad well, the color will not be "smudgy."

Of course, you will have wit enough not to attempt three colors until you have learned to handle one successfully.

If you are flushing a cup or creamer, you may need a blender round the handle. For this a No. 13 grounding-brush of camel's-hair is the most useful, or a No. 14 square camel's-hair duster if you wish something larger. Sometimes it is difficult to use the pad nicely in these little corners, but the blender smooths them all out perfectly.

When the piece is tinted, the next step is to wipe it clean. If it is to be gilded, wipe the color off the edges; and if not, wipe off any surplus color which may have got underneath. Take a cloth damp with turpentine, but not wet.

Should you make the mistake of a wet cloth, the color will run, and an ugly line be formed, even if no greater damage is done.

If the edge is only wiped in a smeary way, the gold will be dull and ugly, perhaps quite spoiled. If you send your ware away to be fired, remember it is no part of the firer's duty to clean it, and it will come home to you with all the finger-marks and dirty spots burned into it.

The fault lies with the one who put them there; and as the kiln-room in almost every instance is in an entirely different part of the building from the decorating-room, and a place where there is no paint or anything pertaining to paint, it is hardly to be supposed that the wicked firer did it.

It falls to my lot to see thousands of pieces of amateur firing during the course of a year, and from all parts of the country. A large percentage of them is quite untidy; but I am rejoiced to say that there is a decided reformation taking place in this particular.

If, on being taken from the kiln, the color should be dry and powdery, treat it in this way: Rub down some pure flux mixed with thick oil and lavender, and pad it over with this preparation. Then refire.

The dullness is caused either by lack of flux in the color or by moisture. Sometimes steam may have settled upon the color, or it may have been in a very cold place and then brought suddenly into a hot room, when a "sweat" will form on the surface, caused by the amount of moisture in the atmosphere condensing upon it; in either case a dullness of tint is apt to result. The colors must always be kept dry, to present a good appearance after being fired.

To work well, your piece of ware should be pleasantly and evenly warm. If it is very cold, as it may be in winter, the color is longer in setting; and if too warm, it dries too quickly and in patches.

Should you use water-colors—Hancock's, or Müller and Hennig's—substitute glycerine for thick oil, and water for lavender. Use the pad in the same manner as with the colors prepared with oil.

TO GROUND WITH SOLID COLOR.

For this it is not necessary to flux so highly as in putting in a tint. Still, you must add some flux to nearly every color. Rub the paint down with lavender, and little or no thick oil; the amount of the latter depends on the depth of the tone you desire.

If you wish the color very strong, use only the lavender; if not quite so deep, add the thick oil; the color works much more pleasantly with than without it. Paint the piece over solidly with color, and flatten it with a fitch-hair stippler; for general use, a slanting-point No. 10 (deer-foot) brush is the best.



Grains-of-Rice Pot.

Sometimes it is necessary after firing to color a second time, to produce the requisite depth of tone. Some colors are very dangerous if applied too heavily; they chip or flake off, taking the glaze

with them. The trouble is difficult to remedy. When the spot is repainted, an inequality of surface is apparent, besides which fresh places may scale up with this extra fire.

This annoyance occurs much more frequently on hard porcelain than on faïences, which is a fortunate discrimination, for the thick groundings are far more suitable to heavy wares than to fine, delicate china. The colors most troublesome are black, dark-green (No. 7), Victoria blue, and the violets. It is safest to put these on in two firings when a particularly strong tone is desired.

Use rather a light coating of color for the first fire, and do not flux richly.

A a B b C c D d E e

F f G g H h I i J j

K k L l M m N n O o

P p Q q R r S s T t

U u V v W w X x

Y y Z z

TO TAKE OUT GROUND FOR DESIGNS.

This can be done in several ways. The design may be first sketched on the china in India-ink, then painted thickly over with a pigment made of prepared chalk and water, to which is added a little honey, sirup, or dissolved gum-arabic, just enough so that the chalk will not be powdery when the water-color is dry; apply the china-color over the whole surface, without regard to the design. When the grounding is thoroughly dry, set the piece under the hydrant and turn the water upon it; the part where the chalk is will wash off; give it assistance, if it should cling, with a bristle-brush, leaving the surface of the ware exposed.

Another method, and, in my decorating works, the one universally used, is this: To sketch the design either on the ware in water-black and then ground, or to ground and then sketch it in with pencil over the color afterward, as the case may demand. Then take a brush and paint with a mixture which we call "keramic eraser." This cuts the color after it has been applied a moment or two. Now take a clean rag and wipe the eraser carefully off; it will take the color with it, leaving the ware fully exposed to view. If you wish to erase a large surface, wipe from the outer edge toward the center, that the color may not be smirched on the grounding.

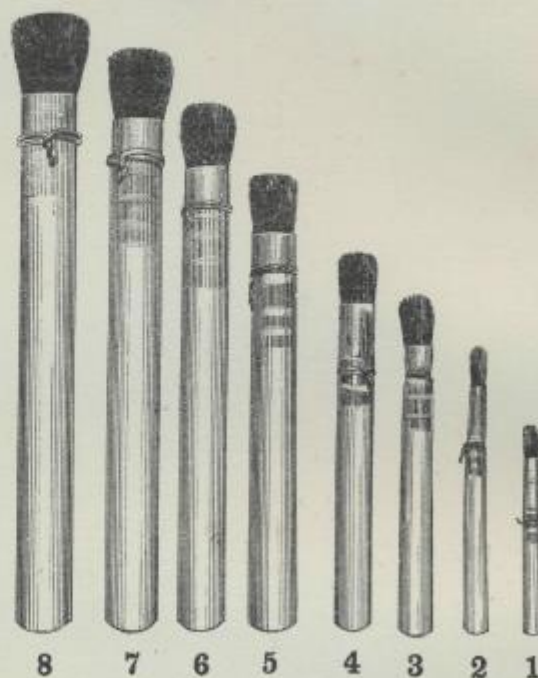
The ground must be thoroughly dry before the eraser is applied. The scratching out of color with a knife is enough to drive one to an insane asylum.

Should you use water-colors, the color may be kept open by adding glycerine, and diluting with water; in every other particular, proceeding in the same manner as with the oil-colors.

There is still another method of applying grounds, called dry dusting. This I do not consider of any practical use to an amateur, besides being terribly unhealthy. It is used extensively in large factories, both abroad and in our own country; but the "dusters" only last a few years before paralysis overtakes them, caused by inhaling and absorbing the poisonous minerals in the colors.



SQUARE LINERS.



FITCH HAIR STIPLERS.

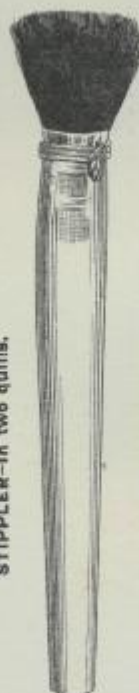
ROUND-For painting grounds. No. 10.



SQUARE-For painting grounds. No. 11.



STIPLER-In two quills.



LARGE GROUNDING BRUSH, No. 13.



SLANTING POINT (Deer foot).

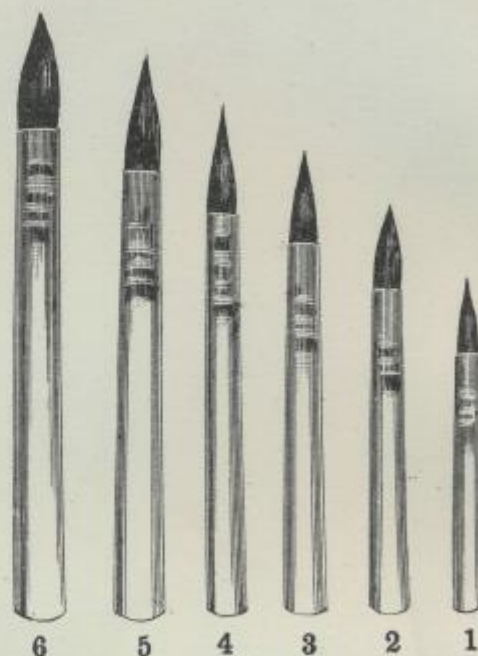


Watch Dials and Lettering.

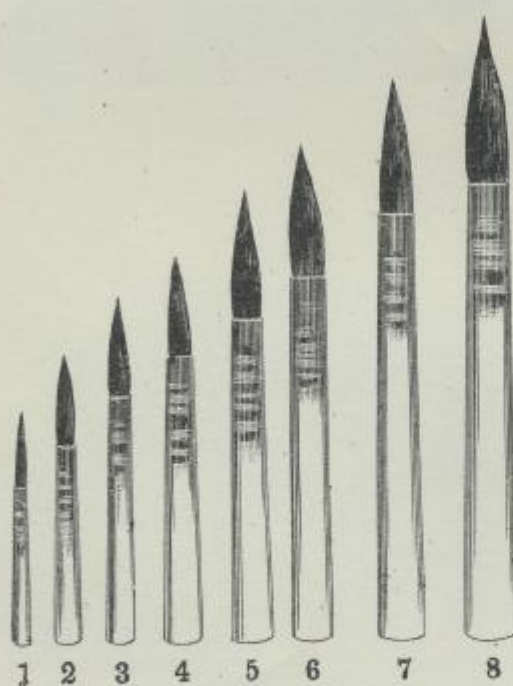




LONG PAINTING.



SHORT PAINTING.



POINTED SHADERS.

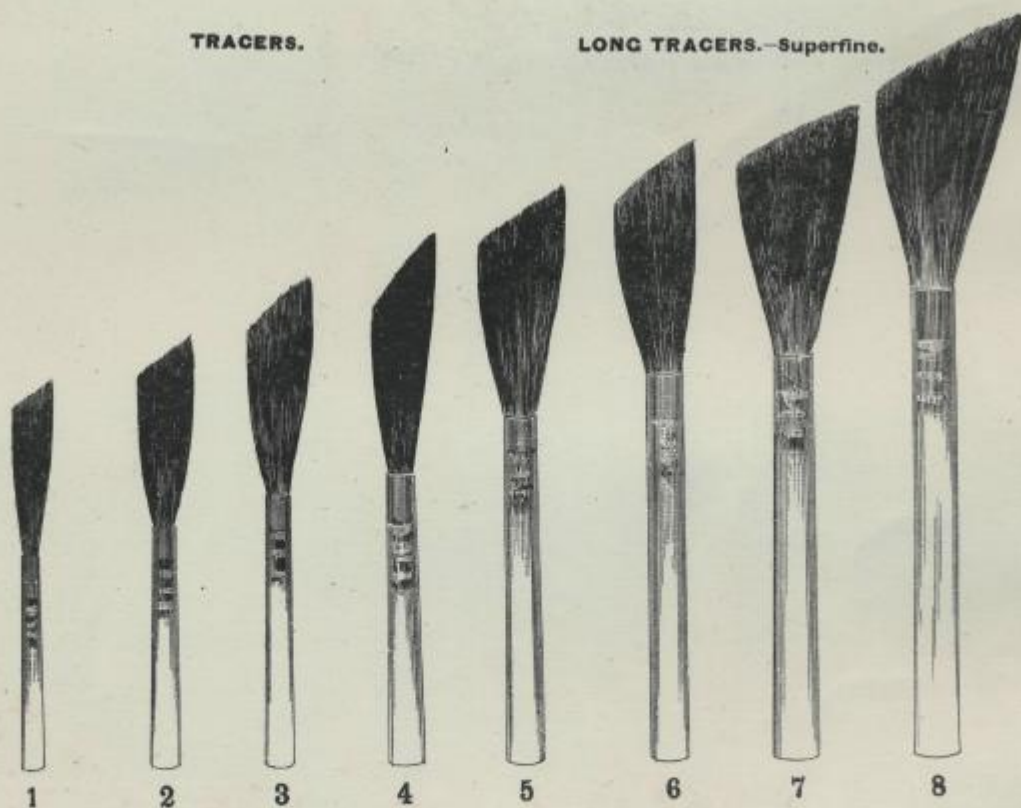


SQUARE SHADERS.



TRACERS.

LONG TRACERS.—Superfine.



OUTLINERS.

The method is this: The piece is first "laid" with grounding-oil, which is padded or stippled smooth. When it is sufficiently "tacky" or sticky, it is dusted over evenly and lightly with color in powder, using either a piece of cotton or a powder-puff or swan's down. There are some decorators who blow it on beautifully with a perfume atomizer, a little tinkered over to suit the purpose.

I will not use dry colors myself, nor do I advise any one else to do so. *Le jeu n'en vaut pas la chandelle.*

BRUSHES.

Never buy a cheap brush; by "cheap," I mean poor. If economy is necessary, it is better to have one medium-sized, first-quality brush, and do all your work with it, rather than an assorted half-dozen of the second quality.

Unhappily, the market is flooded with these "seconds" in brushes. They have a very good appearance, and look quite like the others. Therefore, it is necessary to select them carefully. It is impossible to do good work with inefficient tools; and in no place is this axiom more positive than concerning brushes.

I can give you a general idea of the most useful ones, but can not tell you just which ones to select for all specific purposes.

The general fault with beginners is to choose too fine a brush, and thus ruin their style by "nigging" and patching lines in the very commencement of their study. It is so much more difficult to unlearn and commence again, with the taint of a pernicious habit in your brain, than to do right in the beginning, that I am moved to put the case very strongly to you.

No subsequent lesson that you will ever take will be so important to you as your first one, if that is properly given.

You should be allowed but one color and one brush—either a No. 7 pointed shader, or a No. 6 long painting, according to the length of your fingers and the shape of your hand.

A short hand will seldom handle a long-haired brush with ease, and the long fingers will succeed far better with them than with a fat, stubby-shaped brush.

One becomes as particular about the shape and quality of a brush as with the fit and elegance of a glove, and to quite as great advantage.

I give, on separate pages, groups of all the sizes and styles of brushes which it is possible for you to want. These have been made from the brushes themselves, and give the exact sizes.

In writing for them you must designate the name and number, and the article will correspond exactly with the illustration.

The cut-liners will need some explanation. They are a shaped brush which are, I believe, peculiar to china-painting alone, and are used to make hair and other fine lines.

The brush is charged with color or gold, the point alone coming in contact with the china. The purpose of this peculiar shape is to supply the point with color, so that a long uninterrupted line can be made. No ordinarily shaped brush would "feed" color enough to the point to make a perfectly uniform, uninterrupted line around the entire edge of a large plate, and any patching mars the beauty.

A study of old Greek vases will teach the value of a continuous line. Bands can also be put on with cut-liners. This form of brush is rarely used except in connection with the wheel.

The banding-brushes are not of much interest to amateurs. Still, I will give illustrations of them, as they are a portion of the *ensemble*.

The care that you give your brushes is a matter of great importance. Clean them with turpentine, in changing from one color to another. Each day, when you are through using them, give them a thorough washing with soap-and-water; rinse them perfectly in clear water, and point them with your lips. If there is any taste of turpentine in them when you go to point them, you may be sure that your cleansing has not been thorough. Finally, lay them in a drawer or box, or stand them, the handle down, in a little vase; any way, so that the points are free. If you are especially nice in the care of your brushes, give them a final bath in ether. Unfortunately, there are very few people who are so deserving of a credit-mark as to do this.

It is quite a task to wash your flushing-brushes clean. You should have hot water if possible, for the color and thick oil work clear up to the root of the brush, and it takes care to get it free.

If a brush is overlooked and dries in this condition, soak it in alcohol, putting a sufficient quantity into a cup to cover the hair a little above the quill.

Do not attempt to bend or free it, for you will only succeed in breaking the hair and ruining the brush; but possess your soul in patience until the color is dissolved and loosened from the imprisoned hair.

Always attend to your brushes yourself. Do not be willing that any one else should meddle with them. Be as choice and as strictly personal with them as you would be with your tooth-brush.

Have a wooden handle for each one.

When you fit this handle, hold the quill in your mouth for a few moments, or, if you object to that, soak it in warm water to soften it; then insert the cedar handle. If too large, scrape the handle down with a knife until it fits. The soaking will prevent the quill from splitting. When the quill does split, it should be bound to the handle with fine sewing-silk. There is nothing more trying to the temper than either a dirty, stiff, crooked, or split brush; and the best brush in the world may be either of the four if not cared for.

Do not be lured into the belief that washing out in turpentine will "do." It will *not* do! This is very emphatic, no doubt; but I know whereof I speak. Anything but a "permiscus" brush.



"Why I can't make my work look like yours!"

THE WHEEL.

Older than the pyramids! Yet I will tell you of the newest Yankee improvement.

The potter's wheel has been sung; but the decorator's is equally noble, and has the further attraction to me, that from time immemorial he has generally turned it himself, instead of having it done by his child or a steam-engine.

The style of wheels differs little from Buddha till now—from the time when the “honeysuckle pattern” was put on the earliest known monuments of Buddhist art, or long before our era, when the so-called “Etruscan” was used by the Chinese, down to the wheel of the Mexican of to-day—true descendant of the Aztec—and the Egyptian, who sits cross-legged on the ground of his adobe and starts his wheel spinning with a stick, then, dropping the motor for the brush, applies a hair-line without a hand-rest while he spins.



Decorating Wheel.

Now, if you have reverence for the antique, try it. *Faites votre jeu, ça roule!*

For the practical and amateur decorator, there is a wheel made in this country known as the “Alling self-centering wheel.” I have used it for years personally, and as a mere time-saver it will pay for itself in a month. I have discarded all other wheels in my works.

USE OF THE WHEEL.

To use the wheel, it should be placed upon a table of convenient height, a little lower than is used to work at, or one may use a higher chair. If a line is to be drawn upon a plate, the plate should be put upon the wheel, at one side of which is a screw that controls the movable heads, which run in slots cut for the purpose. Turn the screw until the three heads hold the plate firmly in their grasp. It will then be exactly in the

center of the wheel; adjust the arm-rest, until it is in a comfortable and convenient position. Take your lining-brush, charge it with color, and place the point upon the plate where you wish to commence the line; turn the shaft of the wheel, by the finger and thumb of the left hand, and the line will be exactly true.

The hand-rest can be raised or lowered, moved backward or forward, to suit the convenience; and, for tall pieces, such as vases and ewers, an extra rod is adjusted.

The wheel is not a necessity to the beginner, but a point is soon reached where it is a great comfort, and one should always be a portion of the outfit of every teacher.

It is as useful in the decorator's studio as the sewing-machine is in the household.

GOLD.

In the use of gold, cleanliness ranks far beyond godliness—an unmannerly transposition of a good man's saying, but true nevertheless.

Everything must be perfectly "nice"—even your ideas. Should you prefer to prepare your own gold, which, I warn you, is an extravagant proceeding for an amateur, unless a considerable quantity is to be used, the following is the best method:

Go to a manufacturing jeweler and purchase some pure strip-gold. This is the straight metal, without alloy of any kind. These good people will melt up old trinkets, broken brooches, disabled watch-chains, etc., and astonish you with the amount that is not gold which does glitter. All this alloy—copper, nickel, and silver—you do not want in your preparation. Hence it is simpler to exchange with your jeweler for the pure metal, rather than destroy the foreign substances with acids. Gold coins, English sovereigns, or Dutch gulden, make a handsome pigment, and are usually considered pure enough. Our American coin is too pale in color. But as I shall give you but one recipe—and that is the *best* that I know of—I recommend strongly the "strip-gold."

Every practical decorator has his own recipe for making gold, which he guards jealously, and in which he has complete faith.

So every housewife has her own conservative ideas on making pie-crust, and the results in both cases are equally variable.

Take ten dollars' worth of strip-gold: place it in a large-mouthed glass bottle. A really better vessel is a tankard-shaped glass creamer, as this is so convenient to handle and pour from. Pour on to the gold six ounces of nitro-muriatic acid (two parts nitric, one part muriatic). Cover the top of



Dresden Porcelain.

the vessel closely, to prevent the escape of the fumes of the acid, which are both unhealthy and unpleasant. If you use a bottle, have a glass stopper; the acid will eat cork. If a creamer is used, a sauce-plate answers very well. Should you get any of the acid on your skin, it will burn terribly. The antidote is ammonia. If you have no ammonia at home, and you will not care to wait and go "shopping" for it, use strong soap, and soak in milk.

Let the gold stand about twenty-four hours in the acid, then it should be dissolved. When little bubbles commence to form on the surface of the gold, and dance away to the top of the acid, just as they do in sparkling catawba or champagne when a morsel of bread is dropped in, you may know that the chemical action has begun. If, next day, the gold is not all dissolved, your acid is not strong enough, and you must add a little more. When entirely dissolved, pour it into a large yellow "cake-bowl" with a "lip," or, better still, into a large glass pitcher, if you happen to have one. Then add nearly two quarts of pure water. Now make a saturated solution of copperas. A saturated solution, let me explain, is just as much of the crystal as the water will dissolve. Add two thirds of a pint of this to the dissolved gold in the bowl. The mixture will immediately turn dark, and a precipitate will begin to fall to the bottom of your bowl. This is your gold. It will be the color of your La Croix "yellow-brown." Let it stand undisturbed three or four hours, until all has settled that will. Then carefully pour off the clean liquid, being careful not to shake it about, and disturb the residuum at the bottom. Save the liquid that you have poured off, and use more copperas with it, as all the gold may not have been set free. Repeat this as long as any gold continues to fall. Once ought to do, but any particle is too precious to waste.

Put all the precipitate into one vessel, and wash it thoroughly in clean water. To do this, fill the vessel with water, stir the gold about in it, and then let it settle perfectly. Now pour the water off carefully; repeat this twice. The third time pour some muriatic acid into the gold to free it from any trace of iron which may have remained from the copperas which you used to form the precipitate, that being one of the sulphates of this metal.

Now wash, for the last time, in boiling water. Let the gold settle, pour off the water, and dry the powder. Either let it remain where it is, or, if you wish to hasten matters, place it upon a new china plate, and set it in a warm oven.

I warn you to beware of a plate from which meat, or pastry, or any greasy food has been served.

The result of your labor is "chemically pure brown gold," in a very

fine powder. You may feel puzzled and disappointed that the amount is so small, and wish for the ten dollars back again. But you will not realize the superb quality of your metal until you have used some of it, and then you will be fully content.

The gold must now be rubbed down on a ground-glass slab with turpentine, and put into a small, open-mouthed bottle, with a glass stopper. The metal in its present condition is unfluxed gold.

Right here let me warn you NEVER, in rubbing down gold, or any of the colors of which gold is the base, to use a steel palette-knife. It dulls the color of the metal invariably, and impairs the result of all your labors. Use a horn, bone, or ivory knife. Most of the chemically pure brown gold of commerce is very gritty, and must be ground on the slab with a glass muller until perfectly fine. Use turpentine to wet it with while grinding. Frequently the gold will turn into metallic flakes under the muller, but all must be reduced to fine powder. This gold can not be ground too much. Every particle of medium must be saturated with metal, so that wherever the brush touches the ware it "tells."

When you prepare your own gold as I have taught you, it will not require this severe grinding, for it is already finer than you can possibly make it.

It must, however, be thoroughly rubbed. And there is a marked difference between the two, as your weary arms will explain.

Like all thoroughly good things, this gold is, in the end, the most economical.

To prepare the gold to apply to the plain surface of the china, you should add about ten per cent of flux, and also you may add silver, to tone the color to your liking.

The more you add of the latter, the paler it will become; even fifty per cent of silver will make a beautiful pale gold. Providing you make your own gold, you can not use so much with the kind you buy, and obtain the same result.

For flux you may use three per cent of bismuth oxide; a flux consisting of eleven parts nitrate of bismuth, and one part borax, using ten per cent; or buy the gold flux with red oxide of mercury, using as high as one eighth.

Should you wish to avoid all this troublesome work, you can purchase the prepared burnishing-gold in powder, at so much the pennyweight, properly fluxed and ready to be ground.

I can recommend Hancock's as the most reliable as to quality and color.

There are two qualities, at two prices of course. I strongly advise the best; you can spoil it yourself—if you wish to. Also the unfluxed gold can be purchased, and you will need both.

All the implements and materials of gold-work should be kept piously



Vienna and Herend Porcelain.

by themselves, and held sacredly apart from all other work. Like unto the high-caste Brahman, the touch of the vulgar is contamination, and he is unclean for evermore.

The gold palette should never have anything but gold upon it. In my studio a piece of ground-glass, eight by eight, is used. The slab and muller with which the gold is ground are never washed; this is to prevent the waste. It should all be scraped up as cleanly as possible with a bone knife. Then wet with alcohol, and cleaned off again. The alcohol does no harm, as it soon evaporates. A certain amount of gold remains always in

the rough pores of the glass. There let it stay, for the next time you prepare metal they will only have to be refilled.

Brushes known as tracers, liners, and shaders are used, and should never be employed for any other purpose until you are through with them as gold-brushes. A small bottle, about the ounce-size, should be kept and labeled "Alcohol for gold." When you have finished using your brush, cleanse it in this alcohol.

The gold will settle in the bottom of the vial, and, when enough has accumulated, the alcohol can be poured off, and the gold taken out and remixed, when it is again as good as new.

Brushes cared for in this way will never grow hard or stiff. If, by some oversight, a brush should be neglected and dry hard, and full of gold, stand it in the alcohol-bottle, and in a little time it will be all right again. Do not try to bend or hurry it, for you will only break the hairs and spoil your brush.

A special dish should be kept for turpentine. A little glass individual salt-cellar is the nicest; the gold is heavy, and, as the point of the brush is dipped in the turpentine, particles will be detached and sink to the bottom. It is surprising how much will accumulate in a short time in this way. It is worth while "to gather up the fragments, that nothing be lost."

There is one more implement which I find very useful in gold-work, and this is a bone crochet-hook, to take the gold from the bottle. It is rather nicer with the point of the hook filed off, but does very well in its normal condition.

With this unpoetic implement, you "fish" as much gold out of the bottle as you wish to use, and put it upon your palette; then mix with it enough oil of tar to make it the "right consistency." This sounds a little vague, but that is one of those things you must "*know*, of your own knowledge."

The gold must work evenly and well; sometimes it is best to add a very little thick oil. To some persons the odor of tar is disagreeable, but it soon becomes associated with the idea of something very beautiful "about to be," and one becomes gradually "educated up to it"—very much as one is to caviare and other doubtful things of great respectability.

The gold should be laid upon the ware in a smooth even coating, dense enough, so that the ware can not be seen through it. To make it heavier than this will not add to its beauty, as it is opaque, and only the surface is seen. If too thick, or "rich," it will scale up in firing, and is much more troublesome to remedy than when too thin. If this latter trouble arises, it must be repainted and refired. After coming from the kiln, it is a dull, yellow-ochre tint, and must first be scoured and well burnished before it is bright. For raised surfaces on the china, like flowers or scrolls in handles, etc., the gold must have extra flux; also when used for grounds.

TO SCOUR THE GOLD.

Take a soft, fine, moist cloth and dip it in powdered pumice or silver sand. Rub the gold gently with a circular motion, when it will begin to grow lustrous. This is one way of scouring, and has the advantage of being old-fashioned and time-honored. Otherwise use

A MATTING-BRUSH.

This tool is a little club of spun glass, wound about with a heavy cotton cord. While using it you should not neglect to put a pair of old kid-gloves upon your hands, to protect them from the fine particles of glass which are broken off in scouring. They stick into the hands like so many invisible cambric-needles, and it well pays to be cautious and avoid them. Glass is not only disagreeable, but poisonous, and will fester in the skin; so, *garde à vous!*

Spread a paper over the table at which you are working, to catch the particles which fall, for quite a quantity of the glass invariably is broken off. A brush lasts a long time; as it wears away, unwind the string. You can use either end indiscriminately. Hold it in your hand like a muller, and use considerable force.

In clouding and flat work a rotary motion is best. For bands, and where a distinct direction is desired for the lines of light, straight strokes are proper.

In case you refire the piece, be sure that none of the particles of the glass adhere to the china, for they will melt down upon it, and then the mischief is impossible to remedy.

After scouring, take the burnisher and burnish. The lines of ornament should be followed, not scratched at right angles and then recrossed, but going, like the Irishman's dance, "backwards and farwards, wid de s-a-m-e regularity."

The object to be burnished should always be held with a cloth.

Mix a little whiting and water into a paste; after you have gone carefully over the whole surface with your burnisher, put on a little of the damp whiting with a soft cloth, to remove the grease which arises, in spite of Fate, on the surface. This will dry immediately. Wipe it lightly and carefully away, and then repeat the burnishing, and, unless you have made some egregious blunder, your work will shine like the rising sun.

If the gold is under-fired it has a clayey color, will rub off, and must be re-fired. If over-fired, it will sink into the glaze, and will not burnish; in which case it must be regilded and re-fired.

To make a rich matt gold, re-fire after burnishing. The effects of scoured gold and matt gold are quite different, though both are indiscriminately called "dead" and "frosted."

BURNISHERS.

Burnishers are of two kinds, blood-stone and agate.

For amateurs, I decidedly recommend the agate. These can be gotten in many different sizes and in several shapes. No. 9 is a pointed agate. No. 14 is flat on one side, and convex on the other, extending to a point. Could I have but one, this would be my choice. No. 37 is hook-shaped, and useful for getting into out-of-the-way places—inside and underneath the handles of cups, in raised ornamentations, etc.

These three make a very complete outfit, and may be used just as they are purchased, but are not then in their best condition. To make them work beautifully, you should take a small piece of pine or other soft-wood plank, put on it some fine emery, mixed with sweet-oil, and



AGATE BURNISHERS.



STEELE COLOR
ERASING PIN.



CURVED
ERASING KNIFE.



LANCE SHAPED
ERASING KNIFE.



MULLER.



GLASS BRUSH FOR MATTING GOLD.

rub the agate on it, until the surface is dull, all the high polish being gone; then it is in "business trim." The burnisher must be kept perfectly clean, which can be done by dipping in your whiting and wiping off on the soft cloth, with which you hold your china, or by rubbing on the putty-block. This I will soon describe to you.

In purchasing your tool, it is well to look carefully at the point, and select one which will not bite the ware, for it is very easy to cut deep, ugly scratches, not only through your gold, but into the glaze of your china.

This unhappy result is often obtained by the bad handling of a good tool. And if your work is not a complete success in the first instance, don't follow the old example that Adam set us—and lay the blame on some one else; but acknowledge your own fault, and find out a remedy. Poor Adam! he lived before the time of revelation, and did according to his light; and human nature, left to its own devices, *is* "low."

Blood-stone burnishers should be most carefully selected. Avoid buying cheap ones, for almost invariably they are seconds—or, *rebut!* rejected by the professionals, but sold as good enough for amateurs. They are sure to cut the gold, and behave in a mischievous manner generally, often after having lulled your suspicion by a limited season of good behavior. The blood-stones must be frequently cleaned on the putty-block, or they will quickly discolor the gold, and give it an ugly leaden tinge, which can not be removed. The moment the tool does not seem to work well, rub it vigorously on the putty-block, and try again.

TO MAKE A PUTTY-BLOCK.

Take a piece of wood about three inches wide, nine inches long, and an inch thick. On the top of this glue a piece of sole-leather, the smooth side up. On the surface of the leather scatter some burnisher's putty (which is a slate-colored powder). Then rub your burnishers well, and, if they are blood-stones, do not spare your muscle.

You will soon wear some ridges in the leather, and the older your block grows the nicer it becomes. It should always be near you when

at work, as your gold will look much better left alone than rubbed with a burnishing-tool which is not in good condition.

The putty is best kept in a shaker salt or pepper bottle.

CHASING.

Exquisite effects may be secured by chasing. This is done by sketching with a fine agate point on a matt-gold surface. The chasing-tool is simply a superior burnisher. This work must be attempted only by a sure, skillful hand; as the lines once made can not be effaced, unless the whole surface is evenly burnished and refired. The chased line is bright, and beautiful little landscapes and heads, or diapering and meanders, can be produced, which look like the finest engravings. Little lunettes of this kind can be introduced with the most artistic effect.

In painting flowers of different tints of gold and bronze, a beautiful style of finish is obtained by scouring the entire surface; this work up with the chasing-tool, just as if you were drawing with a pencil. The very high lights burnish bright, and draw the outlines clear and firm, using crossed lines in the half-lights, and leaving the parts in shadow untouched. Grasses and ferns treated in this way are most satisfactory.

I must not forget to suggest to you how lovely a flight of little birds are, made in this manner; the wing and tail feathers drawn cleanly and well, the sharp little eyes and saucy beaks made very bright, as if the sun were shining on them. All the roughnesses of Mr. Crane's legs can be shown, and he will not remind you of Miss Kilmanseg—because—there are two of them.

TINTS OF GOLD.

Gold may be made of several tints by mixing with it other metals. Silver will make it white in proportion as it is added. A little red bronze will give quite a warm red tone, and a very little pure green gold will give a beautiful greenish cast.

This green gold is very little used this side of the Atlantic, but I can always obtain it for you if you have trouble in procuring it; and, with-

out mixing, it has a tint very like the backs of the beautiful tropical beetles.

CLOUDINGS OF GOLD.

These are produced by painting the gold on in about the form you wish it, and then evening over the whole, and softening the edges with a fitch-stippler. Often one can do the whole work with a stippler. Practice gives one "knack" at these things that is better than any number of formulas.

I honestly know of no prettier center for a saucer than a couple of bright-colored butterflies, with a little gold clouding about them—and a little of it goes a great way. Sometimes a *décor*, which is spiritless and vapid, will become brilliant and well-balanced with some suggestive background of this powder-gold.

Clouding should be scoured, not burnished. Tiny stars and crescent moons are lovely chased in the clouds.

A naughty old Scotchwoman, when reproved by her dominie for using strong language, admitted that, "nae doot, the swearing is wrang, but it doo set off conversation woonderfully." Gold is expensive, but then is there anything which sets off decoration as well?

WORKING GOLD OVER COLOR.

The color must be first fired and nicely polished. Then take some of your unfluxed gold from your bottle, rub it up with the tar-oil until it works well, and then use it as if you were working on the plain surface of the ware. Make your outline diapering or clouding as the case may be, and the result will not fail to justify your expectations. If the ground-color is very opaque and glossy (like a solid coat of celeste blue, for example), I give it a rather lighter fire than usual; if over a simple tinting, no change from the ordinary heat is necessary.

It is a generally received axiom, which is supported by most excellent authority, that "gold can not be worked over color"; but I find no trouble in doing it successfully.

The flux of the color will penetrate the gold sufficiently to combine the two; whereas, if a fluxed gold were used, the metal would become too soft, sink into the color, and the whole have a dull, uninteresting appearance.

Therefore, *always*, in using the gold over color, take that which is unfluxed.

WORKING COLOR OVER GOLD.

Color can be used upon gold, but it is safest to have the gold fired first. In case of emergency, after the gold is nicely dried, the color-line can be laid firmly and densely upon it. But this is anything but a wise proceeding for every-day work, as the least smirch of color will ruin the gold.

CHEAP GOLD FOR PRACTICE-WORK.

It is an excellent scheme for any one who wishes to do good gold-work, being yet an amateur therein, and wishing to avoid the attendant expense of practice-work, to mix one half silver and one half gold. This makes a very pale gold, and is much admired.

WEDGWOOD'S RECIPE FOR BURNISH GOLD FOR PAINTING.

One pennyweight brown gold, one grain prepared silver, one grain No. 8 flux; rub together on a glass slab with a glass muller.

GOLD FOR GROUNDS—SAME AUTHORITY.

One pennyweight gold, one ditto mercury, two grains of prepared silver, and two of flux.

A HANDSOME GOLD

Is made as follows: One part gold alloy, one part of brown gold, and six per cent of flux.

SILVER.

The following is the proper method to prepare silver to use upon china: Take pure strip-silver and put into a vessel containing nitric acid. Set this into a pan of boiling water; add to the silver and acid a small strip of platinum. Stir it with a stick so as to bring the platinum in contact with the silver until it begins to work, then cover up and set away by itself until the silver is all crystallized, as the fumes are extremely disagreeable. The acid will bubble and boil, and the silver will be reduced in a very short time. The acid will first turn green, then the color of *café noir*, and, after the silver is entirely crystallized, it turns green again. The piece of platinum will not dissolve, and can be used repeatedly.

The crystals which you obtain by this process will be transparent, fine, and clear, mostly needle-like in shape, little sharp points sticking out in all directions.

Now pour off the acid and dissolve the crystals in distilled water. They will dissolve almost immediately. The silver can be precipitated by two methods—first by salt, secondly by copper.

To precipitate by salt, take two quarts of water; in half of it put one teaspoonful of salt, in the other dissolve twenty-five cents' worth of nitrate-of-silver crystals. This has to be done in the dark, as the actinic ray of the sunlight discolors the silver.

It should stand several hours, until the silver is precipitated in the form of a very white powder; then introduce a small strip of common zinc to separate the salt from the silver. The zinc should be a bright new piece, or, if otherwise, should be wrapped in a bit of thin fine muslin. The silver must still be kept in the dark, and if you glance at it you will find the powder looking dark from the zinc. It should stand about twenty-four hours, the zinc being agitated occasionally, so that it may come in contact with all the silver. After it all looks gray alike, you can pour off the water, and wash as usual with hot water.

The first water turned on will look yellow, from the combination of zinc and salt.

To precipitate by copper, dissolve the nitrate in distilled water, then drop in a piece of copper; a cent answers the purpose. The precipitate forms readily in flakes all over the penny as deeply as half an inch; it looks like a woolly sheep. Let it stand overnight, then pour off the water, wash several times in hot water, and treat in the same manner as gold.

Nitrate of silver is the test of pure water. If impurities exist in the water, it will turn milky.

Distilled water is necessary for either process, and this is a simple method to obtain it:

Put a steamer on the fire over a kettle of boiling water. In the steamer place a good-sized bowl, then put on the cover of the steamer upside down, filling it with cold water. The steam will condense very readily on the cold inverted cover and fall into the bowl which is in the steamer. The first which falls should be thrown out, as it contains salts, and only the middle third used, the last third being also impure.

All the unpleasant part of this work—which is the portion where the dangerous nitric acid is used—may be avoided by purchasing nitrate of silver from a chemist. Twenty-five cents' worth will last you a long time.

Put this in a pint or more of water, where it will dissolve in fifteen or twenty minutes, then drop in your penny contribution, one of the big, old-fashioned kind, and leave it overnight, when you may proceed as above directed.

Silver must be ground perfectly fine, mixed, and kept in the same manner as gold.

It should be applied in a much heavier coat than gold, as it is a less dense metal, and more of it vaporizes in the kiln-heat.

I have found it an excellent plan to add a little gold, to give density to the silver, and also to keep it from discoloring.

The silver will endure a gold heat; but when the fire is a little hard it may disappear entirely, while gold fired at the same time will not be in the least injured. Silver discolors with the action of the atmosphere, and coal-gas, after firing on china, just the same as silver-plate will do, and

can be polished up with a little whiting; but, of course, repeated scourings are the "constant dropping which wears away the stone."

Silver can be scoured, burnished, and chased like gold. When it has been burnished and then re-fired, the frosted effect is a delight to the eyes.

AN INCIDENT.

"Cast out first the beam out of thine own eye, and then shalt thou see clearly to pull out the mote that is in thy brother's eye."

Once, not long ago, "one of us" went upon a visit to another, who, it so befell, lived in the "City of Sin." The two were to have a glorious season of experiments and uninterrupted mixings.

A dangerous husband was the only wizard who had charms potent enough to seduce these two from the shrine of paints and acids and the altar of holy fire whereon the base clay gods are made beautiful. Ruthless commerce had torn this dread disturber from his fireside and sent him into a far country hunting duck of the lame variety—when, too, a great snow-storm arose and kept him there; and the omens were propitious. And now there was no being dragged, a very delighted victim, to the opera, or beguiled to a ride on the boulevard, or to go to some *matinée*, or "down-town" in the blessed morning to look at pictures; and, even, was there no dressing for dinner. Verily the coast was clear.

The orgies could proceed uninterruptedly "till midnight's holy hour," and you may wager they did.

It was decided, as a preliminary operation, to make "lots" of gold and silver; to turn the studio into a laboratory; to dissolve, transform, create! A most fascinating programme.

Strip-gold to the amount of fifty dollars was to be offered up, and silver—well, "a big lump."

Each priestess had a lovely vestal, and it befell that, when the uncomfortable discovery was made that there was a lack of pure nitric acid for the reduction of the silver, these amiable two offered to go forth and procure it. "For there are ever so many little drug-stores about here where we will be sure to get it," they said.

Therefore, they donned their saucy little plumed-hats and their warm seal-skins, and sallied forth, for they "didn't mind" the snow "one bit"; and the last words which rang in their ears were, "Pure nitric, remember, nine ounces"; to which they dutifully responded, "All right."

Left to themselves, the two arch-priestesses commenced to work their



The Vestals.

charms. The gold began to seethe, and the smells let loose were awful! But they bore it with a keen delight, which only accompanies something which has as its base a strong element of the scampish. Visions arose of the ever-ready pots, in the by-ways of the Old World, to which the fleet-footed thief brings his spoil, and, with but a short start, on the no

less nimble-footed law, it passes again into the wholesome atmosphere of universal beauty.

What if "he" should materialize from one of those acid clouds! Wouldn't there be a circus? By some mixture, dropping some copper in the wrong thing, a beautiful blue liquid was obtained. This was hailed with delight, not because it was of the least use, but because it *looked* so mysterious and professional. "Lovely!" "Just like a chemist's window."

Occasionally these selfish creatures would look out into the blinding snow and say, "It really was a shame to let the girls go for that acid!" and wonder why they were so long. But neither one had it in her heart to call them back without the acid. For must there not always be martyrs for every good cause?

After a waiting which was becoming weary, the two returned from their faithful quest—acid in their bottle, and fire in their eyes. They shook off the snow in clouds from their garments, exclaiming in a wrathful and excited duet, "Next time you want any of your abominable things, go yourselves, or send William! We have it, for we were bound we would—but such a chase! The mean things! Where do you think we had to go for it?" One of the priestesses, overawed by the wrathful gleam in the eyes of the virgins, suggested in a timid voice, "Kamchatka, judging from the time." "No!" replied the vestal, in a voice the virtuous dignity of which crushed out irrelevant trifling, "to Gale and Blocki's!" "What on earth sent you away over there?" chanted the priestesses unitedly; "we thought you must have gone in somewhere for hot chocolate; or to play with the Palmer's baby; or to buy caramels." "Or frozen stiff in a snow-bank, chewing them!" responded they in wrath. "No, we went for acid, and acid have we brought. Now take it, and hear what a time we had! We went to three stores up here. When we asked the first old fellow, he turned fairly pale, and gasped out, 'Nine ounces!' Then he said he had not sold so much in five years; that he only had two ounces and a half in his store; besides, if we took it, it would be apt to explode on the way home." "Just as if," exclaimed number two, "you would have sent us for anything that would blow us up!" "Then," resumed number one, "we went to that nice-

looking little store up at the corner, and a young German waited on us. He stopped a moment when we told our errand, and asked us what we wanted with so much nitric acid. We thought it none of his business, and told him we wanted it for a *special purpose*. He stopped again, seemed to think, and then said he was sorry, but he 'didn't haf none.' Now, we just think he had barrels of it, but wouldn't give it to us, because we wouldn't tell him what we wanted it for. But we just *wouldn't*, and went to the last store up here. There we found a sensible-looking clerk, and he said the call was an unusual one; were we sure we were asking for the right thing? He didn't think we were! So we thought we would tell *him*, and we said 'we wanted it for a special use—to make gold with.' He smiled in a hateful, superior kind of way, and said 'nitric acid wouldn't make gold, and anyway he hadn't that much.' Now, he doesn't know much about china-painting, does he?" demanded the excited creature. "We just left him to the darkness of his own ignorance," she resumed, "and went straight to Gale and Blocki's, where they know something, and don't ask questions, and are not rude, and tell you about being blown up. We just told them there that the 'high-priestess' had sent for nitric acid, and they gave it to us."

"It is a great deal nicer to go to stores where there are people who know you," and she held forth her bottle in satisfied triumph.

"By-the-by," she added, "Mr. Blocki asked if the head of the house was at home. I said, 'No.' He replied that it 'was too bad; that he ought to be; but that perhaps, on the whole, he was just as safe where he was.'"

At last, after warm tea and dry garments for the vestals, quiet settled upon the band, and the work recommenced. After a time, the inspired voice of the high-priestess rose in the stillness. "By the great Isis, I have an idea!" she exclaimed. "'And the mountain labored and brought forth a mouse,'" suggested her sister. "Proceed; little as it probably is, it may be refreshing." "I will," said the priestess, humbly.

"Do you recall the dynamite-scare at the Public Library, the blowing up of the Tower of London, the underground-railway explosion, etc., etc., of late; and that, in the Tower affair, *women* were suspected of being the bear-

ers of the deadly explosive? Now, of what are dynamite, nitro-glycerine, and all those abominable things made?"

"Our mission is not the compounding of explosives, neither do we care about them," cried the others, even the saucy vestals. "All *we* care about now is china-painting."

"Exactly; that is just the trouble," exclaimed the high-priestess. "If you could be induced to take that china-beam from out of your eye for an instant, you might discover the mote in the eye of these chemists. It has just come to me that they thought you might be sent forth to purchase that acid by some den of communistic conspirators for making nitro-glycerine, especially when you told one of them that you wanted it for a 'special purpose,' and the other did not believe 'that gold-story,' and they one and all suggested, 'How explosive it is!' No doubt you were followed by detectives from the very first store you went into, all about from one to the other. And," she cried, grown excited, "I believe this house is being watched by the police this minute!" A rush was made to the windows to see. Horrors!—and the companion high-priestess cried, "Let us go and pour it all down the stand-basin this very second! Do you suppose we could get into any trouble? Think of being taken for dynamiters by those stupid police! I wish *he* were here! And then we were so glad he wasn't!" she wailed, to the accompaniment of a gurgling sound in the stand-basin.

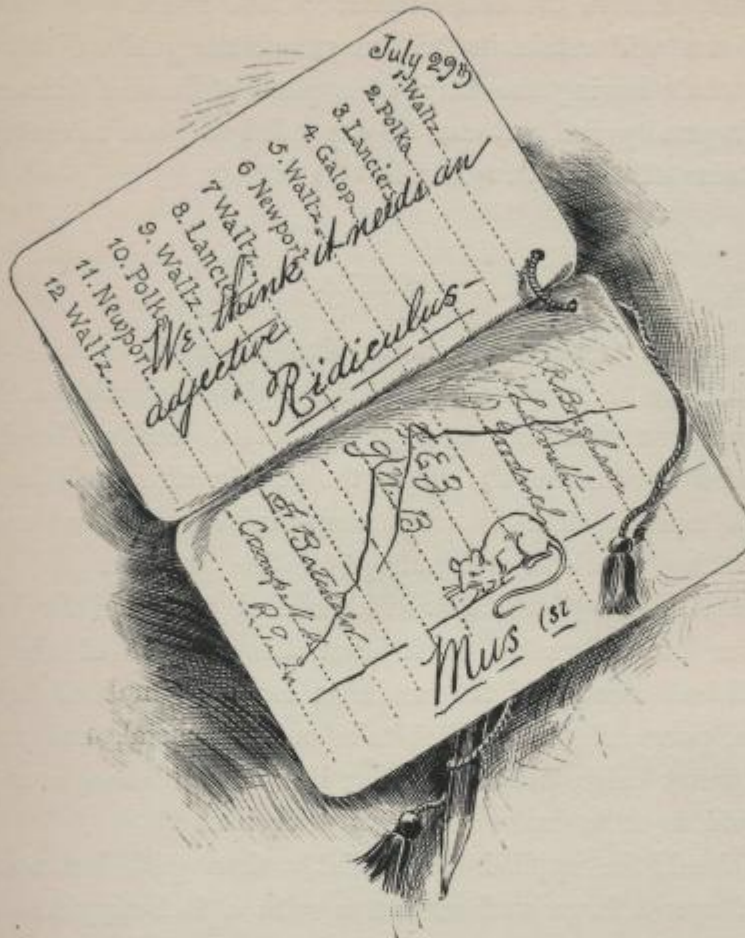
"Never mind," said the other high-priestess, "we will send for some nitrate of silver, and have a nice time with that. It is really the same thing in the end," she added, consolingly.

"Send for it!" cried the vestals, with wrathful voices — "'Go for it,' must have been what you meant to say; and it is what you will have to *do*!"

In silent indignation the priestesses threw their arms about each other, and retired alone to their sanctum, closing the door upon the rebellious ones.

Soon a little rustling noise was heard without the portal, and something small and white was slipped underneath. "Ah! the white-winged messenger of peace is settling down upon us," said one; "I thought their wrath would not last long." "How beautiful is humility!" remarked the

other; "let us read their apology." And she picked up the paper, and, opening it, saw *this*:



PLATINUM.

Platinum is a metal which is very like silver in color, but has not the same purity of tone. It has a colder, bluer shade, something between polished steel and nickel. But then platinum does not tarnish, and has one peculiarity all its own.

Like gold and silver, it comes dull from the kiln; but, when once burnished or chased, it retains its brilliancy through repeated firings.

Beautiful effects can be procured by taking advantage of this fact.

For example, paint a disk with a ground of gold; on this draw arabesques of platinum.

When fired, burnish the entire surface; then re-fire.

The platinum will retain its brilliancy, and the gold will be a rich matt nuance, the whole having the effect of a piece of Persian damascening.

A little ingenuity and wit can be expended to good advantage in making combinations of these two metals.

BRONZES.

The bronzes are treated very much like the gold.

They should be thoroughly ground on a glass slab with a glass muller; but, remember, you must not use your gold slab and muller for them.

If you wish to cleanse the glass thoroughly after grinding a bronze, wash it with sapolio. This is not a soap-advertisement, but really sapolio *is* the only thing which is satisfactory for this purpose.

You should have a small ounce-vial labeled "Alcohol for bronze," and clean all your bronze-brushes in it after the manner of the gold ones. When a sufficient amount of the washings have accumulated in the bottom of the bottle, pour off the alcohol, take out the metal, and make a test of it. If a pretty color, use it as it is; if not, add enough of some pure bronze or gold to it to make a tint to your liking.

Bronzes should be applied more thickly than gold, but not so thickly as silver. If over a large surface, flatten with a fitch-stippler.

When the bronzes come from the fire, they are dull, uninteresting, powdery-looking colors.

Take your matting-brush and scour them thoroughly. If under-fired, the bronze will rub off; but if right, they will grow lustrous with the friction.

A second fire, after scouring, improves most of the bronzes immensely. A certain amount of powder will rub off always; but this is not the metal, only the coloring-matter with which the metal is tinted.

Do not confound green-gold bronze, No. 9 (Hancock's), with pure green gold. It is quite a different material. As the No. 9 comes, it is not

richly enough fluxed to work well. Add about five per centum of gold flux, or flux, No. 8. It is best to make a test before using on any important piece. The color is a dark rich green, and, when outlined and diapered with gold, exceedingly rich effects can be produced. Dragons and griffins in green bronze, with golden scales and claws, and ruby eyes, make very telling incidents.

Red bronze, No. 10, should also have gold flux or fluxed gold added. An addition of one third of gold produces one of its finest tones of color. Pure, it is a very fine background for tracings of gold. For instance, draw a bordering of acanthus-leaves in solid red bronze, and outline and vein them in gold. Do you not believe them handsome?

Bronze, No. 21, is a great favorite with us. It is beautiful by itself, and each tone obtained by adding gold seems more satisfactory than the last. When gold tracery is used over No. 21, it takes quite a pale, greenish tint, and is very pretty.

You are sure to like No. 21, and if it does not come out just as you expected it would—whatever it is—it is sure to be pretty!

Bronze, No. 22, is similar to No. 21, but is a shade colder, and more silvery in hue.

Bronze, No. 4, is dark and dignified in tone, and makes an excellent variation from the others. It has somewhat the tone of Berlin iron.

It is hardly necessary to describe the other bronzes. They simply run the gamut of metallic hues, and, when you have used the ones I have told you of, no further description will satisfy you. Nothing short of trying them will answer your purpose, or complete the measure of your longing.

An infinite variety of tints can be obtained by the addition of various amounts of gold and silver and by mixing with each other. Also repeated firings change the tones.

Make plenty of tests, and keep a written record of them. Then you are enabled to repeat those which particularly please you. To those of you who, Alexander-like, have mastered all the field of china-colors, here is opened up to you a new Africa, for exploration, conquest, or commerce, and I assure you of boundless room for your achievements.

The bronzes should be scoured, not burnished. They will bear the

burnishing-tool; but, after you have used it, you will agree with me that it is in wofully bad taste to "shine them up" like boot-polish. Of course, you *can* do it, if you wish.

The bronzes which I have described are Hancock's.

The best brushes for gold and bronze work are a No. 4 lettering, Nos. 1 and 2 tracers for fine work, a No. 4 square shader for flat surfaces, or larger sizes of the same brush, if the case demands it.

TO USE ACID.

If it is necessary to remove spots or portions of decorations after being fired upon the ware, hydrofluoric acid must be used.

This is a very violent material, and the greatest care must be taken in using it. The acid comes in gutta-percha bottles, being so strong that it would eat through glass vials in a short time.

Use a stiff bristle-brush or bit of hard wood cut to a point, dip in the acid, and rub on to the ware. The acid will immediately attack the glaze, and a strong vapor will arise like smoke. Be careful to keep your lips closed, and avoid as much as possible inhaling the fumes. Apply fresh acid until the objectionable portion is removed. Then wash thoroughly in soap-and-water. If some very small spot is to be removed, or one of particular shape, cover the place and a radius of half an inch or so with modeling or beeswax; be particular that it adheres perfectly to the surface. Now cut away the wax from above the spot to be bitten out, and be sure that this portion of the surface is perfectly free. Then cover the place with acid. The wax is entirely indifferent to it, but the exposed surface will be eaten away.

Very handsome effects can be produced in this manner for decoration. Cover the entire article by dipping it in hot wax and then plunge in cold water. Draw bands or lozenges with an erasing-pin, etching-needle, or any such tool in the wax, exposing such portions of the glaze as you wish to have eaten away. Apply the acid, and allow it to bite deeply enough to leave the pattern perfectly apparent to both sight and touch. Clean thoroughly. It is necessary to cover the entire surface with wax, in the

first place, as the acid fumes are sufficiently strong to injure the brilliancy of the glaze, and make a "bloom" upon it.

The fumes also will eat the glaze entirely off English china. The French has more resistance.

Paint the surface to be decorated with gold. When fired, scour the gold with the glass brush, and burnish the glazed portions.

It is an excellent precaution to wear India-rubber gloves, if not too bungling. Be exceedingly cautious not to get the acid upon your skin. If you are so unfortunate, wash immediately in ammonia-and-water. It will not hurt at first, but in a short time will commence to burn, and, if not attended to immediately, will eat into the flesh until it exhausts itself. The pain is simply intolerable—own cousin to the Inquisitorial thumb-screw. Should the finger-nail be attacked, you are almost certain to lose it, for, when the acid commences eating into the "quick," it can not be reached.

I have carried my hand in a sling for weeks at a time, from acid-burns, and am very reluctant to advise its use.

It is wiser in the majority of cases to take a fresh piece of ware, and often very much more economical.

Sweet milk is also an excellent antidote for acid. But to be cleanly—and leave it entirely alone—is best of all.

RAISED GOLD.

To make relief or raised gold-work, it is best to use Hancock's paste. This comes prepared in two ways—in tubes prepared to use with water, or in powder to be ground down and used with oil. Should you choose the former, simply take the relief from the tube, and, if too stiff, reduce to the proper consistency with water, also assuring yourself that it is quite fine and smooth.

If you choose the powder, which is what we use, you must grind it down with a muller in turpentine on a ground-glass slab. It would be well to grind all you have in your vial at once, and so save considerable trouble; but in this case you must put it into a larger bottle when done,

or, like the imprisoned genii, who rose from the bottle on the sea-shore, it will be "too large to go back again."

Mix the amount you wish to use with tar-oil (nothing else works so well) until it is about the consistency of table mustard. This is a homely comparison, but it happens to be the best which occurs to me, and I wish to be understood by all.

Use a bone knife; it is not positively necessary, but it is always safest. Some authorities insist that it should be breathed upon several times during the rubbing process. I never saw any especial virtue in this species of hocus-pocus, but, if it please you, make all the mysterious signs and incantations you are acquainted with—only so that you keep rubbing during the performance, and have the paste smooth *ad finem*.

Use turpentine in your salt-cellar to moisten your brush while working. The best brushes are No. 1 or No. 2 tracers, and for long, delicate lines a Trenton tracer is excellent; but you should not use this brush at first.

The design should be sketched or indicated so that you can apply the paste unhesitatingly, for the work is not satisfactory if patched or torn. The surface of the paste must be smooth, to take the gold well. If the surface is thin and rough, the gold will never look as it should.

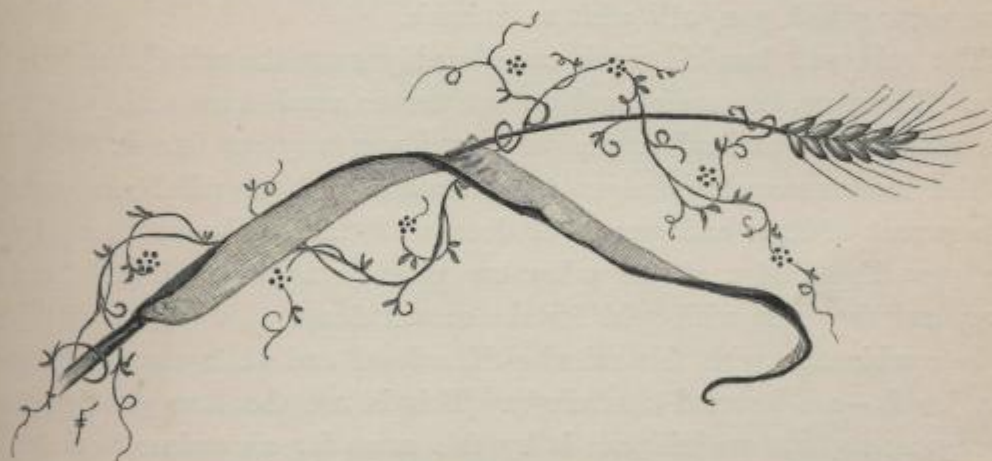
Amateurs, I find, judging from the firing sent me, make the mistake of "raising" entire leaves with a very thin coat of relief (which is almost invariably scratchy) when they wish to express a middle light. This is wrong. Raise the outlines and rims as in this ear of wheat, for instance:

Raise the solid lines and the ear only, and the flat gold will express the remainder. When the paste is so thin that you can see the ware through it, it is not right.

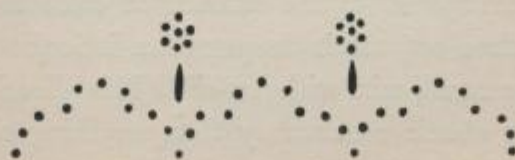
If you have some design that you wish to model up very high, the first coat may be applied, left till almost dry, and then more added. If dried hard before the second coat is applied, there is danger that the two will separate after firing, which is not pleasant. The relief should be of a dull-yellow color when it comes from the kiln. If it is glazed it is rather mischievous, and unfluxed gold must be used to remedy the evil. Otherwise, fluxed gold is the proper material.



For first firing put paste only on the heavy lines; leave clean surface between them and the dotted lines,



For second firing.



For paste for first firing. For second firing, see Violet Cup on plate with designs for Raised Gold.

If you tint the ground of your ware, first sketch the gold design in water-color, unless you tint with water-colors, when you must use Hancock's sketching-ink. Then tint the surface. When this is thoroughly dry, you can put on the relief, and fire all at once. It is not necessary to take the tinting out from under the relief. But, until you are practiced in putting on relief, it is best to have the tinting fired first.

You will have to use your gold a little thinner in applying it upon the relief, as this material is porous, and will absorb the moisture in the gold very readily. Use enough to make an opaque covering over the relief, and entirely conceal it, when you will "have done the proper thing." If put on too thickly, it will scale off when fired.

When the gold comes from the fire, scour it with the matting-brush; and this is all that much of it needs for the final finish. But there are often parts which you will wish to burnish.

The gold will burnish much more readily over the relief than on the ware. Therefore, be careful and do not use so much force with your tool. The relief is not so hard as the ware, and you may cut into it.

The most successful designs to commence with in relief are graceful arrangement of lines and groups of dots, with flat scroll-work about them. The preceding design of the wheat-ear gives you the relief for the first firing, and the same with gold for the second firing.

In combination with this raised gold, colored and white enamels in dots—as jewels—can be used charmingly. This is not the *bona fide* jewelery, by any means, but we will call it by this name for convenience' sake.

I have best success with the German powder-enamel, or Dresden Aufsetz-weiss, which comes in tubes or pans. This can be tinted with the painting-colors; to make a turquoise, add a little blue of the shade which best suits you. If you wish a pink, add some carmine or crimson-lake.

Until you are accustomed to the amount of color to add to the enamel, make a test, for it fires out much deeper than it looks when mixed.

In using powder-enamel, mix with tar-oil. This discolours it before firing, but gives it a better elastic consistency than anything else.

The enamel should have but *one* fire. Always apply it as the finishing-touch, as it is very apt to chip out after a second visit to the kiln.

There is a kind of relief enamel color, which comes in vials to be used for china and earthenware, after the style of Longwy *faïence*, but I like them better on unglazed or *faïence* body than on the hard porcelain. They are more transparent than the colored enamels which you mixed when using the white as a base; perhaps you may fancy them. They are to be simply mixed with tar and applied in the same manner as the white enamel. They are apt to be treacherous, though, for jewelers. Your dots may be little hollow mockeries, or they may come out all right. If you fix them up and refire them, your turquoises may come out blue, and they may be green, as they take a notion; their principle of action seems to be a sort of Jack-in-the-box surprise. Still, there is always a fascination about the unknown.

TO DECORATE IN THE LONGWY STYLE.

For this an unglazed body should be used.

The mosaic pattern is drawn in a strong black outline and then fired. Heap the colors upon the surface of the ware; they are not laid on as in other modes of painting. It is best to use a fresh brush for each color, as there are no tints to be produced, and the purity and simplicity of every color should be preserved. The surface of the piece should be quite uneven after the firing, but all glossy and pure in color. The colors are very vitreous in character, and need to be thoroughly "smelted."

Since the devastating hordes of cheap Longwy salt-shakers have demoralized the public taste, this ware has lost its popularity. But a beautiful piece must always hold its own. However, it is a very difficult thing to create a thoroughly fine example, and takes more than a smattering of experience.

The colors come in powder in glass vials, and can be mixed with fat-oil and lavender, or with honey-and-water, or glycerine.

JEWELS.

The real jewels are made of drops of transparent vitreous paste, except in the case of the turquoise, which must be opaque.

They are purchased "ready-made," and must be fired on to the china by means of a vitreous cement which accompanies them. I can supply you with rubies, sapphires, emeralds, topazes, and turquoises. In using them, you are entirely at the mercy of Fate and your firer, and you must expect to pay the proper price for the work. These pieces have to be fired by

themselves, and constantly watched, as a moment too little or too much is ruin. If you do your own firing, you will soon understand the value of skilled work in this direction.



Copeland's Jeweled Porcelain.

Jewels should only ornament art-pieces which will receive good care, as they project from the body of the ware, and are liable to be broken off with rough, uncouth handling. They are best used on a soft paste, such as the English china, or on fine *faïences*.

The hard French porcelain contracts too quickly, and frequently crushes the jewel in cooling.

It does not come off free from the ware, but will leave a little rim of itself upon the surface of the china. The fireman is not to be held responsible for this misfortune.

It is the result of a chemical lack of harmony between the two pieces, and is no affair of his. His duty is to fuse the jewel to the ware without melting it or dulling its luster, and here his responsibility ceases.

Another method of attaching the jewels is to bed them in relief-paste for burnishing gold. Put the paste upon the ware and press the jewel into it; then fire, giving about an earthenware heat; afterward gild the relief which forms a setting to the jewel, and fire again to develop the gold.

PEARLS.

These are not in the least like the precious pearl, but are very small round pieces of crystal glass, just like tiny beads without holes through them.

They are to be applied as a complete coating over a rich decoration, and the effect is charming, like a fine early morning dew, or frost-work, as the sun touches it. This decoration has been used the past season on highly colored tropical birds, blue kingfishers, and robin-redbreasts, which are modeled in full relief as in bisque.

Robin looks very well, perched on a nest, thieving a breakfast of blackberries, all sparkling as he himself is with matinal freshness.

There are some splendid examples of bisque figures in costumes of Venetian brocade, which is covered with this material, and has a bewilderingly rich effect. Panel backgrounds with mediæval figures are well treated in this style.

The gold used under the "pearls" should be the liquid bright gold, for it keeps its luster perfectly, and is softened and enriched when seen through them.

To apply the pearls, the piece should be padded over with cement mixed with thick oil. When sufficiently tacky, scatter on a quantity of pearls, and roll them about until the surface is covered. Often the cement dries too quickly, then add enough lavender-oil to keep it open.

Sometimes you can press them home with a handkerchief, so that they "stick"; then fire. But make a test first to ascertain the proper degree of heat, which is much lighter, and requiring more delicate manipulation, than the "regular fire."

GLASS COMPOSITION.

This is another artistic specialty. It comes in lumps, and must be pulverized and mixed with some good medium—my beloved tar, balsam of copaiba, or whatever *you* like best—and it is fit to use.

You can make it of divers grades by sifting through different qualities of tarlatan.

It is best used on unglazed or semi-glazed surfaces.

LIQUID BRIGHT GOLD,

So much used, and so terribly abused, does not deserve the haughty contempt so vulgarly bestowed upon it.

You know there is one light of the sun and another light of the moon. The solar myth teaches us they are in love with each other. Then there is the third and lower-caste light—the light of the stars; and each is good in its season.

When fluid gold is properly applied, it is most acceptable.

It should be used as it comes from the bottle; or, if too thin, it can be poured upon a little individual butter-plate, and will soon evaporate enough to work well. If, on the other hand, it becomes too thick, thin with gold essence; but on no account use *turpentine*.

If you wish to wipe it off, or to clean an edge, take a damp cloth to it. Turpentine will leave a streaky purple stain probably, and, if the gold is thinned with the turpentine, *it will not wear*.

In decorating *faïences* with heavy-colored grounds, the liquid gold is invaluable for outlining and spattering. To produce this last effect in the handsomest manner, take a stiff bristle-brush, No. 5, flat, and crush it out of shape, so that the bristles stand "every which way." Then roll it gently in the gold which is poured out on the little individual butter, so that all the bristle-ends are covered, but not clogged. Touch it to the surface to be gilded as though you were stippling it.

To look well, the ware should come out very glossy from its first fire, and the second fire should be quite light.

The edge-line should be put on for the first fire, as that has to adhere to the surface of the ware, and the gold combines much more readily with the color than with the glaze. If the second fire is light, the gold will look rich and handsome (provided it is well applied); but if it has too hard a fire, it will be absorbed by the color.

You can not be too cleanly when using fluid gold. Every little smirch or finger-mark, which hardly is perceptible before, asserts itself ruthlessly on the return from the kiln.

Your sin will be sure to find you out, and there is no escape but the acid-bottle.

Used on parian, bisque, or unglazed vitreous ware, the effect is a beautiful frosted gold; but upon the raw or broken edge of *faïence*, it is only an ugly, dark blotch.

Very nice raised effects can be produced with dots of white enamel. For example, the stamens and pistils of cherry-blossoms or wild roses; or lines and groups of dots.

Have the enamel Aufsetzweiss fired hard. Then gild and give a light fire.

There are also liquid silver and platinum, which latter glitters as vulgarly as a "bit of tin in the sunshine."

LUSTERS.

There are many lusters.

If you use them in powder, they require to be rubbed down in turpentine with a little lavender, applied in a thin even coating and fired at a gold heat.

There is an advantage to the amateur in choosing those in a liquid form, as they possess the charm of being "ready."

Those which are most desirable are the yellow and rose. To thin these, use gold essence.

A lining of rose luster in cups is charming. To make it a delicate shell-pink, add about half gold essence, paint over it quickly, and pad it even with a flushing-pad; it needs a very strong fire.

A very peculiar, electric, purply-blue color is produced by putting the rose luster on pure and thin, and giving a rather light fire.

Only fluid gold can be used over pink luster. Burnishing-gold disappears, and silver eats all the rose which comes within the radius of a quarter of an inch.

Raised gold can be used very nicely over the luster. The fluid gold can be painted upon the luster before firing, as it is a sort of chemical first cousin, and it is permissible to impose upon one's relatives sometimes.

There are lusters of gray, brown, orange, red, blue, green, black, etc., but these are mostly used for earthenware, and I think will be of little interest to you.

The lusters have nearly all a yellowish tint before being fired, and you can tell nothing about what miracle will be wrought by the heat. Therefore it is wise to keep the labels carefully on the vials, and not interchange the corks.

RECIPES FOR GOLD LUSTERS FROM WEDGWOOD.

One pennyweight of gold, one of quicksilver, twelve ounces of balsam of sulphur, four pints of turpentine, two of nitric acid, and four of muriatic acid.

ANOTHER RECIPE FOR THE SAME.

Thirteen pennyweights of yellow gold, twelve pennyweights of balsam of sulphur, two drachms of tin. Put the balsam in a bowl and thin it with turpentine. Heat the tin and gold together in the same vehicle, then drop the tin and gold solution into the balsam, drop by drop, stirring well all the time. The balsam to be kept warm.

ANOTHER GOOD RECIPE FOR THE SAME.

Four ounces of muriatic acid, two ounces of nitric acid. Mix together. Dissolve in the foregoing one ounce of yellow gold, two and one half pennyweights of grained tin. Drop into this solution twelve ounces of balsam of sulphur and four pints of turpentine mixed together, stirring all the time with a stick, and keep stirring for four hours, or it will go to a jelly.

RECIPE FOR STEEL LUSTER.

Quarter of an ounce of platina, two ounces of spirits of salt, four ounces of nitric acid; dissolve this by the fire, and let it stand until reduced to

one half. Then four ounces of the foregoing to six ounces of spirits of tar, add little by little, stirring before a fire. Then filter through a linen rag.

GOUACHE COLORS.

The most elegant novelty in china colors which has been brought into being for many a long day is the palette of gouache, or opaque colors.

Worcester and Doulton factories have used them largely on their art-pieces; always in connection with gold outlining and raised gold-work.

Usually the important line of the gold is raised, and the others made flat.

One of the most elegant pieces I recall at this moment is a tall, slender, covered ewer, with a semi-glazed body. The handle, neck, and mouth are solid bronze, No. 21, covered with a tracery of gold foliage. On the dull, ivory-tinted body are leaves and flowers of fleurs-de-lis in natural tints, painted with the gouache colors rimmed and outlined with gold.

A little gold clouding, here and there, bewitches one into thinking that he is looking through these velvety flowers to the sky beyond. This is a Doulton.

The decorators of the Royal Worcester factory use the colors very much in conventionalized foliage, and arabesques.

I think their poppies in these colors the loveliest ever painted; and the tropical birds and orchids—you should just see them!

These colors should be used only on art-pieces. They come in powder, and must be rubbed down with thick oil and lavender to a consistency which works well. *No flux!* They look after firing very much the tint which they assume when wet with the medium; but you must make your own tests, to be at all nice as to shades.

If you have ever painted in opaque water-colors, you will understand immediately the spirit of these. If not, I can only give you the hint that much white is used.

For example, to produce light shades of pink or blue, add white, and do not rely upon a thin wash as in the ordinary china-colors. The lights must be as thickly painted as the shadows.

N. B.—The coral must never pay but one visit to the kiln.

By mixing with very little fat-oil you may put unfluxed gold over this color for the first fire: thus enabling you to outline and shade your coral with gold, which it would otherwise be impossible to do, on account of its not enduring but one visit to the kiln.

There is no gloss whatever on the colors. Some of the æsthetic pink and blue and yellows would be "soul-satisfying" even to the maidens of Patience—perhaps call forth a note of admiration from Lady Jane's great fiddle.

A NEW PROCESS OF ENAMELING CERAMIC ARTICLES.

A patent has been taken out in Germany for a new process of enameling ceramic articles. The glass, terra-cotta, stoneware, porcelain, or similar article, is covered with a film capable of conducting electricity, by painting the article with a solution of chloride of platinum or nitrate of silver, and burning this in, and then decorating as desired with enamel. This is burned in, and the article is afterward covered electrolytically with the metal. The galvanic coating does not adhere to the enamel, and very varied effects can be produced by gilding, silvering, coloring, polishing, platinizing, etc., the metallic surfaces of the articles.

PHOTOGRAPHY ON CHINA.

I have spoken to you of so many things not heretofore exposed to the view of the amateur or the general public, except as a manufactured article, that I do not feel altogether like passing over this subject; and while I have no desire to infringe upon the boundaries of "the sister art," it is, nevertheless, a fact that a large number of the most valuable plaques imported into this country are simply enlarged photographs colored by hand. I have seen portraits on china, heroic size, brought home from Europe, to become family heirlooms, which could be classified in this category—the film at the edge being imperfectly covered by the color, and velvet frame.

To accomplish this work successfully requires some knowledge of photography, chemistry, and firing, and opens one of the widest doors to a new period in decorative art. A work on this subject, by a practical operator,

is now in print, covering all the minutiae and detail of the French, English, and German experimenters to date. I commend it on its appearance to the careful study of all practical and amateur photographers.

TRANSFERS.

I will tell you about transfers—not that it is probable that you will care to use them, but because they are so general a trade article.

It is necessary, as a matter of education, and one might almost add self-defense, to know a print immediately. It is hardly once in a hundred times that the dinner and tea, fish, and dessert services, shown as “hand-decorated,” are really such.

The transfers are sold in sheets, and look like the old-time decalcomanie pictures. They are of the same nature, printed on an especially prepared paper from lithographic stones usually, and in mineral colors.

To apply them to the china, they should be cut from the sheet, removing as much surplus paper as possible from around the design. The china is painted with a thin coat of transfer-varnish, and the print must also receive a coat of the same, being careful not to exceed the outlines more than is necessary. If the varnish is too thick, turn the transfer face down on a piece of writing-paper for a second or two, and this removes the surplus varnish.

As soon as the varnish on the surface of the china becomes tacky, or sticky, which will be in a very few moments, place the picture, face downward, gently on the china in exactly the spot where you wish it to remain. Then press it with a fine damp cloth, beginning in the center and pressing carefully outward toward the edges. Then roll the paper with an India-rubber roller, which is made for the purpose, until every particle of air is expelled from between the paper and the china.

When the paper is carefully and thoroughly rubbed down, let it dry. Then set the piece of china in a dish of water, and allow it to remain until the paper floats off, when the picture will appear upon the surface of the ware.

Now take the piece from the water and dry it. If you wish to clean

about the picture, use alcohol. Do not tease or try to force the picture off while in the water, or you will more than likely tear it.

The dark colors are very apt to split, and curl up in firing; to obviate this trouble, give such portions a thin wash of chamois, or pearl-gray, using water enamel colors.

The most artistic transfers are monochrome outlines, which are afterward filled in with color by hand, the high lights touched up with white enamel.

Transfers are a universal blessing, for they enable the public to purchase really choice designs when printed which would be immeasurably beyond the limit of the ordinarily comfortable purse if produced by hand. They are to china-painting what engraving is to painting, or printing is to the old illuminated manuscript.

Our libraries would be poor indeed if we could obtain only the manuscripts of Dickens, Thackeray, or George Eliot; and what would the ordinary dinner-table be if only the sign-manual of Sèvres, Meissen, Coalport, or Minton were permissible?

A tedious white monotony would stare us in the face. But for all this, transfers should not be sold for "hand-work," as they generally and unscrupulously are, whenever it is possible.

When once you know them, you will always after recognize your acquaintance, no matter how skillfully masqueraded they may be.

An amateur scarcely ever succeeds well with them. It takes a practical workman's hand to do them justice, quite as much in this as in any other mechanical employment.

PRINTING

Is done by a still different process, which it is interesting to know a little about. The designs are engraved on copper-plate. The press is made very strong and large, similar to that used for copper-plate printing, usually with cast-iron cheeks and rollers, and an iron lever. The press is placed within a few feet of a stone plate kept constantly heated, so that, when the copper-plate is laid upon it, its engravings may more easily admit the color as it is rubbed over it.

The printer has his thumb and finger protected by a thick strip of leather, and cleans his plate from the hot color with a stuffed leather boss, not his hand, as do other printers from copper-plate. The color is well mixed on a very hot iron plate with a printing "oil."

The printer places his copper-plate on the stone, rubs in the color with a broad palette-knife, scrapes off the excess, and then with his boss cleans the plain sides, and places it on the bed of the press.

He next brushes the sheet of tissue-paper over with a solution of soft-soap and water, puts it on the plate, rolls it between the rollers, takes it carefully off, and, if a good impression, reserves it for use.

A "cutter" takes the impression, cuts away all the white paper, then separates the impression into its parts, which are placed in the order most readily facilitating their application to the ware.

Next a transferrer places the design on the ware, and then, with a rubber of flannel from six to sixteen inches long, and firmly rolled and tied together, with the ends a little loose, she rubs the paper upon the article with much force, often resting one end in the right arm-pit, until the paper can not again be taken off.

It is then immersed in water, and with soft water and a sponge the paper is washed off, and leaves on the ware only the mineral color, and a little of the oily medium.

This process is used both on biscuit and glazed surfaces, the underglaze printing being always considered the superior.

Transferring, printing, pouncing, and tracing patterns all belong to factory work, and are out of place in a studio. So if any student's desire to manufacture gets the better of his ambition to create, the factory-bell should sound his matins and chant his vespers. Neither his *venite* nor *exit* is here.

TO FIRE CHINA.

One of the most important processes in the decoration of china is the firing.

This is done by placing the ware in a kiln or retort, where it is raised to such a heat that the glaze is at a point of fusion. The color then unites

with the glaze, and becomes a portion of it, from which it can not be rubbed off or removed without serious injury to the piece. Wherever decoration has been removed by acid or otherwise, a portion of the glaze disappears with the color, and, although the piece may be pure white again, the parts which had been colored will be dull and have a porous appearance.

If the colors are properly fluxed, ground, and laid on, then well fired, the piece will present a uniformly glossy surface, which leads many persons to imagine that the decoration is put on *under* rather than *over* the glaze.

Firing is a delicate operation, and much of the beauty of the decoration depends upon its being properly done; but the fire will not accomplish everything.

Ware to be ready to fire must be cleaned of all color but such as is to be present when it is done; cleaned of all finger-marks and spots; edges in nice order, and nowhere smeared, rubbed, or dusty. The color and gold should be dry enough, so that it can be safely handled.

The kiln should be nicely dusted. The ware can then be arranged in it so that no two pieces of glazed or decorated surfaces come in contact with each other or with the kiln. This is managed with the aid of stilts, which are small triangular pieces of unglazed ware, made especially for the purpose; they vary considerably in size and shape, the very smallest sizes being called spurs.

These are placed between the pieces decorated, and the packing of the kiln with ware is called stacking. The ware can be placed in any position where it happens to fit well: that is, upside down, sidewise, or flat, as the case demands. A kiln fires better stacked full than when only half stacked, and one who "knows how" can stack a kiln to very much better advantage than a person of little experience. A practiced hand will dispose to advantage a third more ware than one who has no "knack" at it.

Every kiln has a personality of its own, even though built on exactly the same principle as its neighbor. There will be some pet place where certain colors develop better than in others, and every portion of it must be known, to be used to advantage. The rose-color should be placed in the hottest place, as this is the test-color to fire by, and china is fired at

a rose or gold heat. The *faïences* and earthenware do not endure the heat necessary for china; so discrimination must be used in stacking. Should your kiln be one which fires unevenly, the two wares may be placed in it at the same time, giving the china the hottest place, and the softer glaze the cooler positions. But if you have a perfect kiln — one which fires with complete reliability, everywhere alike — it must be stacked accordingly.

With the use of gas as fuel, this question of the application of heat is under the most perfect control. Every portion of the kiln can be heated to the exact degree desired, and then cooled as gradually, or immediately, as the case demands. The result is an almost total absence of breakage.

In the old system of amateur kilns charcoal was used. The heat was sudden and very "sharp"; the draught was often irregular, overheating one side and leaving the opposite side too cool;



"We are going to stack Jumbo."

when the firing was completed, the coals were "drawn" (that is, all taken away bodily), leaving the red-hot surface of the kiln exposed to the direct action of the air in the entire fire-space. This produced a very hasty contraction of the white-hot surfaces, and cracking and breakage were the result. The charcoal was very dirty to handle, and the fumes, as every one knows, terribly unhealthy and poisonous. While burning, the fire had constantly to be watched and stoked. The drawing of the fire demanded

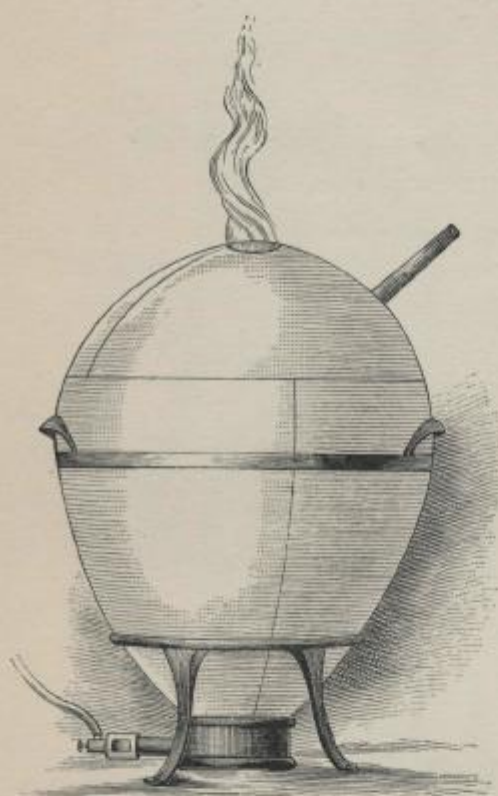
the assistance of a man, which does not always happen to be convenient. The heat from a bushel or more of live coals is intense, and the light drapery of a woman's skirts make it extremely dangerous.

After having seen one woman burned to death from her dress catching fire, I may perhaps be excused for having an exaggerated horror of such danger; but certainly no one can be advised to risk it when there is an entire lack of necessity.

In using gas-kilns, the hard work is over when the stacking is done. The kiln should then be closed, the "peeper" left open, and the gas lighted at about half pressure; it should be allowed to burn in this manner until quite red. This is to allow all steam to escape.

You will be astonished at the amount of steam which will arise from your ware, which you thought, perhaps, perfectly free from all trace of moisture.

Should you have been so unwise as to close the "peeper," this moisture would condense on the ware, and the result would be that the color might run, or be dull, and, if there were any edges of "bright" gold, they would



Gas-Kiln.

disappear in spots; should a drop of water condense, and drop on flushing, it makes a spot, with all the spatter-marks and edges perfectly distinct.

This steaming process is what the brick-makers call "water-smoking," and we have adopted the same expression.

If you are firing *faïence*, *heat* and *cool* the kiln slowly. It is not the intensity of the fire which breaks the ware, but the immediate application of strong heat or cold, which causes a sudden and unequal expansion or contraction. Sometimes only the glaze splits, and the ware will be "crazed."

When cool enough to handle comfortably it can be safely taken from the kiln, when the firer again returns it to the decorator's hands, to polish with sand- or emery-paper, and, if gilded, to finish his gold-work.

It is very interesting to watch the ware while firing, after "color is shown"; that is, when the kiln becomes red it is illuminated, and you can see the ware, when looking through the "peeper-hole," as though you were looking into a lighted room through the window at night.

First, the ware is white, and the decoration dull; by and by it becomes cherry-red; finally, the decoration may disappear altogether, and the kiln is filled with a hazy atmosphere, through which you see only the white-hot outlines of your pieces. The bright gold develops very early; but because it does, do not be alarmed. It needs a good strong fire to make it amalgamate with the glaze of the ware. It can be developed in the oven of a kitchen-range, but will then wipe off with the fingers.

It is a lovely sight to see a bit of color take gloss in the fire. It is just as though sunshine smiled on it, and would stay always. It is seldom that one will chance to see it too; but it is worth watching for, like the eclipse passing from the sun.

When the haze appears, it is time to turn off the gas and let the kiln cool. It depends on the size of the kiln how long this will take; some not more than an hour or so, and large ones eight to ten hours. It is best to make haste slowly. "*Festina lente*" is an excellent motto in every branch of this work.

Our kilns are all named, and each one has his own peculiarities. There is "Eureka," whose success answered many vexed questions; "George Washington," famed for a Revolutionary style in firing, and the father of

the present method. "Grover Cleveland," whom our political decorator named to suit her own ideas; and "Jumbo," who is, after all, our "own true love," he is so big, so generous, and so reliable. Like the mythical India-rubber omnibus, he has always "room for one more," and whatever he accepts, he returns to us perfect. He is a continual comfort.

When the kilns are lighted, it is not necessary to remain and watch them. When they are water-smoked, the gas may be turned on full; and when the proper number of feet have been burned, turn the gas off.

The smallest amateur kiln, the "Toby," can be set up in any room where a pressure of fifteen feet of gas per hour can be obtained. This amount of pressure is in the upper rooms of most houses. With gas at a dollar and a half per one thousand feet, the price per hour to fire it is not three cents. Which demonstrates that gas is not an expensive fuel, besides being perfectly cleanly. The kiln is attached to the gas-fixture by a little India-rubber hose, and no machinery, gas-fitter's, or plumber's bill is necessary. "Toby" is a bird of passage; he can be set upon your table while you fire him, attached to the gas-fixture above, and afterward set away in a closet awaiting your pleasure until again wanted. He is light and easily moved. Full and explicit directions accompany each of the kilns.

The "Ideal" will hold an average of fifty pieces. It should have a direct communication with a main pipe. The burners of this are also attached to the service-pipe with small rubber hose.

I have owned and fired a large number, kind, and variety of kilns, using both wood and charcoal as fuel, but find gas as superior to them as the modern telegraph is to the old courier on horseback.

All the terrors and mysteries of firing are smoothed away, and all the heavy, dirty, laborious work is no more. Under the present process, whoever can strike the match and turn the gas-tap has sufficient "force" to fire the china. What was once a painful task is now a delight.

How many times after firing in the evening have we stolen down like white ghosts in the wee sma' hours to see if the kiln was cool enough to open, because it was impossible to sleep while in a state of suspense as to the fate of some new experiment, or because some favorite piece exercised more potent charms than Morpheus!

There is a fascinating excitement about firing, which one who has not experienced it can not realize. There is always enough change to make it interesting, and just enough risk to keep one on the alert. Ever and anon the fire presents you with some wonderful surprise. One can not wonder that firers become superstitious, and I always feel a sort of brotherhood for the fellow who hangs a horseshoe on the top of his kiln—not that he believes there is “anything in it,” of course, but he “happened” to find that one, and “happened” to hang it there.

There are all sorts of funny notions among firemen. I knew of one old fellow who insisted that the light must come from a certain direction, and a certain side of his firing-room must be partitioned off with *glass*; another, who would only fire (when he had his own way) just as the sun was setting; and we all know that it was only by making a bonfire of himself that Ponsa got china for us at all. Fortunately for us that the generous martyr did not wait till these days to sacrifice himself, for he could not have crawled into the gas-burner.

An explanation is due to persons who have been innocently informed as to what firing will or will not accomplish for them.

Most amateurs have an idea that if a piece does not come to them exquisitely perfect from the kiln; the drawing, through some mysterious process, delightfully corrected; the color where dust has settled in perfectly pure and luminous; and, where soiled or finger-marked, free from every trace of defilement—that the fire is to blame, and the firer an ogre of ugliness. Especially, if they have fired a little pot-kiln two or three times themselves, they are living exponents of the old saw—that “a little knowledge is a dangerous thing.”

They do not hesitate to give learned dissertations, seasoned with an unlimited amount of sententious and funny advice, behaving in a comically wise manner; unblushingly and with perfect assurance they expound the law to a person who handles more pieces of ware in a day than the average amateur will in a year.

Nevertheless, the A. A. is not to be repressed. No, indeed! And if the firer who is so unhappy as to come in contact with them manages always to keep a respectfully courteous countenance and a perfectly controlled tem-

per, then let there be no doubt that there is a jeweled crown of blazing glory waiting as a reward in the hereafter.

Purgatory has been attended to, and Sheol has disappeared from the perspective of the future.

Did our Lord live now, these knowing ones would not hesitate to teach him the principles of his own religion.

ON CERAMIC ART-SCHOOLS, AND COURSE OF STUDY THEREIN.

I can not make this subject any plainer to parties willing to endow an art-school, those desirous of learning "china-painting in twelve lessons," or to those who teach all they know in that time, than by the following programme of instruction, translated from the "*Journal du Ceramiste*," and followed at Bechin, in Bohemia. *Time, three years.*

The programme of instruction is summarized as follows: Artistic instruction in forms and taste; execution of projects and detailed designs; preparation of raw materials, glazes, etc.; instruction as to the sources of raw materials. To this theoretical instruction is added commercial tuition in correspondence and industrial book-keeping, so as to facilitate the subsequent direction by the students of their own business establishments.

The practical instruction includes the making of simple objects without much decoration, the improvement of the local pottery, utensils, furnaces, etc., without altogether omitting more important subjects. The age of admission is fourteen years, and a certificate of primary instruction is required, as well as physical aptitude for the calling.

First Year.—Drawing, geometry, geometrical drawing, and modeling. Calculation and caligraphy, daily from eight to twelve. Work in the factories from one to six, daily.

Second Year.—Drawing and water-color painting, geometry, perspective, modeling, ceramic technology, commercial calculations, and correspondence, every day from eight to twelve, and six hours per week of modeling in the afternoon. Work in the factories for twenty-four hours a week.

Third Year.—Drawing and painting (oil, glaze, pastes, etc.). Modeling (clay, plaster, and wax).

Study of raw materials, with laboratory experiments and commercial book-keeping.

The division of hours is the same as in the second year.

PORCELAIN AND POTTERY.

A great many things are made from the dust of the earth—among them, ourselves and our china. Great Cæsar's dust may have stopped a bung-hole, or it may have made a vase! Who can tell? Bone-dust is a very important element in the composition of some pastes.

I would recommend you to study the "History of Ancient Pottery," by Samuel Birch, F. S. A., covering the Egyptian, Assyrian, Greek, and Roman periods; and a "History of Pottery and Porcelain, Mediæval and Modern," by Joseph Marryatt—both handsomely illustrated.

Porcelain stands intermediate between pottery and glass; were it wholly infusible, it would be earthenware; were both materials fusible, it would be glass.

This, O Decorators! is the text which it concerns you to remember in all sermons on china. Knowing your palette, in selecting ware for decoration, as it approaches glass or earthenware, so flux your color as to produce harmony between them. Trust your eye, and not a dealer's stamp.

Ceramic art is really divided into two branches: one known as pottery, and the other as china-ware or porcelain. The difference is not so much in the materials employed in each branch as in the manner of treating them. The material for porcelain being semi-fused, and thus more nearly approaching the nature of glass, its fabrication is an art half chemical, half mechanical, and full of peculiarities. Transferred from China, to which by prescriptive right it belonged, it has been imitated, in Central Europe and America, with little advance beyond the Asiatic originals. Réaumur proved that the mixture of two peculiar earths found in China, called *petun-tse* and *kaolin*, produced porcelain.

The next step was to discover if these earths existed in Europe. The Jesuit missionary, Francis Xavier d'Entrecolles, sent specimens of these earths to Europe.

Mr. Cockworthy, of Plymouth, in England, found one to be identical with that, near Helstone, in Cornwall. Then it was accidentally discovered that salt thrown on the articles heated in the furnace covered them with a rough glaze; and after this, one Astbury, making use of calcined flint, added them to the materials of which he made his china, and thus, by a mere accident, hit upon the last-needed ingredient which Père d'Entrecolles had omitted to include in his "Notes on China."

Some time about this period Baron de Böttger, a German alchemist, searching for the philosopher's stone, overheated some crucibles, and accidentally made Oriental porcelain! Giving up alchemy, he commenced the manufacture of Dresden porcelain.

Then came St. Cloud, and the Cradle of Liberty, the *Faubourg St. Antoine*, with French wit pitted against the closed fortress of the Elector, whose workmen, sworn to secrecy, paid the penalty with imprisonment for life, Frederick the Great, the conqueror of Saxony, taking these skilled prisoners from Meissen to Berlin, founding there the Royal Prussian establishment. And Sèvres, founded under royal auspices too, producing specimens of art vying successfully with Dresden and China. Nor must we forget the hero, Bernard Palissy, and his scolding wife. How could a woman object to burning the furniture to obtain a successful firing? Poor creature! had she ever been in a race, on a lower river-boat, she would not have gone down the ages, as she has to!

Among the mummies of old Egypt we find little figures covered with a deep-blue glaze. The first manufacture in Europe is supposed to have been made in Spain by the Moors; and the Mexican tiles we all admire to-day, the "ajulayos," were first manufactured on this continent by their descendants, imported from Granada by the Holy Inquisition, *à cela que l'on dit*. And the glaze is the same on them all!

It may surprise many of my readers to learn that the materials for the finest porcelain are abundant in this country, and easy of access. Kaolin is a very fine clay, silicate of alumina, very plentiful in all the New England States, in Northern New York, California, Northern Michigan, and Utah. Even China to-day is using a coarse granite, in which the crystals of feldspar are large; these they reduce to powder, form into masses, and fire.

So you see, as these materials are differently mixed, differently glazed, and subjected to various degrees of heat, do we arrive at the many qualities of ware obtained.



Enameled Sèvres Vase, called "Vase Genicault."

Terra-cotta and salt-glazed wares will not interest us in this work. *Faïence* or Earthenware has a porous body and a soft glaze.

Porcelain has a vitreous body. It is compounded of two substances—the one fusible, that produces transparency, which gives it the property of sustaining, without melting, the heat necessary to vitrefy the fusible substance.

There are two varieties of porcelain—the “hard and soft paste.” The hard is composed of a greater proportion of alumina—less of silex. To fire, it requires a higher degree of heat, which also gives it a greater density of substance than soft paste. The soft paste, from the larger proportion of silex and the addition of alkaline fluxes, requires a less degree of furnace-heat, and consequently acquires less density.

The most practical test by which to distinguish these descriptions of porcelain is that the glaze of soft paste can be easily scratched by a knife, which is not the case with that of hard paste—“*rayable ou non rayable par le fer.*”

Marryatt, to whom belongs the preceding definition, gives us an anecdote of M. Brogniart, who, having been presented with a choice specimen of Old Worcester, affirmed it to be Oriental porcelain, till he tested the paste with an old file which he always carried in his pocket, and found that he could scratch it easily.

Faïence, or *fayence*, is the old French term under which were comprised all descriptions of glazed earthenware, even inclusive of porcelain, and to a certain extent continues so—corresponding in its general use to the English word “crockery.”

The word is supposed by many to be taken from the town of Faenza. The old word “fayence” is from the Latin “*fagus*”—a beech-tree—and is almost obsolete in France; but in Geneva, to this day, beech-wood is sold in the timber-markets as “de la fayence.” We use the term at present to discriminate between opaque and transparent wares. In the *faïences* there are innumerable varieties, which are given any number of names to suit the fancy and ambition of the manufacturer, or which will “take” with the purchaser.

Many of these *faïences* fire beautifully; others do not. The finest of

French art *faïences* fire most satisfactorily—the glaze being splendid and firm.

The American pieces of this kindred craze in an abominable manner, although, as a rule, they are very acceptable in shape.

If the glaze bubbles or spits in firing, it is from an excess of soda or borax in the glaze mixture.



Rouen Faïence.

From this wholesale condemnation must be excepted some beautiful pieces made by the "American Faïence Company," of Greenpoint—many of them hard paste, and superb in texture and decoration.

Some "makes" of the American opaque table-ware fire better than any which are imported from foreign markets.

The American shapes in these wares are superior to any which are pro-

duced in Europe, and it may be interesting and perhaps astonishing to many Americans to learn that they are taken to Europe and copied!

I for one am glad that it is so, for our people have lived on European brains for so long, it is time that we began to "return the compliment." It has been done principally because we *would* have "something from abroad, you know."

The demand for something new and "odd," and for "novelties," has been greater than the foreign market could supply, and the American was forced to furnish his own notions, but has kept the fact as much as possible a profound secret.

If we had but such art-schools and such opportunity for technical study in this country as in Europe, what a blessing it would be to the entire nation! One art-school in Trenton, and one in Pittsburg! National schools would do more for manufactures in this line than half a dozen first-class potters in Congress, and all the protective laws they could enact. Can we help blushing when we acknowledge that a spittoon was the object, held proudly up to the gaze of the American law-makers in the Capitol at Washington as an "object of art," to rouse their admiration and enthusiasm, and stimulate them to pass laws for the protection of the genius and industry which could produce *that*? And see how responsive we are! The law was passed, and the Government, in a burst of enthusiasm, supplied the House of Representatives—two hundred and ninety-three members—with four hundred and fifty spittoons—thus giving national encouragement to a noble work; but, by some innate feeling of decency, those decorated with the Stars and Stripes were suppressed.

Now, when we respond so generously to such an appeal, what as a nation will we not do, when some more interesting object is held up to our enthusiasm and good taste?

Nearly all the hard porcelains fire well. There is little or no choice among the various French and German makes in this special direction.

An erroneous impression is very general among amateurs that, unless a piece of ware is stamped with the brand of some favorite maker, it will not fire. This is simply absurd. Select your piece because it is good in color, well glazed, even in form, and free from blemishes. If it fulfill these

requirements, do not trouble yourself whose stamp it bears, or whether it have any. "The rank is but the guinea-stamp—the man's the man for a' that!" and the rule is good for "dishes."

Each manufacturer has at least three grades of ware, and every one is not expected to know "firsts," "seconds," or "rebut." When a manufacturer has once gained the confidence of the public, he is not apt to overtax himself scarring his marks. So choose a piece because it is beautiful, just as you would buy your roses.

The French porcelain is most generally in use, and is very beautiful in quality. Almost every manufacturer has some specialty in which he excels, as, for example, "Pouyat" makes the most beautiful cups—stamp $\frac{J. P.}{L.}$; "La Besse" the most unique creamers and sugar-boxes, some of the most exquisite little Greek ewers, more fit for Liebfrauenmilch than cream, and the little urn could hold a confiture of rose-leaves with as much propriety as sugar; the ware is almost as thin as egg-shells, and exquisitely translucent—*no stamp*.

The Gibus plates are about as perfect as plates can be made in shape, color, weight, and delicacy—*no stamp*.

The $\frac{C. F. H.}{G. D. M.}$ china is beautiful in many of its forms—cups and saucers, plates, square dishes, etc., etc. The variety of this manufacture is large, and the quality most excellent.

Some very pretty china is in the market, marked with an ugly black vase B and D. I like this ware very much, and it has one advantage—the mark burns away. You will find some very pretty cups occasionally with a dragon-fly stamp. I think I can conscientiously say that I have never seen a poor piece of ware with this stamp.

There are many varieties of German china, among which Meissen, the Royal Factory, ranks *par excellence*. Only second-choice pieces can be purchased in blank, as all "firsts" are decorated in the factory; none are allowed to be sold unless the signature, two crossed swords in underglazed blue, has first been scarred by cutting through the glaze. The Berlin china stands second only to the Meissen. The factories at Carlsbad produce ware which is very desirable; the mark is two hammers crossed.

Many German manufactories and a few of the French have the good

taste to imprint the signatures of their china in *intaglio* in the biscuit, rather than deface their ware with a black stamp, as if it were so much "white granite."

There are two factories in Bohemia—one at Pirkenhammer, near Carlsbad, the other at Elbogen, which are celebrated.

In Germany the factories are innumerable, and the ware constantly improving. The common goods are bluish in color, and break easily, being too vitreous. The cups are often very thin and pretty, but the saucers are generally hideous, heavy, clumsy, and ugly in shape. The plates run well.

The American market for these goods has created a demand for a better grade of ware, to compete with the French, which has been kept at an exceedingly high figure. Within the last year, especially, the advance in the quality of German china has been remarkable, the improvement being both in texture, form, and color.

It is true that their hollow-ware for household use has still the clumsiness of Fatherland about it, which does not accord with the American ideas of "fitness"; but the Germans are studying models to suit the American market, and will soon satisfy us, and at prices which will take away in a great measure the terror of the household Siva. In plaques there are none superior to the Charlottenburg † K. P. M. (Königlich. Porzellan-Manufactur), of which there was a fine exhibit at our Centennial.

Vienna produces a beautiful china at a factory which was established in 1720 by a foreman who escaped from Meissen. Russia boasts of magnificent porcelain, but the expense is so enormous that it is purchased only by the court.

Swedish china is also very beautiful. Fisher, of Herend, in Hungary, makes *faïence* of the highest merit; especially are his Oriental forms desirable.

The English make beautiful china—this is the soft paste. The colors blend on it as on nothing else; it is very responsive to gold-work, and takes jewels well. This ware is very expensive compared with French and German, costing about three times as much. The glaze is very soft, and one piece should not be stilted inside another in firing, as the stilt-marks will surely show.

Then there is the beautiful Irish china, the Belleek, which it seems almost a desecration to touch with a brush. A poetic Irishman once said to me, "You might as well think of decorating the sunny side of a peach!" But brandy-peaches are not to be despised.

Messrs. Ott & Brewer, of Trenton, New Jersey, make a most beautiful Belleek china; and as I am the only person to whom they will trust their undecorated Belleek, you will have to come to me for it. The pieces are beautiful in finish, and they are always adding new designs to their already large variety. Their cups are especially beautiful. The shell A. D. Coffee is, I think, the daintiest cup ever made. There are beautiful cream-pots, condiment-sets, honey-pots, vases, etc. This firm also make vases in exact duplicate of those of the celebrated Crown Derby paste. The strides which they have made in artistic ware during the past three years are wonderful. If they continue, we shall not have to go from home.

The very best hotel-china is made at Greenpoint, opposite New York. But as this factory devote their attention exclusively to their one grade, it can not interest us as it deserves. It is only occasionally that they choose to make a fine specimen, and then it is not for the public, but their own pleasure. Nevertheless, we all call Mr. Smith the "father of potting" in this country, and, if I wore a hat, I should always raise it in his presence.

In conclusion, look upon this art not altogether as "a craze," or as a pastime—it is something nobler. In our country we have neither richly endowed art-schools nor public picture-galleries open to the people free, like our common schools: this will come. Even in Europe they are but the mediums of education; this each and every one of you can be.

Into every home where there is nothing of the sort, some little thing laden with kind wishes may evoke ennobling thoughts, and lift the inmates to a truer life. An educated man said to me lately: "I hate *bric-à-brac*, and could crush it underfoot, even as I detest seeing a silk dress on a servant-girl! Such things are only for the rich."

This is the feeling you must overcome among us. Beauty is the birth-right of the poor as well as the rich, and he lives best who most enjoys it.—And now, in the words of the descendants of the potters of old, the modern Egyptians, I wish you *kushto bak* (good luck, and go ahead).

COLORED PLATES.

PLATE I.

TAKE a No. 7 pointed shader, or No. 6 long painting-brush, some carnation-deep, to which has been added a little flux, and commence first with Figure No. 1.

Draw the upper long leaf with one brush-stroke, commencing at the upper point and stopping at the joint; give sufficient pressure to the brush to make the breadth of the leaf without lifting it from the china. Then commence at the point of the second leaf, draw it to join the first, and make the stem. Draw this over and over again, until you can do it easily.

Then proceed to No. 2. Make the side of the pod with one stroke, and the broad side and stem with the second.

Then No. 3. Draw the lines first with two strokes, and afterward practice to make them with one. Do not sketch them, but draw them freely. I should much prefer that you sketch nothing on this plate.

No. 4.—You indicate the center, then commence at the upper point of the petals and draw toward the center, only one stroke to each petal. Finally, make the center spot and stem.

No. 5.—Each petal is here made with two strokes, the second overlapping the first, so that the center-line is formed. It can also be very easily made by drawing each petal with one stroke, and then making the line afterward through the center; but I wish to have the practice acquired by the first method. When the petals are all correctly drawn, clean the center. Cut the end of your brush-handle to a sharp point; you will find this very useful to clean such places with. If the paint is not yet dry, moisten the wood in your mouth, and the color will come off better than in any other way.

No. 6.—To draw a nice firm line, hold the brush in an almost perpen-



dicular manner, allowing just the point to touch the china—very much as though you were drawing with a pin.

Always accomplish as much with one stroke as possible. Patched and pieced lines are an abomination unto a good china technique.

No. 7 explains itself. Draw the leaves and berries flat, and then outline and vein them when dry. Pick out a little high light in the berry with the end of your brush-handle.

No. 8 is made with the same handling of the brush as in No. 6. This little conventional rosette can be used to great advantage many times—in groups of three connected at intervals with scroll-work, etc., etc.

No. 9 is made by drawing three parallel lines, spacing the dots accurately, and then drawing the connecting lines. By extending this design, it makes an excellent “all-over” diapering; by using as it is, it makes a very good band; or using one inch of this and then the No. 8 flower. This and the borderings of the plate are suggestions which can be used as they are, or as a basis of more elaborate borders for the edges of plates, saucers, and cups.

No. 10.—In this the long center leaf is drawn with two strokes. Commence at the top, where the leaf turns. First thing, draw the body of it; secondly, add the two top turns without removing the brush; then draw the unshaded leaf with two strokes; lastly, the third leaf with two strokes; should you learn to do it with one, congratulate yourself. Now add the little wheat-ear.

By this time the leaves are dry enough to shade, which must be done by firm, distinct lines.

The best advice that I can give you about this is, to make up your mind what you are going to do, and then *do it*. Don't “fuss” about it; there is no feminine prerogative of “changing your mind” admissible.

By this time you should have no trouble with No. 11; draw the heads of the grain last.

You should spend a great many hours of practice on this first lesson. I wonder how many students will be bright and deep enough to get all the good there is in it?

One of the most essential things to acquire is confidence. You can

never do anything acceptable if you have a weak, undecided, hesitating touch; and the only manner in which you can acquire confidence is by practice.

How many of you have spent hours and hours at a piano, practicing scales, to acquire firmness and brilliancy of touch and correct fingering! If you do not expect to render Chopin by an "instantaneous process," do not hope to do gold-work in one or two lessons, as I have had so many people ask me if they could.

Every good thing in this vale of tears "costs." It will command its equivalent, either in money, experience, time, labor, or love; sometimes it takes the entire combination. Fra Angelico, we are told, always indulged in a season of prayer before he approached his easel, whatever lay before him, whether the "Flight into Egypt," "The Entry into Jerusalem," or his "Dream of Paradise"—a graceful dance of angels and the blessed on the green.

Some modern theologies count work as prayer. If you object to the moral and spiritual elevation, at least accord the mental and physical exertion.

Fra Angelico's angels were wonderfully beautiful; the heavenly idealism of their faces has stood the wear and tear of ages; even the iconoclast has failed to put out the bright light of the unseen which illuminates their countenances.

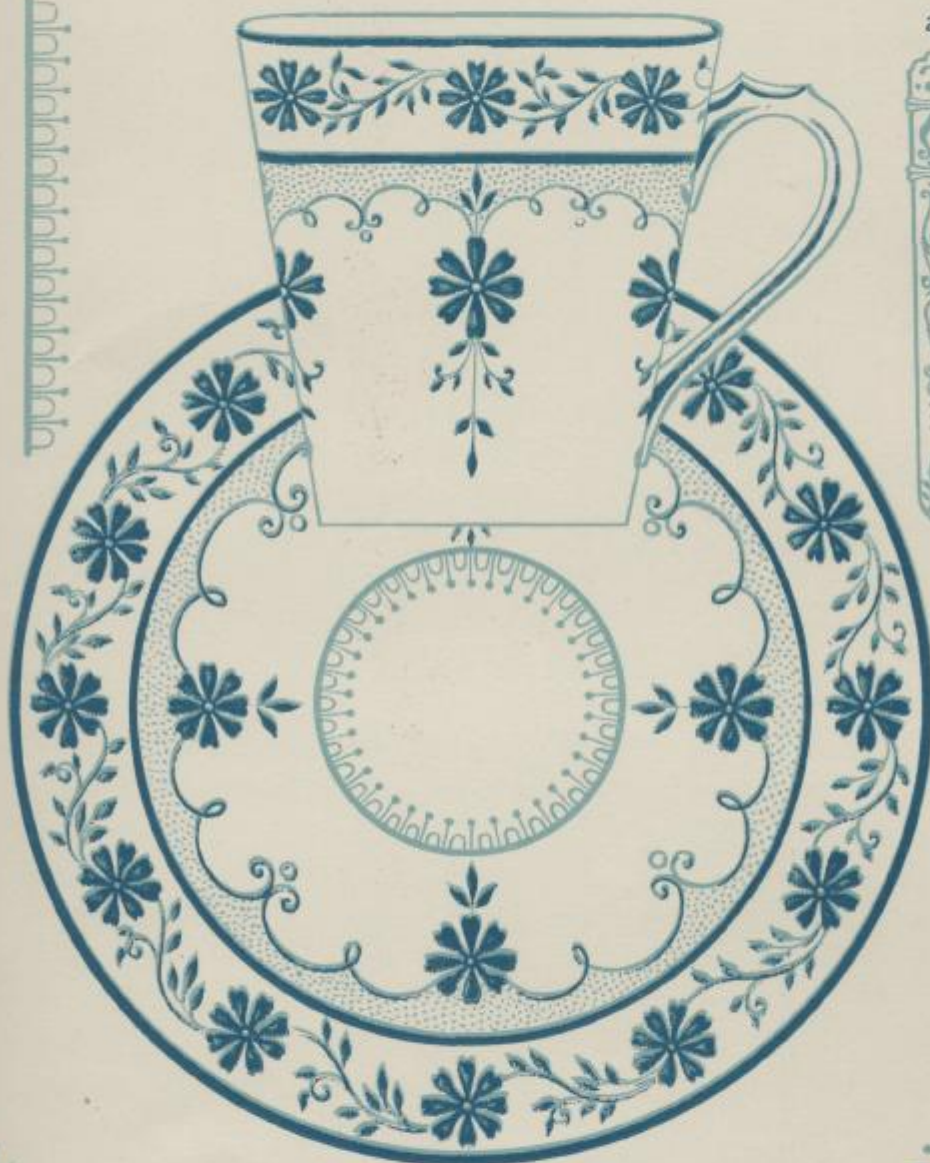
PLATE II.

Use for this design deep blue-green; it will be a relief from working in red.

Commence with the saucer. Space it by drawing two lines through the center to the outside at right angles. This will give you the centers of the four flowers in the border and the four inside it. From these you can easily space the others.

Should the saucer you are at work upon be larger or smaller, make the distances between the flowers from center to center proportionate, and the pattern will accommodate itself without trouble.

Draw the lines on the cup in the same manner, and should your cup be boule or egg-shaped, having a widely extended circumference, an extra





flower can be added, or the scroll-work between them be extended a little. The design in the upper left-hand portion of the plate is for a border around the inside of the cup, and the design on the right hand is for the handle.

PLATE III.

This plate gives some designs and suggestions of designs for the "Vienna" style of decoration.

It requires two fires. The design is first painted in flat color, then fired, afterward outlined with bright gold.

The edge-lines of plates, cups, etc., can be put on with burnishing-gold; in any case put on the edge-line for the first fire. The surface should be very fully covered with decoration. When plain portions are necessary to preserve the elegance of the design, they can be relieved by plain gold dots at regular intervals.

Also the colored spots, with gold outlines and plumes, work prettily into blank portions. The green and violet rosette, No. 6, used at intervals, and connected with one or two rows of No. 8, makes a beautiful border for a cup or plate. Or alternate the No. 6 and No. 3, on a plate-border, using six of each; connect the spaces at the top with No. 7, and at the bottom with No. 1. For a center, use the colored spots, with gold 'plumes'; or draw a No. 6 in the center of the plate, and, from each of the light-green points, put the upper yellow and brown part of No. 3. Then reverse the lower yellow portion of No. 3, and extend it from the dark-green points of No. 6, when you will find that you have a very pretty center.

Nos. 4 and 5 are from saucer-centers. The same design can be drawn around the edge of the saucer, also around the top and bottom of the cup; then perpendicularly at intervals between these bands, cutting the cup into panels, if you fancy. These same designs can be drawn larger, and make excellent plate-borders.

Any one of the centers of No. 9 can be used continuously, or they can be diversified as in the plate; taken by themselves, any one of them makes an excellent border.

No. 10 makes a very good panel, and perpendicularly, separated by half-inch bands of green, No. 7, diapered with gold, on jugs, etc.

I hope that I have suggested enough, so that you can have the proper idea of how to "work up" the Vienna patterns, and feel the pleasure of creating your own designs for them. Such pleasing and varied effects can be produced when simply neatness and industry, combined with a little fancy, are the "mental requirements."

Plate II is an excellent one for Vienna. Ground with rose, and paint the design in violet-of-iron, or crimson-purple, afterward outline with gold. Or ground with yellow, and paint the design in brown, or in green, No. 7; you will be surprised how very unlike each one is to the other.

The first fire should be strong, so that all color has a good gloss; the second fire light.

PLATE IV.

I do not know of anything more thoroughly adapted to the decoration of china than sea-mosses and shells. The exquisite colors, tints, and forms seem to adapt themselves with a peculiar felicity to this purpose. The dreaminess of hues, the fading of blue to green, from green to yellow, to pink and violet, to every shade of pearliness, give scope for the play of the most vagrant fancy, and the choice of "ground-colors," which can not be excelled.

Neptune bears offerings to our feet as rich as those of Ceres.

Those of you who are at the sea-shore, and have the opportunity to prepare your own studies, are envied by all the others of us.

When it is possible, put the plant in a jar of sea-water, and make water-color studies of it.

The dried mosses are very good to work from, and many a pleasant evening can be spent in floating and preparing them.

"Sea-Mosses," by A. B. Hervey, is a most excellent work for any one interested in the study of algæ, and has some very good colored illustrations.

The shells can be used separately, or they can be grouped, and the moss arranged about them. The high lights are very effective put on with white





enamel. Violet-of-iron is a most useful color for painting mosses, both as a self-color, and in working up the carmines. Wash in the general tones of your mosses first, and add all the stems and firm lines of direction after. Use turpentine in painting these; but, when you wash in any suggestions of "sea-scapes," use lavender, so that the color will be pure and fresh, and will not need padding or blending.

When lavender is used, the lines will soften themselves, and will not dry harshly.

When a sky is blended, it loses its crisp freshness; let it dry before you add your ships and gulls.

All but two of the shells which I have drawn in this illustration are from some which were picked up on a coral reef off the Bahamas, where a vessel was wrecked one stormy night, during the "late unpleasantness," and those who were saved remained sixteen days, living on a little flour and the shell-fish they dug at ebb-tide. The man who guarded the flour carried a musket, to shoot any one who might attempt to steal; and another man carried another gun, to shoot the first if he attempted to exercise any official license! He might have been a politician before, and have professional ideas about a public trust. There was no "blue-book" on the reef.

The remaining unfortunates became experts in hunting shells, and, when it was not done strictly in the "grocery and perwision line," it served as their only amusement.

The collection of one of the poor fellows was very fine, and one could but feel sorry for him, and—well—the shells belong to the family now.

Perhaps the little nonsense they sing of, when held up to the ear, makes them fascinating to paint.

PLATE V.

First put on the grounding tint, as described in flushing.

Then take out the form of the shells with eraser, also the high lights in the heads of the two monsters, who are singing, probably, "Rocked in the Cradle of the Deep."—The upper design can be easily finished up for one fire. The lower shell may be, but it is a difficult one, and much more

easily painted if given two fires. Do not put on enamel, except for the second fire.

I could tell you a fascinating story about this shell, but it is best not. It has played its little part in love and diplomacy—was in the Tuileries when the empire fell, and the commune gave place to the republic.

Before attempting to give you directions concerning heads and landscapes, I shall most respectfully insist that you must first be able to draw them charmingly in monochrome.

Until you understand thoroughly how to draw, you will make yourself absurd by attempting too much in either of these paths.

I do not think my heart has ever gone out in compassion to any one more than to charming Kate Greenaway. Think of her exquisite drawings, her sturdy little lads, and healthy, bonnie lassies, and there is not one of you who can not recall seeing them on many a cream-jug and tea-cup, with their poor little ankles out of joint, bandy-legged, one eye up and one eye down; then their mouths—you could wish that they could all be covered up by their hands, until you look at their poor little paddies, and see at what horrible angles the fingers are set on; and the thumbs! they look as if Dame Nature had doomed them to play "Simon says thumbs up" forever. Now, these are simple outline drawings, and all their beauty lies in their exquisite truth and perfect simplicity!

It is of no consequence how unfinished a figure is, how sketchy or suggestive, if only there is no false line, no untrue idea. Would not any one of us prefer a little head "washed in" in sepia which is freely and artistically done—ten minutes of fanciful and original "handling"—to a belabored medallion with a Burgher-Frau, which has been passed through half a dozen fires by unskilled hands? When done, it is only fit for a beer-mug cover, or a Pfeiffenkopf. Usually it goes forth as a noble example of the Dresden Head, "an article of bigotry and virtue."

I see these things sold by the importers to the trade by the gross, and I know their foreign value to a fraction. It is computed in cents, not dollars. I can not but rise up in wrath to see amateurs attempting things so unworthy and inartistic. I enjoy a good Dresden painting too thoroughly to see it prostituted.



It is possible to make good pickles by a recipe; but, even for that, you must be a good cook, or at least one who loves pickles.

I will give you some suggestions, which, if discreetly followed, may help you with flesh. Do not hesitate to follow the dictates of your reason and judgment because they suggest something which you "never saw in a book," or because "no one ever told you so." Should we all wait to be "told," there would be no advancement. Only, if no success is met, do not be disheartened, but try again, hoping for better results next time.

There are very few persons who arrive at success by a "limited express." A survey has to be made before the railway can be built, and the rest follows after. There is a certain healthy exhilaration in feeling the enthusiasm of a pioneer soul, even in small things—a little bewildering to be free from leading-strings, but very gracious.

PLATE VI.

FLOWERS.

Sketch the pansies in water-color very delicately. Paint the dark petals first with Victoria blue and purple, No. 2, making them bluer than you wish them to appear finally. Then paint the lighter petals, making your violet tints of the same colors. Make the eye of silver yellow, and the lines of raven or outlining black. Paint the begonia buds and blossoms with carmine, No. 1; for the green, use emerald-stone green, brown-green, and green, No. 7; for the yellow flowers, silver yellow and violet-of-iron. Then fire. Now tint the background. For the second painting of the pansies use crimson purple and Victoria blue, or deep blue-green; shade up the darkest parts of the purple with black.

You can not paint dark pansies successfully without giving two fires. Purple, No. 2, is the safest of all the violets from cracking or splitting; hence it is best to use it as often as possible, for first fires at least. By painting the violets too blue the first fire, and rather too red for the second, a beautiful effect is produced, or reversing the colors. Too red the first fire, and quite blue the second, produce the "electric" shades of blue more perfectly than by any other method.

It will be interesting to make tests of these methods and note the results carefully. Do not be niggardly with tests, or expect to put each and every piece that you make in a cabinet. It is too much after the order of the people who take "a course of twelve lessons" in oil, and, surrounding the questionable results thereof in a golden halo, hang them on their walls—an eternal souvenir of expensive indiscretion.

No. 2.—Sketch the design first in water-color, then tint with chrome green; dry the piece, and take out the violet flower and the scarlet blossom with eraser. It is unnecessary to disturb any portion of the background to be painted over with green or gray.

Paint the violet flower with deep violet of gold, toned down with blue—deep ultramarine is best; for the scarlet blossom use carnation-deep and a little black. The greens you will have no trouble in finding. Sepia is good for the brown, mixed with brown-green. One fire should be sufficient.

No. 3.—Sketch the design in water-color. Then tint with rose-Pompadour or crimson-lake; take out the lilies and forget-me-nots with eraser. It is only necessary to disturb the lights of the green leaves. Paint the lilies with pearl and neutral gray, and add a little wash of pure mixing-yellow; raise the high light with enamel. Use deep blue-green for the forget-me-nots.

LANDSCAPES.

GENERAL REMARKS.

In painting landscapes I consider it preferable to use lavender as a medium rather than turpentine for certain portions, and to produce certain effects, principally in washing in skies, distances, and water. The lavender is much pleasanter to manage; it keeps the color open longer, and the edges spread and soften into each other, whereas if turpentine is used it evaporates so quickly that it is almost impossible to avoid sharp lines, and "spotty" effects. The drying qualities of lavender can be controlled by the judicious addition of alcohol. Some persons to whom turpentine is especially disagreeable, and who are not converts to water-color, paint entirely with lavender,

or some similar oil diluted with alcohol in this manner, and very pleasantly too.

It is always best not to pad or stipple skies when it is possible to avoid such treatment, the freshness and atmosphere are so easily lost and "smoothed out." It is always desirable to keep the colors as crisp and clear as possible. "*Uebung macht den Meister*," and you may not succeed immediately, but do not allow a few disappointments to lead you into a lazy habit of smoothing things out, and giving them the general appearance of having had a jack-plane run over them.

If the foliage in your picture is in masses, it can first be washed in or indicated with the lavender at the same time as the sky, and so avoid harshness, or the effect of having been cut out and pasted upon the sky—which is the unhappy appearance that much of it has.

When this amount of work has been performed, the piece should be dried thoroughly, but not discolored, when you can begin to work in your details, now using turpentine as your medium; often, if a small landscape, you can finish it entirely.

It is generally best, however, to give two fires, unless of course you have no kiln, or live at a distance from your firer, when economy of risk in breakage, etc., must be considered.

You are by no means limited to two fires.

In painting hazy, purpley distances, sometimes a most beautiful effect can be obtained by making quite a strong color of deep blue-green and violet-of-iron; when it comes from the first fire, the color is terribly faded and weak, but a splendid undertone of gray has been obtained.

For the next painting use a color with a gold base to produce the purple—purple, No. 2, or violet-of-gold with blue, and then the value of the first coloring will make itself felt.

Beautiful effects of color can be produced after the first fire, by thin transparent washes of different colors, in exactly the same manner as scumbling is done in oil-colors.

For example, we have a sky and distance that are cold and blue, and our foreground is low in tone. We will raise the mercury several degrees, by making a thin wash of silver-yellow and carnation-deep (adding lavender

and thick oil, so that it will flow nicely), and washing certain portions of the sky over with it; also treating the foreground in a similar manner with bitumen and iron-violet.

PLATE VII.

LANDSCAPES.

No. 1.—Take neutral gray, rub it down with a little flux, and just a “suspicion” of fat-oil. Near it place some pearl-gray, a little silver-yellow, and brown-green. Dip your brush in lavender and wash in the gray sky; do not pad or stipple it; next wash in the water, “wipe out” the moon, and dry the piece; then strengthen the clouds across and around the moon, draw the dead pines, the Ojibway wigwam, etc., in the foreground, and the canoe on the lake.

When quite dry, put a light wash of yellow over the water and in the sky—this must be cautiously done; put a little enamel on the face of the moon to accentuate it; also, perhaps, a few touches of it to heighten the moonlight on the water. The adding of the yellow and the enamel are much more easily done for a second fire than at first.

All landscapes should have at least two fires, to acquire the softness and atmosphere which it is difficult to render at once. You can give them as many more firings as it pleases you to do. I have frequently given rich plates ten fires. The colors seem to grow softer and richer, and gain in wealth of tone and harmony. For these little affairs two fires answer very well.

No. 2.—Wash in a sky of deep blue-green and silver-yellow; then the distance with purple, No. 2, and deep blue-green, blended together until the proper shade is found; the water with brown-green, softened into yellow, then into blue, then back to green again in the shadow of the point in the middle distance. Then paint the little point, and afterward draw the foliage of the trees in the foreground; finally, put in the trunks and branches, and the boat. The colors for the trees are emerald-stone green, brown-green, brown, No. 4, carnation, and orange-yellow—the yellow to tone the greens and red with.

2



7



1



3



8



4



6



9



5



These two sketches, and No. 3, are little studies made on the banks of Lake Superior, or the "Getchee Gumme" (Big Water), as the Indians call it. No. 2 was miles away from any house, and here in the heart of the deep forest we found a little baby's grave: there were palings about it, and a little weather-worn head-board, with the name long since illegible. It seemed so alone, so still, all by itself, the blue sky high above the pine-branches, and the red autumn leaves falling quietly down upon it! The waves lapped the red rocks where they met the water, and out on the lake the loons gave their demoniac, uncanny laugh: "Fools! fools!" they cried, "to trust the blue sky and the shimmering water; to mourn over another's grief, when there is plenty in store for you—a measure pressed down and running over. The storm is coming up, and will spring with the force and fury of the wild-cat, and will rend and tear!"

Then they would disappear beneath the water, laughing still, to rouse up the Furies who dwell at the bottom of the lake.

Glad enough we were to see Archie's little cockle-shell of a boat rounding the point. The sight seemed to break the spell, but before night the storm had come.

Nowhere are there such gold-red maple-leaves as here. The tree-roots must find down in the earth the color of gnomes who dye the rocks red and tone the copper.

But to return to "what color to use."

No. 3.—Wash in the sky with deep ultramarine-blue, a little of the blue and deep violet-of-gold, on purple, No. 2—the water with the same color. Then make the lower tint of the sky with mixing-yellow, using lavender to paint with instead of turpentine. Dry the piece and draw in the trees and foreground, using emerald-stone green, brown, No. 4, and bitumen, also gray; last of all, put in the boat and gull. Take your erasing-pin and remove the color for the high light on the trunk of your pine, on the boat, and on the gull; then fire. After firing go over the entire picture, making the tones stronger and richer; put a little white enamel on your gull if you wish, but only a little, for the second fire.

Imagine yourself picking wild raspberries on the point, and, if you can honestly do that, the picture will be done.

No. 4 is a little point on Lake George. The mountain in the distance is Anthony's Nose. The sky is painted with light sky-blue, deep ultramarine-blue, a little ruby purple, and carnation. Use the same colors on Anthony's Nose, with the addition of a little violet-of-iron. The same for the water. Reserve the green washes on the water for the second fire. Lay in the immediate foreground with washes of yellow-brown as an undertone. Now draw your trees, using green, No. 7, and emerald-stone, and for the reds carnation-light and carmine, No. 3. Take out the high lights on the tree-trunks, either with an erasing-knife or the sharp end of your brush-handle. Then fire.

Now go over the whole picture, deepening the sky, putting a soft, greeny purple-gray on the mountain, and finishing the little twigs on the trees. See that the gray on the old stone is nice, and that your water-line is level—water-lines have such an uncomfortable way of running up-hill! Give the second fire, then you may rest, or go fishing if you like, but you won't catch much; or you can go wading, when you *will* catch the rheumatism—so everybody says—but, then, you—I didn't—and the water is so warm and clear, and the rocky bottom so smooth and cool!

No wonder the spirits of the "real old ones" haunt the lake, as the Indian legends tell. Do you ever wonder what place you will haunt when you are a spirit?

I shall try very hard not to commit any "awful wrong," so as to be obliged to stay in one place; it must be very tedious to be a local bogey.

Again we are wandering from the straight and narrow path of "what color." But, when at work upon these things, the tiresome mantle of restraint drops off, and one feels "out-of-doors"; and so, dear child, must you, if ever you succeed in these things.

Mais revenons à nos moutons.

No. 5.—Use neutral gray for your sky, or make a gray of blue, black, and yellow. Then draw in the distance, then the headland, with sepia tinted with green. Now the ships, using brown, No. 4, a little black, and green; these neutral tints form themselves on your palette better than you can ever make them in cold blood.

Now make the spiles, the water in the foreground, the sand, and the indi-

vidual. It is now ready to fire, and makes a pretty saucer-center with a frame of sea-moss.

No. 6 is a little point on Elkhart Lake. It must have two fires at least.

Take out the high lights in the water in the distance with the erasing-knife. I do not think you will need any further instruction for it by this time if proper attention has been paid to the foregoing directions.

No. 7.—The sky is made with neutral gray, carnation, and ultramarine-blue; the distant sea with neutral gray, blue, and a touch of chrome-green. Rocks with bitumen, brown, No. 4, and black, and the waves with neutral gray and chrome-green as the motive colors, and leave the breakers and the crest of the wave the white of the china for the first fire at least. Use your taste and discretion about emphasizing them with enamel later.

No. 8 is where the ducks come from the South, to feed on the wild-rice. I was the first white woman who had walked there through the wilderness to the Indian camp, and here we heard, far before we reached it, the monotonous tum, tum, tum, of the Indian drum. The din continued all night without cessation, and, unless you have heard it, you can form no idea of the peculiar effect which this monotonous, unceasing call has upon the nerves. It is a demand, and you must answer it in spite of yourself. One can easily sympathize with the Indian, who has ever a trace of the superstition of his forefathers in his blood. It excites like the "Allah! Allah! Allah!" of the whirling dervish.

The meeting was to be next day. A Sioux had come from the far West to reclaim his people to the faith of their fathers, and from their weak backslidings toward the modern evils and strange three Gods of Christianity.

Although belonging to the sect obnoxious, and a pale-face, being guests, we were allowed to be present, but outside the circle.

The Sioux was a magnificent creature, tall and straight as a pine-tree, and lithe as a snake. He was the handsomest man that I had ever seen, and I sent an interpreter to tell him so. He received the compliment with dignity, and we exchanged the gravest of glances; but the stimulant was heroic, and his dancing and posing, while offering his long pipe to the four winds during the worship, was a sight not to be forgotten in a day. A copper Apollo inspired! If only we could have understood the Ojibway! No wonder the

homely little squaws gathered from far and near "to be converted." But "Lo" is fickle, or, to use a comprehensive modern expression, "he takes it all in."

He will go in the morning with the utmost gravity and earnestness to the meeting of his Presbyterian brother, and sing "Hold the Fort" (translated into his own tongue) with the best of them, making prayers so long that he has to have the "Amen" abruptly inserted by his pastor. Then he piously pulls his blanket into proper folds, and goes forth to say his *Ave Maria* at three o'clock with Father Casimir. But the moon finds him dancing and offering up white dog, a complete *devotée* to the medicine-man, who makes the wigwam move by waving his hands, and who talks with spirits face to face.

"Can the leopard change his spots?" and if he did, would he not lose much of his beauty?

Thou lovely Caucauan, winding thy way among the rice-fields, how little a time will it be before a saw-mill is set up upon thy banks, and the red-man will know thee no more!

Siva should be the Goddess of Civilization. Creation is destruction, and the whole world an anomaly.

No. 9 is a little more formidable, in appearance at least. The sketch was made in Steamboat Ravine, up in the Dells of the Wisconsin River.

A little pathway which led down to the landing of the old "Champion" before she broke her nose on the "Devil's Elbow."

I regret to say that we defaced the silvery stem of the birch, by tearing off the bark, to make sketches and dinner-cards of, which is not, perhaps, the traditional purpose for which it is destined—not, perhaps, what ye gentle Indian doeth with ye same.

"Indian Jim" came down the path and offered to sell us blueberries. He was robed according to the law; he wore the white man's shirt, constructed of the most gorgeous Dolly Varden calico; but he sported it in the true unconventional Chippewa style—the "narrative" floating in the wind. We asked the price of his berries; he stood silent for a moment, and then grunted, "Four cent—, five cent—, six cent—, what you give?" After that, who can accuse the noble red-man of the Chippewa tribe of being one of the "lost ten"?

"But why should I ransack my head
To tell you what that Indian said?
We'll let that Indian-man take wing—
'Tis not of him I'm going to sing."

To paint this little Dell picture, you wash in the blue-sky tint, and a general "greeniness," also the pathway and rocks, take out the high lights on the tree-trunks, and dry the piece. For the darkest portions, you will need green, No. 7, brown, No. 4, bitumen, yellow-brown, and brown-green, principally for the other colors.

These little landscapes are very pretty for saucer-centers, on cups, in plate-borders, etc. They should be framed about with wreaths or sprays of sea-moss, lichens, etc.; sometimes overlapping disks of one or two metals, etc.

I hesitated about arranging them so here, but, fearing to confuse the main idea, left all that to your imagination and bright fancy.

FROM WHICH YOU MAY DRAW YOUR OWN INFERENCE.

My dearest master, with whom I studied many happy years, is a most peculiar man.

He has a merciless contempt for any person who is willing to touch a brush before years of drawing—two or three of these years, at least, to be spent in working from Nature. His own oaks are fit for the Druids to worship under, and his elms beyond comparison. One day a young girl-friend came to the studio and said to him: "Mr. Vianden, *do* tell me how to draw a tree; you do make such lovely trees!"

"Māām," said the Big Bear, in his big voice, but with the most mischievous twinkle in his eye, and a perfectly solemn countenance, "you know to draw a leaf?" "Oh, yes," she replied cheerfully. "Well, then," said he, "a tree has one hundred thousand leaves—has it not?" "Yes," she acquiesced. "Then what more simple? Draw one hundred thousand leaves, and you haf a tree!" "They should all be arranged in straight lines, I suppose?" she asked, quickly catching the wit of the thing, and looking as solemn as he. Their eyes met for a moment, and both burst out laugh-

ing. "My schild," he said, quietly patting her shoulder, "there are things which can not be told."

PLATE VIII.

HEAD (FRONTISPIECE).

Heads well painted in the Dresden manner can not be done without a large number of firings—ten or fifteen not being at all uncommon. The processes are very delicate, and great judgment and experience are necessary to attain a satisfactory result. No amateur should expect success without the assistance of an experienced artist.

You shall be given some general hints about figure-work; but please remember that they are only general:

First make a careful and delicate sketch of your figure upon the china in water-color. Then with broad strokes lay in a flat flesh-tint over the entire figure, except the lips and eyes. This tint can be made with carnation-deep and silver-yellow, or for some complexions ochre, and mixed with lavender or clove-oil. Where the rosy tints are needed, as in the cheeks, tip of the chin, lobes of the ears, etc., use one of the gold reds, a carmine, or ruby purple, as the case demands.

First lay in the shadows about the hair, mouth, nostrils, etc., with gray—one can be made with light sky-blue and black, or neutral gray and blue. Take a fine fitch-stippler and soften the colors into each other. Lay in the general tone of the hair, being careful to preserve all the high lights. Then fire. Be cautious, and do not get your first painting too dark. After firing, go over the entire picture, deepening the shadows, bringing out the rosy tints, intensifying and giving quality to the flesh. Paint the eyes, eyebrows, and lashes, and put expression into them. Paint the mouth carefully, for it tells subtle secrets which the eyes can hide, and "work up" the hair. A very creditable effect can be obtained by two or three fires. But repeated firings give a velvety quality to the flesh which it seems impossible to attain in any other way.

The head which I give you is from an unfinished sketch by Sir Joshua Reynolds, which was brought to this country by William Frackelton some



years since. The original is known as the "Saint John and the Lamb," and has been in the Franklin or Frackelton families ever since it left the studio of the great master.

As to its merits, it is hardly, I think, in the scope of a work on china-painting to discuss them. I give it to you, because it shows you how the greatest of English portrait-painters commenced a head.

A well-known German portrait-painter said of it once, "It is the most luminous thing, for one so low in tone, I ever saw."

In the face of the child, bright and cheerful as only a child can look, there is still something of the coming leader: in life or death, "the voice crying in the wilderness," calling us to come out from the darkness and somber surroundings of our civilized life, to that brighter, truer one in Nature, with all its simplicity and purity.

PLATE IX.

BIRDS.

These birds are to be painted in the gouache-colors. Rub the color down with a little thick oil and turpentine, so that it is smooth and works nicely.

Take Pompadour-red, deep-yellow, Paris-blue, chrome-green, and white; paint the eye with the glazed raven-black if you prefer. This is for the bright bird; for the green one, use blue-green, bronze-green, green, No. 2, black, No. 1, and dark-blue; brown, No. 2, for the branch, and mix your gray.

Paint the birds in just the same manner that you would if using water-colors; mix white with the yellow, to obtain the lighter shades, and also the blue. You will also use white to obtain the grays. To make the birds very handsome, the gold tips of the feathers should be raised with relief before being painted with gold.

The little birds are very pretty painted in these colors or in the ordinary enamel colors. They make a charming decoration by leaving out the green branches and substituting cloudings of scoured gold.

The gouache-colors are very easy to manage and very beautiful for art-pieces. I do not recommend them for table services, except, perhaps, some very rich dessert service.

PLATE X.

FOR RAISED GOLD.

To produce the cup No. 1, you must first sketch the pattern on the china with water-color—that is, such portions of it as are to be treated in relief. In this instance, you will know exactly, as it is demonstrated in the black-and-white cut given previously. Next put in your grounding tint, and dry thoroughly. Clean the edge of the color nicely, so that none will be left to be covered with gold.

Now mix your relief with tar as before directed, being sure that it is perfectly smooth. Have some clean turpentine in your salt-cellar, to moisten your brush with. Work some relief nicely into the point of your brush, and then pick up a little mass of relief with the tip and put it exactly where you wish it to stay. Be perfectly clean in your handling, and do not work it over more than is absolutely necessary. If the little dots stand up too pointedly, moisten the ball of your finger with water and flatten them the least little bit. Do not make the spots too large, as the effect will be coarse.

When the paste is nicely applied, the piece is ready to fire.

It should have an ordinary “rose”-heat, for, if the heat exceeds this point, the relief is likely to chip out; and this is serious, as in the second firing the parts which now look firm are just as likely to take “French leave” as not. When your piece is nicely fired, polish the flushing with sandpaper; then paint on the gold. It would go very easily over the relief, which is porous, and you will immediately find that it is necessary to use a little more turpentine with your gold, when painting over this, than when working on the plain surface of the china. When your gold is properly mixed, it is more agreeable to work with than any color.

The line should be firm, and thick enough to be perfectly opaque—that is, so that you can not see the china through it. Put the edge-line



on with the wheel. Now give the second fire, after which scour and burnish.

No. 2 is the border of a festoon edge-plate, as you will see to better advantage if the book is turned upside down.

The entire center of the plate is violet, as should be the saucer, to match the cup. The gold "pattern" should be drawn on the saucer as it is on the cup-border.

No. 3.—The pink saucer should be first sketched with water-color, then grounded and dried. When thoroughly dry use some ceramic eraser and take out the design—the blue and white flowers, leaves, and stems; do not disturb the forget-me-nots (?). Paint the blue and white flowers and wipe the edge. The piece should now be fired. After firing, polish with sand-paper. Then paint on the relief, using a long, delicate tracing-brush, as it carries the relief better in long lines than a shorter brush. Make the lines stand up well.

You can easily determine, by looking at the back of the page, where to use the relief-paste, as the embossing tells the tale in a wholly unvarnished manner.

When the relief is applied, give the piece the second fire. Then paint with gold and silver, using a separate brush for each metal; remember and put your silver on more thickly than the gold. If you mix them together, to make some of the leaves a pale gold, then use only as thickly as gold. The lips which lap over on to the pink around the outer edge and center should be painted with unfluxed gold, but the edge-line and center lozenge should be painted with the same metal as you use ordinarily. Add the little gray sprays, and give the third fire. Scour well with the glass-brush, and burnish the edge and center.

The same pattern should of course be on the cup.

No. 4 works well in a number of things. The landscape should be painted for the first fire, and retouched for the succeeding ones. This pattern is very pretty with the wheat-ears burnished bright, and the leaves only scoured, the tracery in the back burnished as well.

If this tracery is painted over flushing, use unfluxed gold; if on the plain surface of the ware, use gold which is fluxed.

The butterfly, No. 5, should be modeled quite high with the relief-paste. When partially dry, raise the veins and spots in the wings, building them well up; after firing, paint them with red bronze, silver, and gold.

The bee is painted in flat gold; the body is made of glass composition, or enamel can be used; when it is dried, paint the black lines on. The body should have but one fire.

The fish-fly can be treated in several ways. If the wings are in relief, as are shown on the plate, he must have three fires: one for the relief, one for the gold, and the third for the black lines, which are put on over the metal.

Should the wings be painted with flat gold, it will need two fires, one for the gold and one for the lines. He looks well with the body and eyes blue; or the body silver and the wings gold; or the body green gold and the wings the lightest tint of pale gold. You can vary him and the butterfly immeasurably.

The butterfly is very beautiful with jewels in his wings, or just the eyes jeweled. If you apply the real jewels, it is best to burnish the butterfly after the gold fire; then apply the jewels, and fire by themselves.

If you use colored enamel, simply put on for the gold fire.

The little grape-vine pattern at the edge of the sheet is a most useful one; it is especially good for cup-handles, about the lip of a creamer, etc.

It is very wise, before using the relief-paste to fire, to practice with it on a piece of china first. You can scrape it off and use over several times for this purpose.

PLATE XI.

FIRST GOLD PLATE.

On this plate we have suggestions for various kinds of gold tracery—gold treated with color, and bronzes with gold; also a jewel-design. Nos. 1 and 2 are for borders, and on cups and saucers, plates, etc. The straight lines should be put on with the wheel, using a cut-liner. Space the distances between the “scallops” or figures with a pencil-mark or dot of water-color. It will assist very much to draw two light water-color lines with



the wheel, one at the bottom of the scallop, the other at the bottom of the pendant in either design. It is excellent practice to draw these little borders repeatedly with a pencil on paper, to become perfectly familiar with them, as they are of frequent service, and although very tedious at first, and trying, too, are very little annoyance when you "know the stitch."

Nos. 3 and 4 are excellent on cup-handles, etc., and work very well over bronze grounds. We have used No. 3 a great deal—over "twenty-one."

No. 5 is simple and effective, and the colored tears can be made either with flat color or enamel. A line of gold spots in the upper edge helps it for some uses.

No. 6 is a great favorite: it is very simple and effective, and admits of numerous variations. No. 17 is from it. I found it on a Satsuma bowl, in the store of the Nippon Company, in Broadway, some years ago, while spending a pleasant half-hour among the curios; and copied it off upon a card. The card went into my pocket, which, being like the typical boy's—filled to overflowing with a little of everything—it was as good as lost for a long time. At last the day of reckoning came, and the card, almost worn out, rose to the surface once more, when immediately my "one, two, three, four," was recognized and treated with the honor which it deserved.

Nos. 7 and 8 are borders for festoon-edge plates or dishes. They are quite simple to draw if you study their construction a little.

In No. 7 it is easiest to draw the line parallel with the edge first, and then the perpendicular lines, to form the squares. Next, put the little crosses in them, and unravel the remainder of the skein as you like.

No. 9 is most easily made by drawing the outer circle with water-color, and indicating the center. Then draw a smaller water-color circle about it. Then take your gold, and, painting the dots about the edge, being sure the number is even, draw the lines to the inner circle, and your design will be true. This little lozenge is useful many times; in groups of three, over dark color, it is very effective; or placed at intervals, and surrounded with a groundwork of "meander."

No. 10 is made of red bronze outlined with gold. The dark lines can be made of violet-of-iron, black, or bronze, No. 22.

Nos. 11 and 12 are used about cups and saucer-borders, etc.; the solid parts are beautiful when gouache-color is used.

Nos. 13 and 14 are cup-borders, or can be put on vases. They are tedious.

They should be painted first in gold, then fired and burnished; then outlined in either black, violet-of-iron, or carmelite. After the second fire you may not choose to burnish every portion, but chase some parts, or have some parts matt.

No. 15 is painted in green bronze and gold. After being fired and burnished, the jewel is placed in the center in the manner described under "jewels." Do not allow any excess of the cement to remain upon the bronze, as it will look bad after firing. When fired, reburnish, but be very careful not to strike the jewel with the burnisher and knock it off.

The reason why the metal is burnished before the last fire is that it burnishes much more easily the second time than the first, thus lessening the chance of accident to the jewel.

No. 16 you can find use for in a number of ways. It is elegant as a panel, or drawing it laterally, and then reversing the design and drawing again. It makes a superb band.

You can use green gold or green bronze, red bronze, gold, and, in the center bud, bronze, No. 4, and a little silver. It should have two fires, one for the bronzes laid on flat, after which it should be scoured with the matting-brush, and then the gold outlines should be added. Only the gold outlines—if, indeed, any portion—should be burnished.

To do this, use great care not to make burnished scratches on the bronze.

PLATE XII.

SECOND GOLD-WORK PLATE.

Fig. No. 1 is made by first sketching the design carefully in water-color or with pencil; then painting the dragon flatly with bronze, No. 22, and the trident in gold; then fire.

After firing, scour the bronze and gold, then draw the scales, wings, etc.,



with gold over the bronze, and accentuate the trident with fine lines of the bronze; or, if you prefer, black paint, or brown, No. 4, can be used. To the tongue give a little dash of red. You may prefer to put this on with the first fire, but red fades so easily with strong heat that it is as wise to leave it till the last. After the second fire, scour and use your own taste about burnishing. It is effective to burnish the entire trident and the eye and claws of the monster, or to burnish just the head and throat and the points along the spine, and the upper line of the wing.

He can be very much diversified by using different combinations of metal, as gold with platinum scales, gold with red or black paint, green gold and gold, green gold and silver, green bronze and gold, red bronze and gold, etc., sometimes a jewel for the eye, etc.

No. 2 is first painted perfectly flat with green gold, then fired.

It should then be scoured, and the outlining, shading, etc., done with gold pure, mixed gold, and green gold, and the darker parts with black or "dark gold," which is a very dark bronze. It makes a superb decoration for a gentleman's cup. The dolphins on either side of the river-god masque are drawn differently, and should not be used as they are in the plate.

"Choose the one which you love best," and draw the one on the opposite side like him.

That is, with either the two heads or two tails next the masque. After the second fire, burnish such parts as your own taste and judgment dictate.

A friend suggests that this is an excellent design for a gentleman's cup. Do not take it amiss if I also suggest that when you are making a gift of this kind for a man of mature years, you use a manly, dignified decoration—something with some character, not the eternal "wild rose" and "forget-me-not." You might as well send him a bangle bracelet.

The "forget-me-not" is perfectly permissible for a child to give to its father; of course, there are exceptions to all rules: a child's loving effort would hallow a transfer, but I am speaking of mature judgment and taste. Leave the little wreath of flowers, *as* the wreath of flowers, for the sweet girl graduate, or some one to whom it is appropriate.

No. 3 is outlined with relief paste, and fired; then the carmine lining is painted, the central portion is painted in silver or very pale gold, and the

remainder is painted in gold. If the spots where the jewels are are treated in flat color, it should be laid on now; if with enamel or real jewels, leave uncovered. It is now ready for the second fire. After this, scour with the glass-brush, and put in the black lines and enamels, or jewels, and give the final fire.

No. 4.—This is very difficult, and gives an opportunity to use glass composition in the center of the medallion. To do this in the best manner, a circle should be drawn the size of the blue center, and walled well around with wax.

Then the glaze eaten away with hydrofluoric acid. After this has been accomplished, the central figure should be built up with white enamel, and allowed to dry. The gold setting should now be painted, and the piece fired.

Then the glass composition should be made quite fine by pounding in a Wedgwood mortar, and sifting through a piece of tarlatan.

It can now be mixed with a little tar or other medium, and carefully applied about the figure. It should be laid on rather thickly, except at the edges; when this is dry, shade the figure with neutral and pearl grays mixed; put the black shading-lines on the gold, and apply the jewels. Now give the final fire.

No. 5.—This number is first painted with gold and platinum. The blue disk is with gouache-color, "Paris-blue"; mix the color with a very little thick oil and turpentine, and paint on a solid even surface; do this before you paint the gold line around it.

It is very pretty to raise this line, and the dots with relief; also the entire gold line which surrounds the platinum. In this case, of course, the gold is not applied on these parts until after the first fire. When fired, scour and burnish the entire metallic surface. Then draw the black outlines, also the scale outlines in gold, over the blue disk.

Now, if you have used relief, cover it with gold, and give the second fire. The platinum will come out bright, and the gold mat. Burnish the lines over the blue, and, if relief has been used, also the raised parts.

Leave the gold over the platinum mat.

Nos. 6 and 7 are antique comic and tragic masques, which are excellent "properties," and make themselves very effective now and then. They are

painted flat in the first place with red bronze, and then fired; afterward scoured, outlined with gold, and shaded with gold and black.

Nos. 8, 9, and 10 are little lozenges, with the use of which you are familiar long ere this, and concerning the handling there is nothing particular to describe.

Nos. 11 and 12 are drawn to give an idea of how to use gouache-color and gold tracery. It is beautiful, in the treatment of vases or jugs, to make lunettes, bands, groups of disks, or panels of these colors flat, combined with the decorations. For the brown, use "dark brown," or brown, No. 2; put on flat, solid, and fire. Then paint the gold meander; for the yellow use "light yellow," or "yellow," and treat in the same manner.

Nos. 13, 14, and 15 can be used for bands, etc. The gold scroll-work in No. 14 can be made in relief, which makes an extremely rich decoration; the color used is "deep purple." The lighter shade is "deep purple" and "white."

In No. 15 the ground color is "green, No. 1." After you have become expert in the use of these colors, you can paint the diapering of gold over them, for the first fire, by using unfluxed gold. For the second fire you can either use fluxed or unfluxed gold, at your pleasure.

No. 16 makes a very handsome escutcheon for a monogram; by placing some rich rococo scroll-work on either side, it makes an elegant cup *décor*. The two masques, Nos. 6 and 7, do very well at either side, so arranged as to be looking from the center. If put on a cup for every-day use, do not add the jewels; but if on a perfume-urn, or other dainty art-piece, they will add very much to its elegance.

The working with these metals is most fascinating. One seems to gradually acquire a sort of instinct, which makes one feel beforehand how they will look, almost to the nicety of a shade, and it must be blind faith first, for they speak in unknown tongues for many a long day. It is the fire alone which translates.

One can but think, if some of the delightful theories of the next life are true, how wonderful it will be to know Hiram of Tyre—not Hiram the king, but Hiram the metal-worker; even if we know him only from afar?

Why are we bereft of the glory of Solomon's Temple? Were I an Israelite, I would go to the place where it was, strew ashes on my head, and weep, and rend my garments!

Being of a younger race, the garments must be woven rather than rended, and the eyes trained to look forward into a noble future, rather than to be dimmed with tears for a glorious past.

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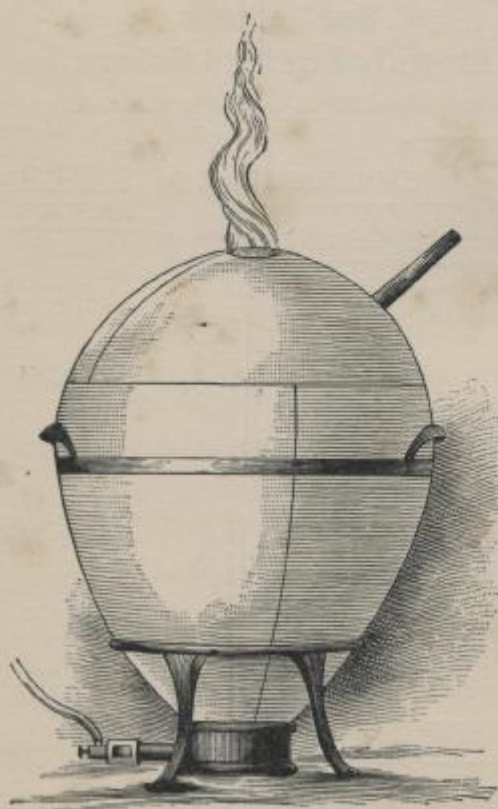
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