

England and France, the forms only were reproduced, and the original glittering roofs and mosaic and marble work were forgotten. Increased knowledge on this matter has led of late to colour being much more extensively used, especially in Paris, as in the Opera House, the Hemicycle, the Beaux Arts, and many modern buildings.

Somewhat, in northern countries, under dull gray skies and lowering clouds, form was developed largely to the exclusion of colour, and that in the very face of nature's example, for we have only got to leave a building alone and time will soon beautify it with pearly and emerald lichens and mosses, and touch the stones and roofs and timbers with harmonious tints, such as the ruins of castles in Britain and Europe everywhere show. Even here nature will do her best if we will but let her. The monotony and dullness of the average streets of cities are very depressing, especially in manufacturing cities, where we find rows on rows of dirty soot and smoke begrimed houses.

Some years ago, in London, the average fashionable house had a dingy colored compo-cement front, and the back was too dreadful to think of; then there came a revulsion, and armies of painters appeared, and lo! the fronts of the houses blossomed out in claret color, and sage greens, and blood red, and mustard yellow, and other colors hard to give a name to, and although in some cases presenting a somewhat incongruous and piebald appearance, were yet infinitely better than the old. The next stage was better still, that of using honest material of natural pleasing colour, which would withstand the smoky atmosphere. So terra cotta and tile work and warm colour tone were and are used.

Surface applied painted work will not do, but the use of coloured materials themselves seems to be the line on which we shall achieve greatest success.

In New York there was a brown stone period, when a man could not shew himself in society unless he lived in a brown stone house, and so streets and terrace of brown stone still chill our sympathies. New York had also its white marble period, when to live in a white marble house was considered the acme of bliss, and so leprous looking erections took courage and reared their heads in the streets. Now more pleasing arrangements of material and colour are in vogue—red brick and red stone and warm cream colored stone meet the eye in all the newer quarters, and in combination with the green of the trees and grass, present very pleasing pictures. And to come nearer home, a cut gray limestone house was considered amongst ourselves as the sign of eminent respectability, but fortunately of recent years, red brick and terra cotta and red and buff stone, have been largely employed, alone or in combination, and I cannot but think to the beautifying of the city and the advantageous breaking up of the monotony of our streets.

In more genial and equable climates, where the houses are ugly and commonplace, they are often redeemed and made even beautiful by a veil of green ivy growing up to the top, or by Virginian creepers, or by balconies and window sills full of plants and flowers. It is surprising how a few bright flowers on an outside window sill will brighten up a whole front of a house, and give pleasure to every passer-by. Here it is only in summer that we can attempt such a thing, and alas, the ivy is not available to cover the ugliness of some of our houses. We do not want the exterior of our houses to be like harlequins, but neither do we want them to be like quakers or Gray nuns. We should take a lesson from nature, who never is in monotone, and even where you fancy she is, on closer inspection you will find it made up of a large variety of hues, but all in perfect harmony.

Oriental art differs essentially from ours in its bright melody of colour; they use colours externally of a richness and brightness that would make our hair stand on end, yet always with harmony, congruity and beauty. We cannot, in our climate, use these in such richness or wealth, yet we can and ought to use the softer shades, which have depth of colour without garishness.

So far so good, but possibly some of you may say, "Now coming to sculpture. You surely do not advocate colour in sculpture." And yet if you think, why should one important branch of art be robbed of the charm of colour, and have to depend entirely on beauty of form? It is largely a matter of habit that we have come to expect sculpture in white marble, or else in bronze, which speedily turns black. It seems to suit our matter-of-fact minds, and this matter-of-fact age, that we must have even our sculpture in "black and white," reduced, as it were, to legal exactness.

It was long thought that ancient sculpture was not coloured, but it has been placed beyond all controversy that the Greeks, who were the best sculptors that the world ever saw and will possibly ever see, employed colour to heighten the effects of their sculpture, and never hesitated to cover even the most precious white marble with gold and blue and other colours. Careful examination of many of the sculptures of the Greek temples conclusively proves this, as the remains of the colour is very plain. There is no doubt that the famous Parthenon frieze was colored, and quite recently several sarcophagi were found at Sidon, three of which are Phœnician in character and seven of Greek design of the purest type, without a trace of Roman influence, richly sculptured, and bearing close resemblance to the Parthenon frieze in the horses and beauty of the figures. These show large remains of colored decoration, and leave no doubt whatever as to great development of Greek polychromy in their sculpture, as well as in their architecture. So also the Christian sculpture and Gothic art. There are numberless examples in our cathedrals and old mediaeval buildings of rich both of the figure and of natural forms, with more or less remains of the colour upon them, on the portions less exposed to the weather than the others. And where we find Greek sculptors and the best Gothic sculptors employing colour in their sculpture, the abstract theoretical use of it cannot be condemned. It is in the application of it that we are apt to go wrong. Here very great caution and artistic sense has to be exercised, and Gibson's tinted Venus stands as a warning that there are defined bounds and limits to its application. There are certainly great objections to the use of natural colour in isolated figures, subjects either wholly or partially draped, in that the colour takes away from its ideal and abstract character, and it becomes at once an imitation of a living person, and as such, influences us in quite a different way.

The modern fashion of placing busts about the middle of a room is hardly in the best taste, and is taking sculpture out of its proper sphere, but where it is rightfully employed to heighten the effect of a building and such like, then the necessity for the use of some material of such a colour as to harmonize with the building arises. More especially where isolated statues are placed in our streets to commemorate some noble life or deeds; if they are of white marble they get grimy and streaky and dirty, and the light and shade is crude and hard. If they are of bronze, they speedily become black as a negro, obliterating all the finer lines of expression and fold of garment, and presenting little more than a silhouette against the sky. In one notable case, that of the statue of the Prince Consort in the Albert memorial, in Kensington Gardens, London, a bold departure was made and the statue was gilded all over, but the result was no better than before, and indeed, rather worse, and was christened the "God of Mammon."

I would just mention the beautiful majolica or faience work of Lucca della Robbia, which glows from so many of the facades of the Italian churches. They were chiefly figure work of a religious nature—Holy Families, Virgin

and Child, Saints, etc.—but so beautifully modelled, and such rich colors burnt in and glazed so as to be almost imperishable—a very suitable material for smoky atmosphere when they could be washed and always keep their brightness and beauty. The secret was so well kept by the Robbia family that it died with them, and we have been unable to get the full brilliancy of all the colours, but a resuscitation of this in some such form would seem to fulfil the conditions of modern times.

I had intended to speak of colour in interior decoration, but it is so large and important a subject that it is worthy of a better place than the close of a paper, and I will conclude in a word by respectfully urging you all to assiduously cultivate your colour sense in the conviction that it will minister to your susceptibility to refined and beautiful impressions, and afford an abiding source of joy and pleasure.

### USEFUL HINTS.

To clean marble mix up a quantity of the strongest soap lees, with quicklime, to the consistence of milk. Lay the mixture on the marble for twenty-four hours, then wash it off with soap and water, and repolish if necessary.

TO PRESERVE SCAFFOLD ROPES, ETC.—Ropes used for scaffolding may be preserved by dipping, when dry, in a bath containing three-fourths of an ounce of sulphate of copper to a quart of water, and kept in for four days; then hung up and dried.

All main steam pipes and steam risers says the Heating Engineer, should be connected at their lowest levels by relief pipes run to or connected with the main return pipes, or to the return risers below the water line in the boiler, to take from them any condensation that may be formed. These relief pipes also serve to equalize the pressure throughout the apparatus, or the return lines may all run below the water line of the boiler, in which case the connecting lines spoken of are unnecessary.

TO REMOVE CREASES IN DRAWINGS, ETC.—Fasten the engraving or drawing by drawing pins on a board face downward on a sheet of paper. On the back place another sheet of paper which retains a very slight quantity of moisture. Over this place flannel or blotting paper, and taking a hot iron pass it carefully over the part where the creases have been made until they disappear, and then submit the drawing or engraving to pressure between glazed boards.

Mr. Thos. Potter in a letter to the Builder, states that the better concrete is the more readily it conveys sound, and that an actual trial lately proved that ordinary conversation could be distinctly heard through a six inch concrete wall plastered on both sides, and the same applies to concrete floors. Such floors should never be constructed solid throughout, says this writer, if required to be sound-proof, and where wood in the form of joints, bears directly on the concrete, sound is very readily transmitted from one to the other.

TO GILD ON PLASTER OF PARIS.—To satisfy the absorbent nature of the plaster, brush it over with linseed oil, at intervals of twenty-four hours, till it will absorb no more. Then go over it with oil gold size, ground with yellow ochre into a paste. If this size does not work freely, thin it with linseed oil. When this is so far dried as to be just tacky, gild in the ordinary way with gold leaf, using a tip. Press the gold gently but firmly down with a bob of cotton, covered with soft washing leather; then rub off superfluous gold, and smooth the surface with a second bob of cotton not covered.

One of the latest things in the way of so-called fire-proof material for building purposes is "metal plated lumber," the invention of a Baltimorean. The method pursued is to take a piece of lumber of any desired shape or length, together with a strip of thin sheet metal to correspond, and run them through a simple machine, formed mostly of rollers, which folds the metal skin tightly around the lumber. Thus prepared, it is claimed that the lumber is specially adapted for use in the construction of doors, flooring, partitions, stairways, freight and passenger cars, granaries, refrigerators, &c., &c.

The following weights for brickwork in mortar, 100lb. per cubic foot; brickwork in cement, 112lb. per cubic foot; masonry, rubble, 140lb. per cubic foot; masonry, ashlar, limestone, 150lb. per cubic foot; masonry, granite, 160lb. per cubic foot, are after Rankine. The following weights for timber are due to Haswell:—

	Weight of cubic foot.			
	Green.		Seasoned.	
	lb.	oz.	lb.	oz.
American pine	44	02	30	0
Ash...	58	3	50	0
Beech	60	0	53	6
Cedar	32	0	28	4
English oak	71	10	43	8
Riga fir	48	12	35	8

But no definite rule for correctly calculating weights from the measurement of timber can be given, for Rankine, in "Civil Engineering" (Griffin, 1870), states that the timbers given below have the percentage of loss of weight in seasoning set against them. The correct weight per cubic foot depends then to a great measure upon the condition of the timber: Red pine loses in seasoning twelve to twenty-five per cent. in weight; American yellow pine loses in seasoning eighteen to twenty-seven per cent. in weight; larch loses in seasoning sixteen to twenty-five per cent. in weight; British oak loses in seasoning sixteen to thirty per cent. in weight; elm loses in seasoning about forty per cent. in weight; mahogany loses in weight sixteen to twenty-five per cent. in weight.