

COLORING AND DYEING IVORY.

In reply to the inquiry of E. P. W., in our issue of Dec. 8th, we have received four communications which we condense. Mr. Joseph Hirsch recommends a process similar to that he furnished us, which was published in our number of Dec. 8th, relative to the dyeing of horn; which he informs us was the invention of Gustav Mann, of Stuttgart. If the method employed in dyeing horn is applied to ivory, it is necessary to thrust the ivory directly from the hot bath into cold water, to prevent the production of fissures. He gives the following recipes for dyeing ivory:—

BLACK.—The ivory is boiled about ten minutes in a solution of logwood and then placed in a solution of green vitriol; to be repeated until the desired depth of shade is secured. Another plan is to immerse the ivory in a solution of nitrate of silver exposed to light. This to be repeated, if the first attempt is not satisfactory.

BLUE.—The ivory to be placed in a diluted solution of sulphate of indigo for a few moments, and dried with blotting paper.

YELLOW.—Immerse the ivory in a diluted solution of nitromuriate of tin for a few minutes, and then for an hour or less place it in a filtered hot solution of fustic; or immerse the ivory a quarter of an hour in a solution of sugar of lead, then in a solution of chromate of potash for half an hour; or the ivory may be steeped first for twenty-four hours in the chromate of potash and then boiled in a solution of acetate of lead. Another method for yellow is to boil the ivory a short time in diluted nitric acid.

ORANGE.—As in yellow, first recipe, except to the fustic add Brazil wood to deepen the color.

RED.—Boil the ivory a few minutes in a mixture of cochineal and vinegar; or immerse it in a diluted solution of nitromuriate of tin, then boil it for half an hour in a decoction of Brazil wood or cochineal.

SCARLET.—Same as the last, except the addition of fustic.

CHERRY RED.—Same as the last, with the addition of immersing the ivory, after being dyed, in a diluted solution of potash

VIOLET.—Dye red and afterward blue; or place the ivory in a highly-diluted solution of tin and boil in the logwood bath

PURPLE.—As in the last, and place it in water containing a little nitric acid.

GREEN.—Dye yellow and then blue; or immerse for half an hour in a solution of chromate of potash (concentrated), and expose to the sunlight.

Aniline dyes yield a very satisfactory result, being bright and clear.

Another correspondent quotes the following from Dr. Winkler, in *Böttger's Polytechnic Notices*:—

YELLOW.—Dissolve one-fourth of an ounce of picric acid in half an ounce of boiling water. Dilute one eighth of an ounce of strong sulphuric acid with one fourth of an ounce of hot water by pouring the acid gradually into the water. Insert the ivory in the acidulated water, turn it around repeatedly in order to admit the acid to all parts, remove the ivory from the fluid and dry it. Then insert the dried ivory in the boiling solution of the picric acid, turn it also around and leave it in the solution until all parts appear of a uniform yellow color. Then remove it from the solution of picric acid, dry and polish the ivory with soap water and finely levigated chalk. After the polishing the ivory possesses a permanent dark-lemon yellow color.

BLUE.—Insert the ivory for fifteen to twenty minutes in diluted muriatic acid (half an ounce of acid for one pound of water, having the taste of a good vinegar), and from this acidulated water transfer the ivory into a more or less concentrated solution of indigo-carmin (soluble indigo) and keep it in that solution until the ivory has assumed a uniform blue color; then dry and polish.

GREEN.—Insert the blue-dyed ivory in a solution of picric acid as prescribed for the yellow color.

Mr. Henry Connett, of Madison, Ind., sends the following, which he has heard pronounced good, although never having personally tried them:—

Ivory may be dyed or stained black by a solution of brass and a decoction of logwood; green, by a solution of verdigris; red, by being boiled with Brazil wood and lime water.

TO SOFTEN IVORY.—Soak for three or four days in a mixture of three ounces of spirit of nitre and 15 ounces of spring water, when it will be soft enough to obey the fingers. To color it in this state, dissolve the proper pigment in spirit of wine, then plunge in your ivory and leave until sufficiently tinged, then give it the proper form. To harden it, wrap in a sheet of white paper and cover with dry, decrepitated common salt, and leave for twenty-four hours. To whiten ivory that has turned brown, slack some lime in water, decant, and boil your ivory in this till white.

A correspondent from Northboro', Mass.:

BLACK.—Let the ivory be laid for five or six hours in a diluted solution of neutral nitrate of pure silver, with access of light, and it will assume a black cast. Ivory may be dyed blue by being laid or immersed in a diluted solution of sulphate of indigo, partly saturated with potash. Green is given by dipping blue ivory for a few moments in a solution of nitromuriate of tin, and then in a hot decoction of fustic.

RED DYE may be given by treating the ivory first with the tin mordant and then plunging it in a bath of Brazil wood.

TO MAKE IT FLEXIBLE.—This may be done by immersing in a pure solution of phosphoric acid of sp. gr. 1.13 and leaving it there till soft. It hardens on exposure to the air, but will resume its pliancy when put in hot water.

We may add that ivory is commonly silvered by immersing it for a few minutes in a solution of nitrate of silver and then placing it in clean water exposed to the sun's rays; or, better,

after immersion in the nitrate expose it to the fumes of phosphorated hydrogen.

THE PARIS INTERNATIONAL EXHIBITION.

The extension of space granted to agricultural processes and machinery in the experimental grounds on the Isle de Billancourt, will have the effect of adding considerably to the display of American improvements which had been excluded from the limited space in the Champ de Mars. These must, however, pay their own expenses—the small appropriation by Congress having been already exhausted—and their applications must be made in due form to the Commissioner General at the Palace of Industry, by the 15th of January. Two vessels have been employed by the United States Agent, Mr. J. C. Derby, to convey the goods of American exhibitors already accepted, free of charge, from this port to the Exhibition and back. The second of these, the *Mercury*, is now loading at Pier No. 6, North River.

The whole exhibition is arranged in the ten following classes or groups:—

1. Works of art.
2. Materials and their applications in the liberal arts.
3. Furniture and other objects used in dwellings.
4. Garments, tissues for clothing and other articles of wearing apparel.
5. Products, wrought and unwrought, of extractive industries.
6. Instruments and processes of common arts.
7. Food, fresh or preserved, in various stages of preparation.
8. Animals and specimens of agricultural establishments.
9. Live products and specimens of horticultural establishments.
10. Objects exhibited with a special view to the amelioration of the moral and physical condition of the population.

These are subdivided into ninety-five classes, most of which it would be of no interest here to particularize. Some of the more important or novel features intended, may strike the eye as we glance over the departments in their order, and serve to illustrate whatever is characteristic in the grand design of the French Government. It is gratifying to learn from the assurances of the Agent, that our own country is to be fairly represented in all classes; the space, 42,000 feet within the palace, having been entirely taken up, after rejecting many superfluous or inferior articles.

Group number one will afford such a view of American achievement in the fine arts, as has never before been presented, even in this country. Thanks to the exertions of a self-organized committee of influential connoisseurs, a large collection of the very best works of American art, from private and public galleries as well as studios, will grace this truly great department of the exhibition. The peculiar expenses of shipping and insuring these costly and delicate treasures will be paid by private liberality.

Group number two, nearly allied to the fine arts, includes, under class 10, instruments of music, in which it is needless to say that our country will in certain respects make an imposing demonstration. In photography (class 9) our artists will hardly be behind, and will certainly not be backward. In the medical art (class 11), if humanity in its noblest development is to be the standard, our Sanitary department, organized by Dr. Thomas W. Evans of Paris, with special reference to the operations of the American Sanitary and Christian Commissions during the late war, will exhibit America in the van of real progress. We are glad to learn that a special section of the Exposition has been devoted to this object, outside of the space allotted to the United States. Among the articles shown will be large, elegant and costly models of Dr. Harris's hospital car, and Perot's and Autenreith's medicine wagons, four of the best ambulances from actual service, an ambulance kitchen, a hospital tent completely furnished with Sanitary Commission stores, and the identical Christian Commission coffee wagon which was in use in the field at the time of Lee's surrender. Dr. Evans will have deserved the gratitude of the represented world for this noble movement, on which he is said to have expended \$25,000 or \$30,000 out of his own pocket.

In the third and fourth groups, we hear of nothing remarkable from America, except the suggestion that our grand deputation of fifty red aborigines, with their native attire, weapons, paint, wigwams, domestic arts and utensils, and mode of life, will be a unique though primitive illustration of the subjects of "furniture" and "garments." This remarkable feature of the Exposition has been provided by the agency of the Commissioner for Minnesota, Dakota and Idaho, at the suggestion of the Imperial Commissioners themselves. The fifty Indians will embark with their "traps" about the 10th of March. They will probably fall under class 92, group 10, "Specimens of costume."

In the fifth group, class 40, products of mines; class 41, products of the forest; class 42, products of hunting and fishing and collections of natural growth; and class 43, agricultural products not food—no country can on the whole present so varied and important an exhibition as our own. The mammoth trees as well as the mines of the Pacific coast will be represented.

The sixth group has been overwhelmed with American contributions, with which, as a whole, no other country can vie. The whole infinite variety of our useful inventions it was impossible, of course, to accommodate. A selection of the better class had to be made, and we must hope it was judiciously and yet liberally done. A very large amount, unavoidably left out of the palace, will find accommodation as above stated on the island.

The seventh group will include some of the most original, interesting and "refreshing" items of the exhibition. Every country and grade of civilization will be represented, as far as possible, in its materials and styles of preparing and taking food. A genuine Japanese coffee house, with Japanese girls as attendants, is on its way; and specimens of the eating and drinking of New England, New York, and the West, with every other race and nation—not merely to be looked at—will invite the hungry and thirsty and curious millions (for so they are reckoned) of strangers from all lands.

We pass to the tenth, and to our mind the grandest, group of the exhibition. In this department the world will not deny that we have much to show for the benefit and instruction of mankind. In devices and arrangements for the improvement of the condition of the laboring classes, and for the better organization of labor, it must be confessed that England and France are ahead of us. The obvious reason of this is, that our operatives are so well off in their independence, that it is difficult to induce them to combine, except for higher wages. For the same reason there is comparatively little pressure upon the other classes to organize beneficent movements for them, or to offer them an interest in the produce of their labor, as has been done so nobly and successfully by a few English and French employers. Hosea Biglow's

—true American idee,
To make a man a man, and let him be,

is the principle upon which our social economy has proceeded so far. The first part of it—to make a man a man—which is certainly better than everything else that can be done for a man, we have carried further than any other people in history, and the exhibition will give our fellow-nations some hints, at least, of our process. Our public schools are to be represented (chiefly through Massachusetts liberality), in models of our best school houses, and representations of our most approved apparatus and modes of instruction, school books, results of education, and educational laws. Incidentally, not as a matter of display, the free, simple, Bible religion, which nourishes the root of all our national happiness and grandeur, will be illustrated by an evangelical chapel, in which the great Parisian gala day, which we revere as the Christian Sabbath, will be sacredly observed, in strange contrast, to Frenchmen, with the restless gayety which seems happiness to them. The daily union prayer meeting is also to be maintained there, for the devout of all races and sects who hold one common spiritual Head.

Every sort of religion and manners have free and equal welcome, and as an offset to the above, Spain will exhibit a national characteristic—six bull fights—for which a Spanish company are making preparations on a gorgeous scale. Comment is unnecessary; yet the condition of Spain will afford it, in the almost entire absence of contributions to the welfare and honor of humanity from a nation once the foremost in civilization and grandeur.

The prizes amount to 800,000 francs, in sums of money or medals of gold and silver. Each nation is represented on the grand international jury of six hundred, according to the space allotted to it in the exhibition. This jury is divided into sixty-eight sub-juries on classes, which are to work simultaneously, from the opening of the exhibition on April 1, and finish their awards before the 14th of May, except with regard to certain specified classes. The largest prizes are ten of 100,000 francs each, and one grand prize of the same amount, to persons, establishments or localities where by special institutions harmony and well-being, material, moral and intellectual, have been promoted among those who carry on the same labors. A special jury will determine these awards. In art, there are 139 prizes, from 400 to 2,000 francs each. In agricultural and industrial products, 250,000 francs will be distributed in gold, silver and bronze medals; the gold worth 1,000 francs each, and the others of the same character except the material only. Many other topics of interest present themselves; but we reserve them for maturer attention as they shall come up in the actual progress of the exhibition.

THE OCEAN YACHT RACE.

On the 11th of December, at 1 P. M., three pleasure yachts started from Sandy Hook for the Isle of Wight, in a friendly trial of speed and good seamanship. The *Henrietta* arrived at Cowes, Isle of Wight, at 5 minutes to 6 on the evening of the 25th; the *Flectwing*, 8 hours and 15 minutes, and the *Vesta*, 9 hours and forty-five minutes, after. Considering the tonnage of the vessels, the season of the year selected, and the prevalence of gales during the passage, the time made was remarkable. The owner of each vessel staked \$30,000 on the result.

The *Henrietta* is a fore-and-aft schooner of 205 tons, 108 feet long, 23 feet beam, and 10 feet depth of hold. She is a keel boat, and was built in 1862, by Henry Steers, of Greenpoint, L. I., from a model by Wm. Tooker, of New York. She carried a crew of 27 men. Her owner, Mr. J. G. Bennett, Jr., son of the editor of the New York *Herald*, sailed in her.

The *Flectwing* has a capacity of 212 tons, is 106 feet long, 24 feet beam, and has 10 feet depth of hold. She is also a keel boat. Her builder is Joseph Van Deusen, and she is not quite one year old. Her owner is Mr. George A. Osgood. Her crew consisted of 21 men.

The *Vesta* is a center-board boat, built last spring, by Mr. Carll. She is 108 feet long on deck, and carried a crew of 24 men. She is owned by P. Lorillard, of this city.

The interest of this race does not end with its termination and the transfer of the money staked on the result. There is something behind all this to make it noteworthy. The daring and skill displayed in crossing the stormiest ocean on the globe, at the most inclement season; the confidence in the skill of man to thwart the fury of the elements; and, above all, the triumph of mechanical genius and good workmanship, guided by scientific knowledge, evidenced in the build of these tiny craft, are facts in which every man and mechanic must feel a pride. Again, as one of the results, the cordial and generous manner in which these facts were recognized and the crews welcomed, by our brethren of the "seagirt isle," are additional elements in our satisfaction. Only