

MARBLED AND COLORED EDGES

THE art of marbling is indisputably one of the most instructive branches connected with bookbinding, because results depend entirely upon chemical action. The hours spent at the trough furnish very instructive lessons, and the work is highly gratifying on account of the quick results. Though much discussed in treatises and technical papers, the process of marbling is yet shrouded in mystery. The real pointers, the guides to success, have never been made known. Consequently not many successful marblers are to be found, and among these but a few know how to prepare dry colors such as chrome yellow, lampblack and ultramarine blue so that they will neither rub nor break. If they could help it, marblers would not buy colors in paste form from supply houses, paying from thirty to forty cents a pound for chrome yellow, when this color can be bought in dry form for about one-third of that price, and ground in water for even less than that. These assertions are not advanced in a spirit of boastfulness or self-complacency; I simply state facts. I will not give here an exhaustive treatise on the art of marbling, but the following formulas will completely disclose the mysteries hitherto cautiously guarded, and put the ambitious worker on the path to success. It is my intention to later issue in book form a complete treatise on marbling.

Book Edge
Marbling.

Introductory.

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MARBLING SIZE

THE size plays a very important part in marbling. A common mistake is that too little attention is paid to the selection and preparation of the raw material. It is also well to remember that a preparation will not produce the same results in different styles or patterns of marble. Thus, a size especially prepared for comb edges, will hardly give satisfactory results in hair-vein work. The preparations and combinations below enumerated, however, cover the field well.

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The Sizes.

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[No. 69] *Carrageen (Irish Moss) Size.* Put twelve ounces of good carrageen into a ten-gallon agate-ware kettle, add a half ounce of powdered borax, twenty-seven quarts of cold water and two teaspoonfuls of beechwood creosote. Place it on the fire; after it has boiled five minutes, take it off, add three quarts of cold water and stir well. The following morning strain it first through a coarse tin colander, then through a piece of coarse cloth. It is now ready for marbling.

Carrageen
(Irish Moss).

As there are many different qualities of carrageen it may be necessary to increase or decrease the amount here specified to obtain size of the proper consistency. Do not add too much cold water to the boiled size, as this has a tendency to weaken it. If after boiling and cooling, the size is abnormally thick, it is better to throw it away and boil a new batch, using less carrageen, than to try reducing it with a lot of cold water.

¶ There are two kinds of carrageen in the market, one being

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digo paste to produce the desired shade of green. A few drops of oil of vitriol will improve it. If the edges are to be burnished, work a little of No. 74 into the indigo paste before adding the picric acid. This green color is very durable.

Colored Edges.

[No. 83.] *Gold-tooling.* To gold-tool plain-colored edges it is only necessary to give the edge one or two coats of No. 21; when dry, lay on gold with No. 42; tool, remove surplus gold with a piece of flannel, clean with a little gasoline and then slightly reburpish.

To Gold-tool
Colored Edges.

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Colored Edges. [No. 80.] *English Vermilion (dry form)*. This pigment can be bought at most all painters' supply stores, costs from thirty-five to fifty cents per pound and its shade is considerably brighter than that of Chinese Vermilion. Any good grade of American vermilion may be substituted for the English, although the latter is better. The directions for preparing are the same as Chinese Vermilion. In fact, the same directions apply to all mineral colors of whatever shade, except that the use of alum and the tin solution are entirely omitted. Colors for this purpose should be bought in dry form.

English and
American
Vermilion.

[No. 81.] *French Carmine No. 40 (dry form)*. This organic pigment, prepared from cochineal, is one of the most durable and beautiful red colors we have. As manufactured to-day it is a lake color, almost bodyless, resembling a dye. It cannot be used for marbling, but makes a fine, durable ruling ink, and a suitable color for plain edging. The price is \$8.00 per pound, but as one ounce will last a long time the cost is not prohibitive. To one ounce of dry color add about thirty-five drops of aqua ammonia and enough warm soft water to form a stiff paste. Work into it with a folder about one heaping teaspoonful of No. 74 and then reduce with warm soft water to the right consistency. Too much ammonia will give it an undesirable bluish hue, so be careful. The addition of a little bright red aniline, eosine for instance, dissolved in water, will improve the shade of the carmine. Apply the color with a brush as usual, and when dry, burnish either cold or hot.

French
Carmine.

A Permanent
Green.

[No. 82.] *Indigo Blue and Picric Acid for Green*. Dissolve a little picric acid in hot water and add enough of this to in-

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of a light yellowish color, and the other is of a brownish hue. The latter usually contains more starch than the former and is therefore better suited for our purpose.

Carrageen size requires that the marbling color be of the very finest grade, a property usually present in lake colors only, therefore I cannot recommend its use in large shops where marbling is done on a large scale. There is to my knowledge but one line of marbling colors in the market which have been expressly prepared for carrageen size, namely, the "Halfer" colors. These colors will produce on this size results that are really wonderful. They can be bought only from The Halfer Marblers' Supply Co., Buffalo, N. Y.

[No. 70.] *Gum Tragacanth Size*. Put twelve ounces of No. 2 gum tragacanth into a three-gallon earthen crock, add one even teaspoonful of tin salts, two heaping teaspoonfuls of acetate of soda, two heaping teaspoonfuls of salts of tartar and two quarts of boiling water. Stir briskly with a wooden ladle while adding the water. If you wish to produce fine, mellow size, dissolving every particle of gum the same day, so that it can be used the following morning, you must add a quart or two of boiling water at intervals of about an hour; instead of stirring it with the wooden ladle you must beat it up every little while with a large "Dover" egg-beater. To this end, you must set your size the first thing in the morning and continue to add hot water and to beat it as directed till the three-gallon crock is filled. At the end of the day you will have a fine mellow size of the consistency of thick paste. Take about two quarts of this paste, put it into a twelve-

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The Sizes.

Gum
Tragacanth.

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quart, clean (preferably new), wooden water pail, add two quarts of boiling water and beat up; add more water, beat, and so continue until the pail is full. Then strain through a piece of coarse cloth into another clean pail, empty the now strained size into the trough and repeat the operation till the trough is about three-quarters full. You may now add enough cold water to almost fill the trough, stir well with the ladle and let stand over night. In the morning, skim surface, stir again, balance your colors, and when all is right, commence marbling. The thick, paste-like size left in the crock, cover with a little water to prevent its hardening on the surface. The twelve ounces of gum make seventy to eighty quarts of a good and serviceable size that will keep a long time. For the benefit of beginners let me say that fresh size never works as well as that which has been used a day or so, therefore if marbling is done continually, do not empty your trough too often: once a month will do. If you marble once or twice a week, throw away about one-half of the size in the trough every other week, and add enough fresh size to fill the trough. Follow these directions and your colors will respond more readily. Zinsser's (for address see index) No. 2 gum tragacanth has always given me the best results. When you prepare smaller quantities, always use these same proportions.

[No. 71] *Gum Hogg Size*. Place twelve ounces of gum hogg in a ten-gallon agate-ware boiler, add two ounces of salts of tartar and six quarts of water (boiling-hot water preferable). Let stand over night. In the morning add half ounce of salicylic acid, one teaspoonful of beechwood creosote and about

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The Sizes.

Gum
Tragacanth.

Gum Hogg.

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The following colors produce much more durable results than aniline dyes, but they cost more and are much more difficult to manipulate.

[No. 78.] *Chinese Vermilion (dry form)*. This pigment, although somewhat expensive (\$1.25 per pound), makes a very durable and highly artistic edge. How to prepare it: Put into a quart bowl thirteen ounces of the dry pigment, add twenty drops of beechwood creosote and enough grain-alcohol to form a very stiff paste. Work into this with a folder about ten heaping teaspoonfuls of No. 74; four teaspoonfuls of glycerine and rose-water and sufficient boiling-hot water to make about half a pint of color. Now dissolve a heaping teaspoonful of good ammonia alum in half a cupful of boiling water and add it to the color. Finally, add enough hot soft water to make one pint of color. If it still rubs, simply add a little more of No. 74. The color must not be used too thin, but rather in a thin, syrupy condition. If the paper is hard, apply the color with a flat camel's-hair brush; if soft, use a stencil brush. Do not use this color unless you intend to burnish the edges, for which purpose use an agate burnisher. The steel burnisher may be used, but be careful not to use excessive heat.

[No. 79.] *Tin Solution*. A few drops of tin solution, made by dissolving English tin in hydrochloric acid, will somewhat heighten the effect of No. 78, but be very careful, as an excess of it will disintegrate the No. 74 contained in the color and so cause the color to rub.

Chinese Vermilion can be had of Zinsser, New York.

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Colored Edges.

Chinese
Vermilion.

Tin Solution.

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COLORED EDGES

Colored Edges.

PLAIN colored edges are in good taste on all classes and grades of work. But they should be burnished, as this trifling extra touch imparts the much-needed finish. The colors should be well chosen, ought not to fade, and be so prepared as to burnish well and readily. To further enhance the decorative effect, the edges may be gold tooled as explained in the following pages.

Coal-tar (aniline) Dyes.

[No. 76a] *Coal-tar Dyes (aniline)*. These dyes can now be had in almost any color. On account of their brilliancy and because they need merely to be dissolved in water and sometimes in a little alcohol, they are much used for single color effects on book edges, especially for cheaper grades of work. However, they do not burnish well and are not as light-proof as might be desired. Paper-rulers also use them very extensively in place of the more costly vegetable or other organic dyes. Aniline dyes can be had of all technical supply houses. Zinssers (see index for address) carry a full line. They are also to be had sometimes of local druggists.

Fletcher Ink Extracts.

[No. 77.] *Fletcher Ink Extracts*. The Fletcher Ink Extracts, made by N. P. Fletcher & Co., Hartford, Conn., are also highly recommendable for this purpose.

A bright shade of eosine, which is an aniline dye, makes a very good red edge, the shade of which may be further varied by the addition of a little yellow aniline. The coloring can be done with either a sponge or brush; a good stencil brush will do the work well.

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twenty-five quarts of hot or cold water. Place on the fire and boil about one and one-half hours; stir occasionally to prevent burning, run through a colander and later through a coarse cloth. It will not wholly dissolve but do not use alkali (salts of tartar in this instance) to dissolve it entirely. The residue may of course be preserved for a future boiling. In an earthen crock this preparation will keep for some time, especially if kept in a cool place. Gum hogg comes in small, irregular lumps. Before dissolving the lumps you better crush them, but this is not absolutely necessary. Some dissolve it in cold water without boiling, but the results are not so satisfactory, requiring the use of large quantities of alkali and ammonia. Others prepare it thick and then dilute with water. After this method the twelve ounces of gum with the specified ingredients are boiled in six quarts of water and then kept in an earthen crock. The size must be strained after a certain quantity of it has been diluted.

[No. 72.] *Combination M. Gum Tragacanth and Gum Hogg*. Prepare by simply mixing both sizes in proportion of one part of gum hogg size to ten parts of gum tragacanth size. This combination is adaptable in all drawn patterns and in the productions of Greek (wave) marbles.

[No. 73.] *Combination N. Gum Tragacanth and Carrageen*. The combination of about five quarts of moss size and ten quarts of gum tragacanth size makes an admirable size for drawn edges. However, as this combination sours more readily than the No. 72, I cannot recommend it.

By the use of either of the preparations above enumerated,

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The Sizes.

Gum Hogg.

Tragacanth and Gum Hogg combined.

Tragacanth and Carrageen combined.

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there need be few if any technical difficulties encountered. **Q** Tragacanth size is indisputably most satisfactory. It is easily prepared, costs but one cent per quart and will keep for months. Colors of either fine or coarse texture can be used upon it with equally good results.

Book Edge
Marbling.

Tragacanth the
best Size.

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These constitute the principal formulas for book-edge marbling. A complete treatise on this subject, including suggestions for bronze-color marbling, and the fixing of color to large sheets of paper (the manufacture of marble papers) will be published later.

Book Edge
Marbling.

Concluded.

EXPANDING MEDIUMS

THERE are numberless ingredients which are quite serviceable as expanding mediums, but beef-gall recommends itself, particularly for economic reasons and as being well suited for all general purposes. Only in few instances will a more effective medium be necessary, and where such a condition is indicated, as, for instance, in the body color of spot marbles, an addition of a few drops of spirits of soap will give the desired results. Both preparations are fully described below.

[No. 75.] *Beef-gall.* The preservation of beef-gall is easily accomplished: Simply add one part of pure grain-alcohol to five parts of fresh beef-gall, stir well, let stand a week and then pour off very slowly into a stone jug; throw away the white sediment. Tightly corked, it will keep forever.

[No. 76.] *Spirits of Soap.* Put into a three-quart china bowl three-fourths of an ounce of white castile soap finely chipped or scraped, add one pint of grain-alcohol and apply heat till soap is dissolved. This must be done very carefully in water bath to prevent ignition of the volatile vapors which are generated by this process. When every particle of soap has been dissolved and the solution is quite hot, pour it into two quarts of warm, soft water. The solution is now ready and should be kept in a closed bottle. It should only be used for spot and hair-vein marbles in the ground or body color, in addition to a little gall. As colors which contain spirits of soap will soon spoil, only mix enough color for the job in hand.

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Marbling.

Expanding
Mediums.

Beef-Gall

Spirits of Soap.

A BINDING MEDIUM FOR MARBLING COLORS

IN treatises we have often read that by adding wax to the colors the rubbing and breaking of the latter will be prevented, but only in very few instances have we been informed how and in what form the wax is to be united with a water-color. In these exceptional instances we have been told to saponify the wax. Although wax in such a form will readily unite with a water-color and prevent rubbing, we are still confronted with the most important and the most vexatious question: "The breaking of the color." Besides, an excessive addition of saponified wax will cause the colors to expand too much. The question of how the breaking of the color may be prevented, has never been sincerely and satisfactorily answered. It represents the main issue in marbling. No marbler can call himself a master of his art unless he is able to prepare a true mineral color suitable for this work so it can be drawn on the surface of the size without breaking up into fragments. Such a formula is almost priceless. Here it is:

[No. 74.] *Binding Medium for Marbling Colors.* Put a cupful (one-half pint) of gum gattie into a two-quart china bowl, add to it one even teaspoonful of salts of tartar and one quart of boiling water. Keep the gum hot in bath all day, adding a little hot water at intervals of an hour or so, but at least sufficient to leave one quart of dissolved gum of the consistency of thick molasses at the end of the day. The residue, being lumps of undissolved gum, you may save for a future boiling. Next, strain the quart of gum through a piece of

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coarse cloth, add four heaping teaspoonfuls of refined honey, a scant half ounce of yellow prussiate of potash reduced to very small fragments, and one ounce of common yellow laundry soap shaved fine. I have found Lautz's Acme soap to be just right for this purpose. Return this mixture consisting of one quart of dissolved gum gattie, four teaspoonfuls of honey, half ounce of yellow prussiate of potash and one ounce of laundry soap, to the bath and apply heat till every particle of soap and potash has been dissolved. Occasional stirring with a folder will facilitate this. If directions are followed and the soap is right, this solution should be as white as milk when the ingredients are all dissolved. When this stage has been reached, melt in another dish three ounces of white beeswax (not paraffine), remove from fire, add a dash of cumole (No. 51), stir with folder and add to it gradually, stirring briskly at the same time, the hot gum solution. The preparation is now ready and should be of a creamy white color and not too pasty in texture but rather glutenous. Preserved in a jar, it will keep forever. According to the fineness of the color, add from one to two teaspoonfuls of the preparation to each cupful of liquid color. It is, however, best to add it when color has been only so far mixed with water as to leave it in paste form. If the color is a lake, do not add too much of the medium, as it would cause such a color to run; besides, it does not require it. In the preparation of dry mineral colors like chrome yellow, proceed thus: Fill an ordinary cup scanty one-half full of dry color, add from five to ten drops of beechwood creosote, from ten to fifteen drops of gall, a like quan-

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tity of alcohol and sufficient boiling water to form a stiff paste; then about one and one-half teaspoonfuls of medium. Mix thoroughly, run through the grinder, or in the absence of one, work out all lumps with the folder and gradually fill cup with cold water (preferably soft), and let it stand. The following day the color will be ready and works well on mellow size. A small disc grinder for grinding colors is not only very handy, but indispensable where marbling is done to any extent. Five dollars will buy a fair-sized machine. They are arranged so they may be operated either by hand or by power. The grinding by the machine will make the color perfectly smooth and better incorporate the ingredients than by doing it with a brush or folder. This medium easily binds any color, and will positively prevent the breaking of it.

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of the Colors.

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