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THE LAWS OF

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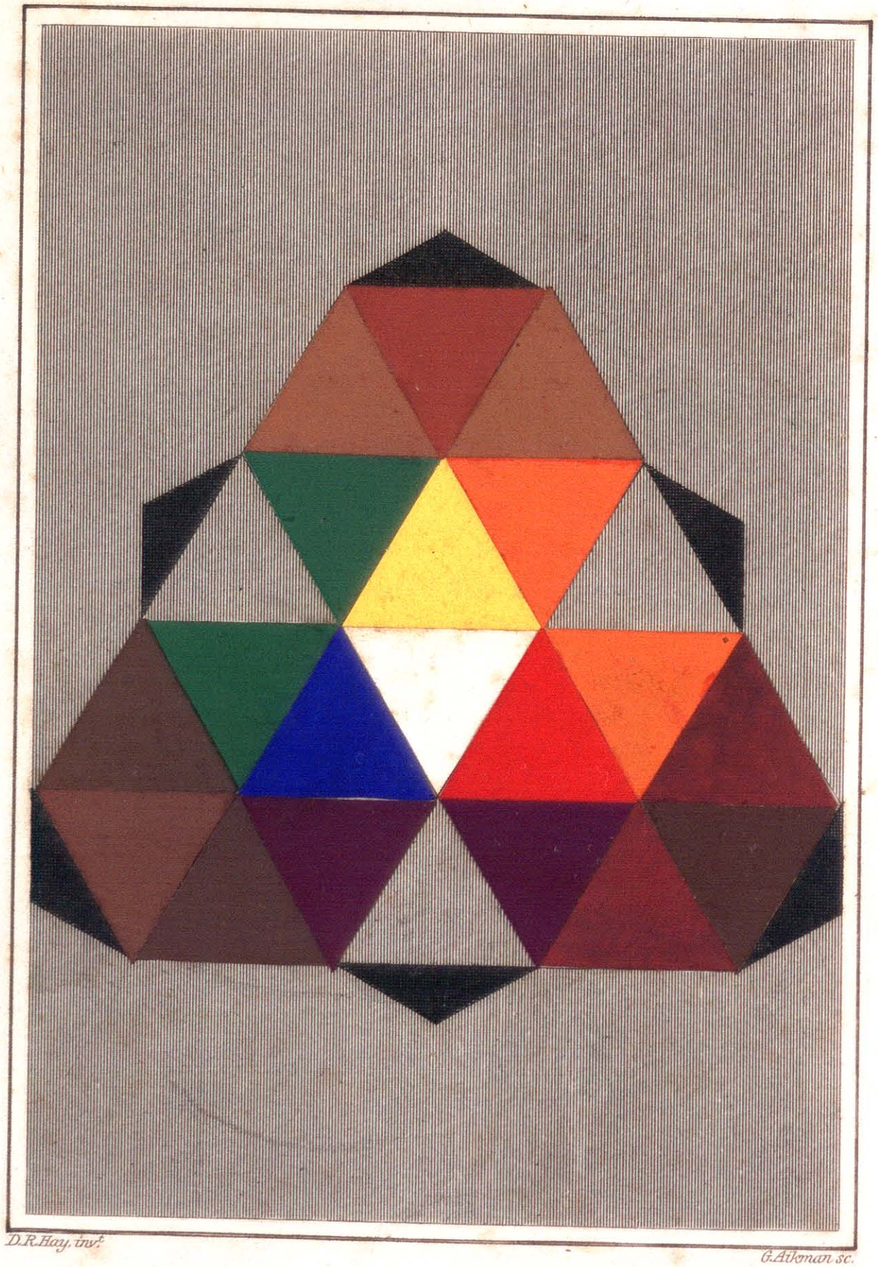

D.R.Hay. inv.t

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THE LAWS

OF

HARMONIOUS COLOURING

ADAPTED TO

INTERIOR DECORATIONS

WITH OBSERVATIONS ON

THE PRACTICE OF HOUSE PAINTING.

BY

D. R. HAY,

HOUSE-PAINTER AND DECORATOR TO THE QUEEN, EDINBURGH.

Sixth Edition.

WILLIAM BLACKWOOD & SONS,
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PREFACE.

In laying before the public a sixth edition of this treatise, I have to express my gratitude for the favourable reception it has hitherto met with, and to assure my readers that I have thereby been stimulated to exert myself to the utmost to render it, on the present occasion, more theoretically and practically useful.

Although the coloured diagrams are now reduced to one, yet that one contains all the colours of which the various diagrams in the former editions were composed, more correctly balanced as to their relative powers, and more permanently secured against change.

I have re-written the whole treatise, and have expunged all extraneous matter in order to make room for additions more intimately connected with the subject. And as a more convenient arrangement, I have now divided it into two distinct parts; the first theoretical, and the second practical. Both of these I have treated as popularly as the nature of the subject would admit of, and, therefore, trust this edition will be found superior to any of its predecessors.

D. R. HAY.

EDINBURGH, 90 GEORGE STREET,
1st *July* 1847.

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INTRODUCTION.

ALTHOUGH the experimental inquiries of the natural philosopher have long since established as a scientific fact, that colours are regulated by the irrefragable laws of harmony in their combinations; and although the works of most of the masters in high art, both ancient and modern, give practical illustrations of the same truth, yet the error of considering the arrangement of various colours as a matter of mere caprice or fancy, is still prevalent.

In the decoration of our dwellings, in the colours of our dress, in the arrangement of our flower gardens, and, indeed, in almost every case where colours are brought together in the ordinary

requirements of life, fashion more than scientific knowledge, seems, in a great degree, to regulate our proceedings. But the caprices of fashion are guided by no rules whatever, but are subjects upon which most nations and individuals differ widely; and there are no productions or customs to which these caprices have given rise, however extravagant or absurd, but what have had, and still have, their admirers, while they bear the gloss of novelty or stamp of fashion.

Fancy or choice is, and may be employed with perfect propriety in all matters of taste, both as to individual colours and their combinations. We are all individually entitled to have our likings for, and antipathies to particular colours, hues, shades, or tints. We may also, individually, have our partiality to particular modes of arrangement amongst various colours,—some may delight in a gay and lively style of colouring—some in the rich and powerful, and others in the deep and grave—some may have a partiality for complex

arrangements, while others prefer extreme simplicity. But this is the case in music also; every variety of style and composition has its particular admirers; yet it never is assumed, that the arranging of the notes in a melody, or other musical composition, is a matter of mere caprice or fashion. All know that the arrangement of notes in such cases is regulated by fixed laws; proved also, by the experimental inquiries of the natural philosopher, to depend on certain phenomena in nature, which cannot be deviated from without giving offence to the ear; therefore, a knowledge of those laws is considered absolutely requisite to every one who wishes to cultivate that pleasing art, either practically or as an amateur. This is precisely the case in regard to colouring; for it does not matter under what circumstances a variety of colours are presented to the eye—if they be harmoniously arranged, the effect will be as agreeable to that organ as harmonious music is to the ear; but if not so arranged, the effect on the eye

must be unpleasant, and the more cultivated the mind of the individual, the more annoyance will such discordance occasion him.

The laws of harmonious colouring seem not only to have been thoroughly understood by those great painters of antiquity, whose works have been the admiration and study of succeeding ages, but were, even so far back as amongst the early Egyptians, carried to the greatest perfection in the more humble art of the internal and external chromatic decorations of architecture. Those travellers who have visited the remains of the magnificent cities and tombs erected by that wonderful people, speak of this branch of art as having been executed upon an evidently regular system of harmony, which had for its basis the fundamental laws, or first principles, that ought still to regulate the proceedings of the colourist, especially in those branches of art where high genius is not required, and where the practitioner must be confined within the bounds of teachable rules.

The Romans, too, at the period of their greatest refinement, seem to have paid a due regard to these laws in the applying of colour to the useful arts, of which fact the remains of Pompeii and Herculaneum afford ample proof. The accounts given by artists and amateurs, of the interior decorations of the dwelling-houses of these ancient cities, all concur in eulogising the scientific knowledge which their colouring displays. It appears, that the decorators of those days used, upon all occasions, the most brilliant and intense colours, without either discord or crudity appearing in their works. But their science did not stop here, for, by a knowledge of the various styles of colouring, and of their proper adaptation, they employed great masses of deep colour, even black itself, on the walls of their rooms, especially such as were lighted from the top, or, rather, that were altogether uncovered; thus counteracting the brilliant and abundant light of the Italian sky. The practice of scientific colouring seems still to exist

amongst the Italians. An eminent writer on the art of painting, and an amateur of the highest class,* who has done much in an official capacity for the encouragement and improvement of our national manufactures, thus describes the practice of house-painting amongst the modern Italians:—

"In Italy, the study and acquirements of a house-painter are little inferior to what is requisite for the higher branches of the art; and, in fact, the practice of both is not unfrequently combined. They are more conversant with the science, as well as the practice of colouring, with the rules of harmony, and with the composition of ornamental painting in all it branches; so that their works might be transferred to canvas, and admired for their excellence. In fact, the great frescoes of the first masters, which have been the admiration of ages, were but part of the general embellishment of the churches and palaces of Italy. And the most celebrated names in the list of artists have left

* James Skene, Esq. of Rubislaw.

memorials of their fame in the humble decorations of the arabesque, in which all the exuberance and playfulness of fancy are displayed, as well as the most enchanting harmony of brilliant colours. It is in this essential point of harmony that our practice is particularly defective; we rarely see, in the simple painting of our apartments, any combination of colours that is not in some part offensive against even the common rules of art, if there are any rules observed, save those of mere caprice or chance —although there are certain combinations pointed out by the laws of optics, which can as little be made to harmonize as two discordant notes in music. The unpleasant effects arising from such erroneous mixtures and juxtapositions, we are often sufficiently aware of, without having the skill requisite to assign the reason, any more than the painter who chose them. This accounts for the prevalent use of neutral colours in our ornamental painting, which is less liable to offend by whatever bright colour it may be relieved, and likewise the

safer and more agreeable combination of the different shades of the same indefinite colour. But no sooner do our painters attempt any combination of decided colours than they fail. The ornamental painting in Italy is almost entirely in decided colours of the most brilliant hue, and yet always inexpressibly pleasing in the combinations, because the rules of harmony are known and attended to. Neither is this proficiency confined to the decoration of palaces, or the more elaborate and expensive works; we have seen in dwellings of a much humbler cast, and indeed in general practice, the most graceful designs of ornament, painted, not in the simple manner of Camayeu, but displaying every possible tint of bold and vivid colouring, and melting into each other with all the skill and harmony of a piece of brilliant music."

Until very lately, white, neutral hues, and pale tints of colour only were used in the painter's department of our internal decorations,—a practice that it is difficult at first view to account for in

a country like this, where we are, by a variable climate, denied the study and enjoyment of nature's colouring for so many days in every season of the year; and must, consequently, content ourselves with what the interior decorations of our dwellings afford.

This vapid tameness in the colouring of our dwellings is the more inexcusable, when we reflect, that as harmonious music delights and refines the mind through the ear, so does harmonious colouring act as an agent of civilization, in delighting and refining the mind through the visual organ. I believe, however, that this long banishment of the true beauty of colouring from the apartments of our dwelling-houses had its origin, not in any want of feeling or taste for colouring on our part, as compared with our Continental neighbours, but from our having lost the art of applying colours harmoniously, unless by the intuitive feeling of genius. There is an inherent principle in the human mind, however uncultivated it may be, that responds

to harmony—either in colour, sound, or form; and as silence is preferable to bad music, so is neutrality to positive colouring, unless the latter be regulated by the laws of harmony, which render it to the eye what music is to the ear. This quality in colouring is perfectly irrespective of imitative art, for so long as the forms of the individual colours are agreeable and proportionate to the eye, so long will their harmonious arrangement convey as much pleasure to the mind, through that organ, as there is conveyed to it through the ear by the proper performance of a piece of instrumental music.

Many attribute our apathy in regard to rich colouring, to the uncongenial nature of the climate of this country. This cannot be, for in no country in the civilized world does nature exhibit, in the revolution of a year, such a splendid variety of colourific harmony—in which our snowy winter is but a pause. This pause is first interrupted by the cool vernal melody of spring, gradually leading the eye to the full rich tones of luxuriant

beauty exhibited in the foliage and flowers of summer, which again as gradually rise into the more vivid and powerful harmonies of autumnal colouring, succeeded, often suddenly, by the pause of winter. But how often, even in the depth of winter, when the colourless snow clothes the face of nature, do the most glorious harmonies of colour present themselves in the purple and gold of a winter sky. These picturesque effects have doubtless contributed largely to distinguish the British school of painting, as a school of colour. The picturesque beauty of nature's colouring, however, lies in the province of genius to imitate in works of high art; for the generality of mankind may admire it, but cannot deduce from it its first principles, in such an intelligible form, as to found laws upon them to govern that species of colouring which belongs to the more humble arts, the improvement of which is the chief object of this treatise.

What I have elsewhere said in regard to the picturesque beauty of nature's forms, I may here

repeat as applicable to the no less picturesque beauty of her colouring; namely, that because it may afford the poet some of the finest themes for the exercise of his genius, we do not assume that it also supplies that knowledge of language which enables the generality of mankind to read and understand his poetry. Neither is the colouring of nature to be transferred to works of ornamental art, by means of mere imitation, any more than poetry can be produced by its mere description. The hand that blends the tints and hues in works of imitative art, must be guided by a mind so constituted, as to possess a quick and keen perception of the most subtle developments of the principles of beauty, and deeply imbued with that faculty which reciprocates at once to these developments. Such a mind constitutes that species of genius which cannot be inculcated by any process of tuition, and, therefore, none but those who possess it intuitively are capable of imitating properly the beauties of nature. To study the beauty

of nature's forms and colouring, is, doubtless, one of the most delightful modes of employing the perceptive and reflective powers of the mind, but, to attempt to imitate them picturesquely, without the qualification of genius, is a waste of labour; and the adaptation of those defective imitations, indiscriminately, to ornamental purposes, has done more to degrade high art than any other species of barbarism.

For decorative purposes, and in their application to manufactures, colours must be systematised, and the elements of their various modes of combinations thoroughly understood, so that the beauty of such applications of colours could be comprehended by the generality of mankind, as easily as a simple sentence in written language. But the decorator and the manufacturer are too partial to that species of imitative art which requires the light and shade as well as the colouring of natural objects. In short, instead of acquiring a knowledge of the elementary laws of colour and form, in order to apply them in

the simple combinations which the humble arts of house-painting and weaving require, the poetry of high art is attempted; and, those who make the attempt not being possessed of that high genius which can reach the truth of the picturesque beauty of nature, the feelings are not touched, nor the sympathies excited by such works. It is really astonishing that people of highly cultivated minds, who can look with pleasure upon the delicate colouring and exquisite forms of the real flowers to be found in most drawing-rooms, can endure, at the same time, the sight of the wretched imitation flowers upon the paper-hangings and carpets, with which these apartments are often decorated. Habit does a great deal in familiarizing the senses to impressions that would otherwise excite very disagreeable feelings. A man with a fine ear for music may get so accustomed to the sound of sharpening saws, and the noise of the tinsmith's hammer, that in course of time they will not much annoy him. So may a person of a fine eye for colour become so accustomed

to the harsh and discordant colouring of many of our carpets and paper-hangings, as to treat their presence with indifference.

Happily, there has of late years been a great movement made, in this country, towards a better knowledge of colouring in the useful arts, and especially in the decoration of our dwelling-houses. But much remains to be done, for there has as yet been little more than mere agitation, and there appears a great timidity on the part of the public generally, in respect to departing from the quiet neutrality that has so long rendered our apartments insipid and comfortless to the eye, and adopting in its stead a more full-toned and rich style of colouring.

To become acquainted with the laws of harmonious colouring—is neither a difficult nor an unpleasant task; and as the first principles upon which they are based, are identical with those upon which depend the harmony of sound and of form, their acquirement would improve our knowledge in matters of taste generally. I may here

reiterate what I have on other occasions stated, that in this country we are as much in want of that knowledge which conduces towards a proper appreciation of the correct and the beautiful, in works of ornamental art, as we are of operatives in that particular branch.

It would appear, however, from the recent introduction into this country of foreign artists, that our appreciation is rather gaining ground upon our practice. But although the number of those ingenious foreigners were multiplied to one hundred for each individual, it could not supersede the necessity and utility of studying those first principles to which, whether applied intuitively or through acquired knowledge, the ornamental works of these foreigners owe whatever beauty they may possess.

It is not the mere adoption of a more florid style of decoration in our public buildings, and in some of the mansions of the nobility of the land, that will do what is required to be done for this art. Every man of ordinary education ought to have

such a knowledge of the teachable laws of colouring, as would enable him to be a judge of such works, and to distinguish between the affectation of harmony of colour, and its true development, either by intuitive genius, or by the application of those fixed principles, a knowledge of which may be so easily acquired.

But our general knowledge, even of the propriety necessary to be observed in decoration, is so far below the requisite standard, that the grossest absurdities are often committed. For instance, we find the most flimsy and fantastical style of ornamental design, borrowed at third or fourth hand from a building devoted to the private luxury of an ancient Roman, adopted as a suitable style for the interior of an arcade, remarkable for its plain substantial massiveness, and devoted to a species of public business of such a grave nature as to be of vital importance to our prosperity and independence, as one of the nations of the civilised world. It is scarcely possible to conceive a greater degree of decorative

incongruity than this, yet it has been committed in one of our greatest national edifices, amidst all the agitation that exists in regard to national advancement in the art of ornamental design.

An excellent writer on decoration in the *Athenæum*, No. 840, p. 1074, very justly observes, "That certain principles of decoration may be laid down, which, if recognised and applied, would make our dwellings much more cheerful and comfortable, which might make them comparatively beautiful, not only without any additional cost, but would make the keep of them more economical, by rendering them, to an equal degree, independent of the caprices of fashion. It is the absence of correct principles which causes decoration and furniture to be out of fashion, tiresome, palling to the eye, and subject to constant change; whereas, what is really beautiful, being based on everlasting principles, is subject to no change. We think the greater part of the painting of a house might be a work to last for a life, with benefit even to the journeymen paint-

ers, and infinite satisfaction to the house inhabitant. A truly melancholy suspension of comfort is the work of painting a house. Your whole little world so turned upside down, that it hardly rights itself before the work has to be done again. What a comfort it would be to undergo the penance only once in a life, instead of every seven years!

"It seems to us quite a mistake, though a very common and popular one, to imagine that beauty is necessarily costly in its production. Nothing could be cheaper in material and manufacture than the earthen-ware pots of the ancient Etrurians; yet they have perfect and everlasting beauty in their forms. The preference of one colour to another, within a very wide range of colours, is not at all a thing of greater or lesser cost. So far from beauty being costly, it would more often happen, that in a given number of existing specimens of decoration, the greater beauty and harmony would be obtained at a smaller cost of labour and material, than what are expended to produce ugliness and

confusion. Take at random a dozen patterns of paper-hangings, of various colours and devices, and in the majority of them, we believe it could be shown that their cost of production might be materially lessened, whilst their beauty would be greatly enhanced.'

Practical experience in my profession has long since convinced me of the correctness of these observations, and of the satisfaction and advantage arising to the employer as well as to the tradesman, by a strict adherence, on the part of the latter, to the principles here indicated.

I shall conclude this introduction by reiterating the fact,—that it is to the want of an inculcation of teachable rules to the mechanic and manufacturer, as producers of beauty, and to the public generally, as appreciators of it, that we must attribute our present deficiency in Æsthetical Taste.

ON THE THEORIES OF COLOUR.

When I first published this Treatise there existed two theories, and I hesitated long which of the two to adopt. The one theory was that established by Sir Isaac Newton, and adopted by Sir David Brewster, and other philosophical writers on chromatics, and a short account of it may make what follows more clearly understood by the generality of readers.

The Newtonian theory was discovered, or rather the discovery of others was confirmed, by that great philosopher in the following manner:—In the window-shutter of a darkened room he made a hole of about the third of an inch in diameter, behind which, at a short distance, he placed a prism, so that a ray of the sun's light might enter, and leave it at equal angles. This ray—which before the introduction of the prism proceeded in a

straight line, and formed a round spot upon a screen placed a few feet distant from the window, was now found to be refracted—appeared of an oblong form, and composed of seven different colours of the greatest brilliancy, imperceptibly blended together, viz., violet, indigo, blue, green, yellow, orange, and red. This is called the solar or prismatic spectrum.

The theory said to be established by this experiment was, that the white light of the sun is composed of several colours, which often appear by themselves, and that this white light can be separated into its elements.

By making a hole in the screen upon which the spectrum is formed, opposite to each of these colours successively, so as to allow it alone to pass, and by letting the colour thus separated fall upon a second prism, Sir Isaac Newton found that the light of each of the colours was alike irrefrangible,—because the second prism could not separate any of them into an oblong image, or any other colour than its own; hence, he called all the colours simple or homogeneous.

The other theory was that which seemed adopted by almost all who had written on colouring connected with the fine arts, and was, that there

were only three simple or homogeneous colours, and that all others resulted from their various modes of combination. Although this theory seemed only to be established in a practical point of view, and was unsupported by any scientific experiments, yet it appeared to me more consistent with the general simplicity of nature, and I could not believe that she required seven homogeneous parts to produce what art could do by three. For instance, an artist can make all the colours, and indeed a correct representation of the prismatic spectrum, (so far as the purity of his materials will allow,) with three colours only, whilst, according to the theory of Sir Isaac Newton, seven simple or homogeneous colours were the constituents of the real one.

The following discovery, made by Buffon, and illustrated by succeeding philosophers, helped to strengthen me in the conviction that the scientific theory might be, like that of the practical artist, reducible to three simple or homogeneous parts. If we look steadily for a considerable time upon a spot of any given colour, placed on a white or black ground, it will appear surrounded by a border of another colour. And this colour will uniformly be

found to be that which makes up the harmonic triad of red, yellow, and blue; for if the spot be red, the border will be green, which is composed of blue and yellow; if blue, the border will be orange, composed of yellow and red; and if yellow, the border will be purple, making in all cases a triunity of the three primary colours,

With a view to throw such light upon the subject as my limited opportunities would permit, I tried over the experiments by which Sir Isaac Newton came to the conclusion, that there were seven primary elements in the solar spectrum, and the same results occurred: I could not separate any one of the colours of which it seemed composed into two. The imperceptible manner in which the colours were blended together upon the spectrum, however, and the circumstance of the colours which practical people called compound, being always found between the two of which they understood it to be composed, together with my previous conviction, induced me to continue my experiments; and although I could not, by analysis, prove that there were only three colours, I succeeded in proving it to my own satisfaction, synthetically, in the following manner:—

After having tried every colour in succession, and finding that none of them could be separated into two, I next made a hole in the first screen, in the centre of the blue of the spectrum, and another in that of red. I had thereby a spot of each of these colours upon a second screen. I then, by means of another prism, directed the blue spot to the same part of the second screen on which the red appeared, where they united and produced a violet as pure and intense as that upon the spectrum. I did the same with the blue and yellow, and produced the prismatic green; as also with the red and yellow, and orange was the result. I tried, in the same manner, to mix a simple with what I thought a compound colour, but they did not unite; for no sooner was the red spot thrown upon the green than it disappeared.

I tried the same experiment with two spectrums, the one behind, and of course a little above the other, and passed a spot of each colour successively over the spectrum which was furthest from the window, and the same result occurred. It therefore appeared to me that these three colours had an affinity to one another that did not exist in the others, and that they could not be the same in

every respect, except colour and refrangibility, as had hitherto been taught.

These opinions, the result of my experiments, I published in 1828, as being an appropriate part of a treatise of this nature, and I did so with great diffidence, well knowing that I was soaring far above my own element in making an attempt to throw light upon such a subject. I had, however, the gratification to learn that these facts were afterwards proved in a communication read to the Royal Society of Edinburgh, by Sir David Brewster, on the 21st of March 1831, in which he showed that white light consists of the three primary colours, red, yellow, and blue; and that the other colours shown by the prism are composed of these. It may, therefore, now be confidently assumed, that there are in the scientific theory, as in that of the artist, only three primary homogeneous colours, of which all others are compounds.

It is not, however, so satisfactorily settled that the light of the sun is composed of coloured rays. Transient colours are more likely to be the result of the action of light upon shade, and not the separation of light into its elements. This is not a new theory, for it was originally advanced by Aristotle,

and afterwards adopted by Leonardo da Vinci. Neither has it been set aside by modern investigators, for Göethe has taken the place of Aristotle, and it may be said that he has now established it as a fact in natural philosophy; whilst his translator, Eastlake, has, like Leonardo da Vinci, adopted and elucidated it as connected with the practice of high art.

Göethe states his opinion in the following terms: —"Light and darkness, brightness and obscurity, or, if a more general expression is preferred, light and its absence, are necessary to the production of colour. Next to the light, a colour appears which we call yellow, another appears next to the darkness which we call blue; when these, in their purest state, are so mixed that they are exactly equal, they produce a third colour called green. Each of the two first named colours can, however, of itself, produce a new tint, by being condensed or darkened; they thus acquire a reddish appearance, which can be increased to so great a degree that the original blue or yellow is hardly to be recognised in it; but the intensest and purest red, especially in physical cases, is produced when the two extremes of the yellow-red and the blue-red are

united. This is the actual state of the appearance and generation of colours. But we can also assume an existing red in addition to the definite existing blue and yellow, and we can produce contrarywise, by mixing what we directly produce by augmentation or deepening. With these three, or six, colours, which may be conveniently included in a circle, the elementary doctrine of colours is alone concerned. All other modifications, which may be extended to infinity, have reference to the technical operations of the painter and dyer, and the various purposes of artificial life. To point out another general quality, we may observe, that colours, throughout, are to be considered as half-lights, as half-shadows, on which account, if they are so mixed as reciprocally to destroy their specific hues, a shadowy tint or grey is produced." *

Eastlake observes, "That the opinion so often stated by Göethe, namely, that increase of colour supposes increase of darkness, may be granted without difficulty." † Again, he observes,—"Aristotle's notion respecting the derivation of colour

* Göethe's *Theory of Colours*. Translated by Eastlake. Introduction, pp. xlii. xliii.

† *Ibid.* Note, p. 365.

from white and black, may perhaps be illustrated by the following opinion on the very similar theory of Göethe. 'Göethe and Seebeck regard colour as resulting from the mixture of white and black, and ascribe to the different colours a quality of darkness (σκιερὸν) by the different degrees of which they are distinguished—passing from white to black, through the gradations of yellow, orange, red, violet, and blue; while green appears to be intermediate again between yellow and blue. This remark, though it has no influence in weakening the theory of colours proposed by Newton, is certainly correct, having been confirmed experimentally by the researches of Herschell, who ascertained the relative intensity of the different coloured rays, by illuminating objects under the microscope by their means.

"'Another certain proof of the difference, in brightness, of the different coloured rays, is afforded by the phenomena of ocular spectra. If, after gazing at the sun, the eyes are closed, so as to exclude the light, the image of the sun appears at first as a luminous or white spectrum, upon a dark ground, but it gradually passes through the series of colours to black; that is to say, until it can no longer be distinguished from the dark field of vision;

and the colours which it assumes, are successively those intermediate between white and black, in the order of their illuminating power or brightness, namely yellow, orange, red, violet, and blue. If, on the other hand, after looking for some time at the sun, we turn our eyes towards a white surface, the image of the sun is seen at first as a black spectrum upon the white surface, and gradually passes through the different colours, from the darkest to the lightest, and at last becomes white, so that it can no longer be distinguished from the white surface.' " *

These authorities appear quite sufficient to warrant the adoption of the hypothesis, that shade as well as light acts in the production of transient colours, and that the solar spectrum is the result of the ternary division of the action of light upon darkness performed by the three-sided prism.

But the original cause of light and colour is a point upon which natural philosophers have not as yet come to a decision, and as little beyond conjecture had been advanced upon the subject, I hazarded the publication of an idea of my own upon it in

* *Elements of Physiology*, by J. MULLER, M.D. Translated from the German by William Bailly, M.D. London: 1839.

an appendix to another work, (The Nomenclature of Colours, &c.) In this hypothesis I adopted the theory, that colour is an intermediate phenomenon between those of light and darkness, the perception of which, like light itself, is conveyed to the mind through the most perfect of our senses; and that the impression made upon this sense conveys to the understanding the perception of light and colour, by means of some inherent quality in the atmosphere, which we know to be an elastic fluid—impenetrable, inert, moveable, and possessed of a certain gravity, reducible in proportion to the degree of attenuation to which it may be subjected, and when pure, to consist principally of nitrogen gas and oxygen gas, with a small proportion of aqueous vapour and carbonic acid. Now as these elements are, according to a well-established theory, composed of individual atoms or molecules, I supposed it probable that the sun, or any other luminous body might act upon these atomic particles, electrically or otherwise, so as to put them into harmonic motion amongst themselves, each upon its own axis, thus rendering them luminous by friction, and producing pure or white light. I supposed it also to be probable that the partial interruption of this

atomic motion might produce shades,—a change in its mode, colours,—and its total interruption, blackness. As every material body is also understood to be composed of atoms, it may likewise be reasonably supposed that their modes of arrangement, in the constitution of such bodies, as well as their individual configuration, will render them capable of receiving this motion of light in ways so infinitely various, as to account for the production of every possible variety of shade and colour. Many processes in dyeing produce colours simply by a change in the arrangement of the atoms of which the substance dyed is composed, thus affecting the atomic motion of light upon its surface. It is equally probable that the mode of arrangement of the atoms in crystals, and other transparent media, may be thus affected, and made to communicate a like motion to those of the atmosphere beyond them, producing coloured light, as those atoms on the surface of opaque bodies reflect it.

In the article on CHROMATICS, in the *Encyclopædia Brittanica*, the hypothesis advanced is, that variously coloured rays emanate from the sun, each possessing a different degree of intensity, and that there may possibly be a multitude of rays of each

colour, moving with various velocities, and only affecting the sense when they have the velocity appropriate to that colour in the eye. But the hypothesis of atomic motion which I have suggested, is independent of any such complicated process; for although the motion it supposes to be communicated by luminous bodies to the gaseous atoms may be various, the progress of the communication may be perfectly uniform.

Simplicity seems the first principle in all nature's works, and, as I have elsewhere observed, the more we investigate her operations, the more we become convinced of the simplicity of the means by which the phenomena that are daily attracting our attention are performed. If, therefore, we can account for the phenomena of light and colour as satisfactorily by the means known to exist, as by supposing the necessity of material particles, or an etherial fluid to assist these, (agreeably to the different theories of Newton and Huygens,) the subject is simplified, and so far agrees with the facts which philosophy has brought within the sphere of our knowledge.

ON THE ANALOGY BETWEEN COLOUR AND SOUND.

HARMONIOUS arrangements of colours being such combinations as, by certain principles of our nature, produce an effect on the eye, similar to that which is produced by harmonious music on the ear, and as a remarkable conformity exists between the science of colour and that of sound, in their fundamental principles, as well as in their effects, I shall probably best lead the reader to a proper comprehension of the former by tracing this analogy, the more especially as the art of music is much more generally understood, although, at the same time, it is much to be regretted that a knowledge of its first principles, or natural philosophy, is very rare, even amongst its professors. This analogy will help to show, that the laws which govern colour are irrefragable, and, at the same

time, a knowledge of them as practically necessary to the colourist in art, manufacture, or decoration, as a knowledge of those which govern sound is to the musician. It is well known to those who have studied music in the proper way, that there are three fundamental notes, viz., the first, third, and fifth of the scale—and technically called the tonic, the mediant, and the dominant—and that these notes, when sounded together, produce the common chord, which is the foundation of all harmony in musical composition. So it is in chromatics,—there are likewise only three fundamental colours,—blue, red, and yellow, forming the triad from which arises all harmony in painting.

By the combination of any two of these primary colours, a secondary colour of a distinct kind is produced; and as only one absolutely distinct denomination of colour, called a hue, can arise from a combination of the three primaries, the full number of really distinct tones is seven, corresponding to the seven notes in the complete scale of the musician. Each of these colours is capable of forming a key or tonic for an arrangement, to which all the other colours introduced must refer subordinately. This reference and subordination to one particular co-

lour or hue gives a character to the whole, which is precisely the case in regard to the key-note in musical composition.

This characteristic of an arrangement of colour is generally called its tone; but it appears to me that this term is more applicable to individual hues, as it is in music to voices and instruments alone. Yet, to avoid obscurity, I shall continue to use it in the sense in which it is generally applied to colouring.

From the three primary colours—yellow, red, and blue—arise, first, the secondary colours—orange, purple, and green, and then an infinite variety of hues, tints, and shades; so that the colourist, like the musician, notwithstanding the limited number of the fundamental parts of his art, has ample scope for the production of originality and beauty in the various combinations and arrangements of which they are susceptible.

The three homogeneous colours—yellow, red, and blue, have a numerical relation to each other, in their respective powers, which correspond in a remarkable manner to the numerical ratios found to exist in the respective lengths of the monochord that produce the harmonics in music, and the corresponding undulations which their vibration produce in the atmosphere.

When the three primary colours are reflected from any opaque body, in their proper proportions, neutrality is produced. They are then in an active state by reflection, but each is neutralised, to a certain extent, by the relative effect that the others have upon it. When they are absorbed, or the action which produces them interrupted, in the same proportions, they are in a passive state, and black is the result. When transmitted through any transparent body, the effect is the same; but in the first case they are material or inherent, and in the second impalpable or transient. Colour, therefore, depends entirely on the reflective or refractive power of bodies, as the transmission or reflection of sound does upon their vibratory powers.

The secondary colours arise from the combination of the primary colours in the following manner: — Yellow and red, being mixed, produce orange colour; red and blue, purple; and yellow and blue, green; and their peculiar quality will depend upon the relative quantities and intensity of the primary colours of which they are compounded. These secondary colours are called the

accidental or complementary colours to the primaries, from the phenomenon already referred to. And this is precisely the case in regard to musical notes. When any given note is sounded, especially upon a stringed instrument, it is either accompanied or immediately succeeded by others, which are called its harmonics. Out of this reciprocating quality amongst colours, arises all chromatic harmony, and it consequently embodies the first principles of beauty in colouring, as the harmonic relations of the three notes in music, called the tonic, the dominant, and the mediant—or the 1st, 5th, and 3d of the scale — embody the first principles of beauty in sounds. I here place the 5th before the 3d, because the numerical relation of the 5th to the 1st is relative to the number 3, whilst that of the 3d is relative to the number 5; and it is here worthy of remark, that the 5th first succeeds the tonic, although an octave higher, and afterwards the 3d, another octave higher. Neither do the complementary colours appear in an intensity equivalent to the colour upon which the eye rests, but evidently much weaker.

From the combination of the secondary colours arise the tertiaries or primary hues, which are also

three in number, as follow: olive or blue-hue, from the mixture of the purple and green; citron or yellow-hue, from the mixture of the green and orange; and russet or red-hue, from the mixture of orange and purple. These three colours, it will be observed, are produced by the admixture of the same ingredients — the three primaries — which always, less or more, neutralise each other in triunity. The most neutral of hues being grey, the mean between black and white, as any of the secondaries are between two of the primaries, it may appropriately be termed, although in reality a hue, the seventh colour. These tertiary colours, however, stand in the same relation to the secondary colours that the secondaries do to the primaries—olive to orange, citron to purple, and russet to green; and their proportion will be found to be in the same accordance, because they neutralise each other integrally.

Out of the primary hues, by a similar mode of combination and proper balancing of their relative powers, arise the secondary hues, which have been popularly termed brown, marone, and slate, but are more properly orange-hue, purple-hue, and green-hue; and to these the same rules of contrast are equally applicable.

Besides this relation of contrast in opposition, colours have a relation in series, which is their melody. This melody, or harmony of succession, is found in all the natural phenomena of colour. Each colour on the prismatic spectrum, and in the rainbow, is melodised by the two compounds which it forms with the other two primaries. For instance, the yellow is melodised by the orange on the one side, and the green on the other, the blue by the green and purple, and the red by the purple and orange. Field, in his excellent Essay on the Analogy and Harmony of Colours, has shown these coincidences by a diagram, in which he has accommodated the chromatic scale of the colourist to the diatonic series of the musician, showing that the concords and discords are also singularly coincident—but such an illustration would be too complex for a work of this simple kind.

The senses of hearing and seeing do each convey to the mind impressions of pleasure or pain, in the modes in which they are acted upon by external objects—hearing, by the modes in which such objects, by their motion, produce an effect upon the surrounding atmosphere, and seeing, by the modes in which light acts upon them. In other

works I have endeavoured to point out, in detail, the mathematical nature of these modes, and to show that the elements of beauty in sound, colour, and form, are identical in the numerical ratios of their powers upon each other. These details need not, therefore, be gone further into here, especially as it is my wish to treat the subject less abstrusely and more concisely than in the works to which reference has just been made.

Sounds, when addressed to the ear in intelligible language, convey to the mind a meaning, either descriptive of an idea, or of some object which is acknowledged by the understanding, and this may be entirely independent of music.

Forms, when intelligibly presented to the eye, representing, even in outline, any known object or established idea, convey to the mind an understanding of the object or idea entirely independent of colour. It is well known as a physiological fact, that there are individuals whose ears are so constituted that they cannot distinguish music from any other species of sound, although their sense of hearing may be perfect in every other respect; and that there are also individuals whose eyes are so constituted that they are equally incapable of dis-

tinguishing colours, although their organs of vision may likewise be perfect in every other respect. Therefore, there seems to be a physiological analogy exhibited in these organs of sense.

When we reflect on the nature of music, we find it to be simply a variety of sounds, having a mathematical relation to each other in their pitch and in their duration, arranged, in the first instance, so as to follow each other in certain modes agreeably to these mathematical relations. This mode of succession produces a melody or air, which is the subject of the composition. In the second instance, that it is composed of a variety of sounds, relating also mathematically to each other in combination, or as they are made to agree with each other when produced simultaneously; and this is called harmony.

Sounds arranged in this way, convey no further intelligible meaning to the mind of man, than that which depends upon the propriety of their combination in both these respects. Now this propriety in their combination has been proved to depend upon irrefragable laws, which are based upon a branch of natural philosophy called acoustics.

The power with which the human mind may be thus affected—simply by the scientific production

of sounds in successive and combined harmony, having individually in themselves no intelligible meaning—is well known. The turbid and excited mind may be soothed, and the most benign feelings of our nature excited—men may be roused from a state of apathy to attempt deeds of daring valour, or withdrawn from sinfulness to remorse and devotion—by the influence of music.

In all this we have nothing more than a scientific combination of sounds addressed to the ear. Nature also presents sounds to the ear, as she does colour to the eye, in those subtle combinations that are often in both cases adopted by men of genius, as themes for the highest productions in art. From nature, we receive both impressions, with equal intensity; our eye is as much delighted by the ever varying tints and hues of the landscape, as our ear is by the songs of birds, the murmuring of streamlets, or sighing of the gentle winds of summer. But in the one case, science combined with art, has enabled us to produce an infinite variety of beautiful effects, by combinations of mere sounds, while the arranging of colours, unless in connection with imitative art, is still very generally considered a matter of mere whim or caprice. Though the artist

enhances his work by judicious colouring, yet it has other constituents of excellence which form its subject. In the same way, the song of the poet is enhanced by appropriate music. But the music of the composer may be produced with a certain effect, independently of the words of the poet, because the science of its composition is understood, while the colouring of the picture, for want of a knowledge of the science of chromatics, can in no other way be produced, than in connection with its language—the imitation of nature which it exhibits.

No one will deny to the eye, the power of affecting the mind as sensibly, by what it conveys to the sensorium, as the ear does through the same medium; and what is the colouring of poetry but appropriate music? and this music, as just observed, may affect the mind to a certain extent, independently of the poetry. It therefore appears clear, that if the science of colouring was properly cultivated, it might be made to affect the mind, independently of any other intelligible meaning than its scientific combination. It is such considerations as these that give importance to the analogy between colour and sound. (Note A.)

ON COLOURS GENERALLY.

THERE are only three distinct classes of colours, and they are termed primaries, secondaries, and tertiaries, or hues.

A PRIMARY COLOUR is a simple element that cannot be separated into parts, but may be reduced to a tint by white, or to a shade by black. The admixture of either of the other two primary colours changes it to a secondary colour.

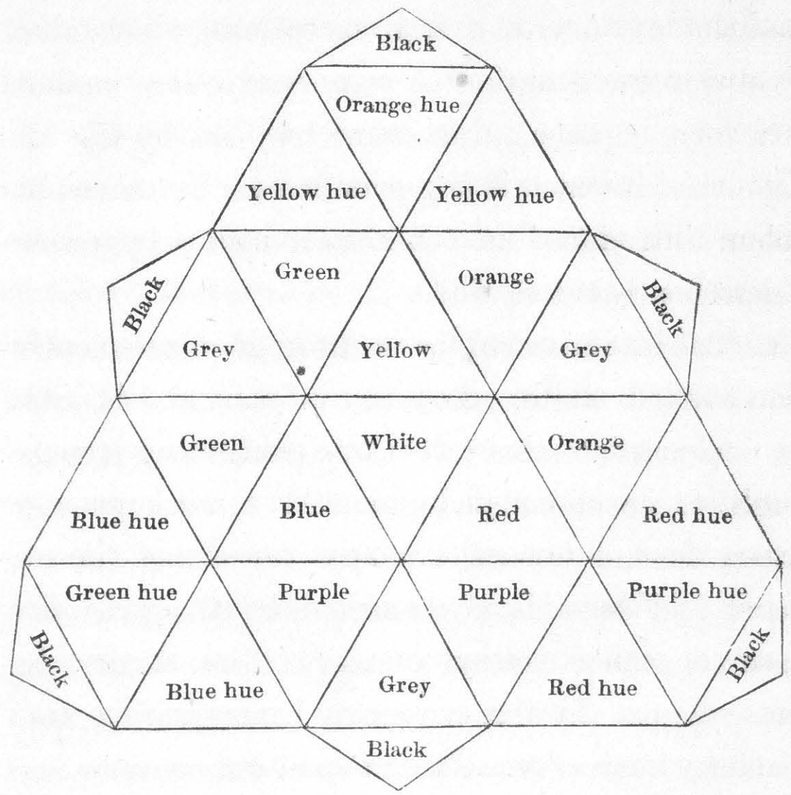
A SECONDARY COLOUR is consequently produced by the combination of two primary colours. These secondaries, like the primaries, may be reduced to tints and shades by the admixture of white or black, and may also, by the subordination of either of their component parts, be changed in tone, while their names generally remain the same. Hence arise an immense number of modifications of each of these secondary colours,—of orange from the

yellowest to the reddest—of green from the yellowest to the bluest—and of purple from the reddest to the bluest, with a few exceptions which shall be afterwards noticed. A secondary colour cannot, therefore, be changed in character, but by the admixture of its contrasting primary, or by its combination with one of the other secondaries, by either of which it becomes a hue.

A TERTIARY COLOUR, or HUE, is consequently compounded of two secondary colours, and is, consequently, a mixture of the three primaries; it may, therefore, be modified in tone to a much greater extent than either of the two preceding classes. These modifications are effected by the predominance or subordination of any of its component parts, as also by the power of neutralization possessed by each of those parts upon the other two.

Each of the six colours has its specific hue, and they may be thus compounded. Yellow-hue, by orange and green; red-hue, by orange and purple; blue-hue, by purple and green; orange-hue, by yellow-hue and red-hue; green-hue, by yellow-hue and blue-hue; and purple-hue by red-hue and blue-hue, as shown upon the following diagram, a coloured example of which faces the title-page.

DIAGRAM OF THE PRIMARY AND SECONDARY COLOURS AND THEIR HUES.



A TINT is not in itself a specific colour or hue, but one of the gradations of any colour or hue from its most perfect state of intensity towards white. The variety of tints is, therefore, incalculably greater than that of colours and hues.

A SHADE is, in like manner, one of the incalculable gradations of any colour or hue from its most perfect state of intensity towards black.

In their contrasting powers, colours must bear relation to one another in respect to their hue, tint, and shade. A hue of any colour must bear a relative proportion to the hue with which it is intended to form an equal contrast in the predominance of the colour from which it takes its name. A tint of one colour introduced into an arrangement as an equivalent contrast to a tint of another colour, ought to be equal in diluteness, or in its stage of approximation towards white. And, in like manner, shades of two colours intended to contrast each other equally, ought to be of equal depth. All these equal contrasts depend upon the relative powers of the primary and secondary colours, one of which must predominate in every hue, tint, and shade: because when they are equally compounded, they produce neutrality. It is, therefore, easy for any one with a good eye, and such a knowledge of the relative powers of the six colours as may be very easily attained, to produce this elementary species of harmonious colouring.

Black and white, however, as they form a perfect contrast to each other, being the extremes of light and shade, impart this quality to the colours with which they are combined. Therefore, as a shade

deepens towards black, the tint employed as a perfect contrast of light and shade, as well as colour, ought to approximate in an equal ratio towards white.

But besides the contrasts that are equal as to colour, and as to light and shade, there is a more refined species by which all the colours in a composition, except one, are held in a certain degree of subordination, in order to give that particular colour a force or prominence in the group; and this applies to the light and shade by which the intensity of the colours is reduced, as much as to the colours themselves. Such contrasts may be termed imperfect, and it is by these especially that the teachable colouring of the decorator or of the manufacturer, can approach the unteachable colouring of high art. As a knowledge of these contrasts can only be given by going into greater detail than would be consistent with the simple nature of this treatise,—and, indeed, could not be understood without such a number of coloured diagrams as would render it too expensive for many of those for whose use it is principally intended,—I must refer such of my readers as may wish to go more deeply into the subject, to my "Principles

of Beauty in Colouring Systematised," and my "Nomenclature of Colours, Hues, Tints, and Shades."

As the effect of all arrangements of colours depends as much on the media which accompany and unite them as on the colours themselves, the greatest attention ought to be paid to the tone and character of this class of hues. It is by adapting them properly that the greatest distinctions are reconciled and brought to an imperceptible adjunct; and it is by them that tone, keeping, and repose, are given to the whole. A neglect of these mediatory colours is the chief cause of that crudity and confusion of parts, so conspicuous in many of the coloured goods manufactured at the present period.

In arranging colours, therefore, either in manufactures or decoration, whether a few or a great variety are to be employed, the effect of the whole, as well as the several component parts, will depend as much on attention to this as on the skill with which they are harmonised in contrast and succession to each other. And it must be borne in mind, that no perfectly harmonious arrangement of colours can be made unless all the three primaries be present, either in a simple or mixed state;

and that the distinctions of harmony depend upon a predominance, either of one of these three, or of one of the secondaries.

The diagram to which I have already alluded, exhibits a general harmony of all the colours of any distinctive character, simple and compound, except the neutral grey, which is represented, although imperfectly, by the engraved groundwork. It will be observed that each limb of this diagram forms a series of hues proceeding from one of the primaries, and producing a distinct melody, or harmony in succession, of that colour. It will also be seen, that in each of these harmonies, although a primary colour predominates, as a key-note does in music, the other two primaries enter, in combination, into the arrangement, as shall be more fully noticed in treating of them separately. There is also shown, upon this diagram, the progress of colour from light to darkness, or from white to black; as also in its nine central divisions, the harmony, in succession and contrast, of the primary and secondary colours. Its general arrangement, I trust, will likewise show that all the colours and hues, in their greatest intensity, may be brought together without crudity or harshness resulting from their combination.

The terms warm and cold, as applied to colour, are not very generally understood; I shall, therefore, endeavour to explain their meaning. Of the three primary colours, red is most allied to warmth, and blue to coldness, whilst yellow remains neutral in these respects. Indeed, red fully embodies the principle of warmth, and blue of coldness, because wherever the former predominates in any mixed colour, the tone is reckoned warm in the degree of such predominance; and where the latter predominates, the compound is termed a cool-toned hue, to the extent also of the predominance of that colour. The term warm, or hot, as some writers have it, being applied to red, in art, may have originated in the resemblance of that colour to fire, as much as from its powerful effect upon the eye; and that of cold, to blue, from its being so opposite to red in its effects; but whatever the terms may have arisen from, they are perfectly significant, and thoroughly understood by painters and amateurs. It should, therefore, be kept in view, that yellow is a colour allied to light, without being either of a cool or a warm tone—that red is intermediate as to light and shade, but decidedly of a warm tone—and that blue is a colour allied to darkness, and decidedly of a

cool tone. Red is not altered in tone by the introduction of yellow, because the product of the mixture, orange, is decidedly a warm-toned colour; neither is blue altered in tone by the introduction of yellow, because the product of the mixture, green, is a cool-toned colour. Yellow imparts light to red and blue, and blue imparts shade to red and yellow.

In all general arrangements, which are not necessarily confined to any particular leading colour, it ought to be kept in view, what nature has pointed out in the most distinct manner in all her colouring, namely, that those cool-toned and tempered colours which are most agreeable to the eye should predominate, and that vivid and intense colours should upon all occasions be used with a sparing hand.

ON THE APPLICATION OF THE LAWS OF HARMONIOUS COLOURING TO HOUSE-PAINTING AND MANUFACTURES.

THE house-painter should start with the principle so apparent in the colouring of nature, to which reference has just been made, namely, that bright and intense colours should be used with a sparing hand, especially in situations where they receive a direct light; and that such colours should only be employed to heighten the general effect, and to add splendour to rich and full-toned arrangements by their sparkling qualities.

The manufacturer has a greater latitude, for his productions may, in most cases, be neutralised by what accompanies them in a more general arrangement. In the finest specimens of Persian and Turkish carpets, the deep tones of indigo and brown

predominate, while the bright hues and tints only appear to detail and heighten the effect of the pattern.

It has been said that colouring, like sound in music or poetry, should be an echo to the sense, and according to the general sentiment which the subject should inspire, it will be gay, lively, sombre, or solemn. Although this remark was made with reference to subjects of high art, it is equally applicable to the colouring of the apartments of a dwelling-house, and, indeed, to that of every building whatever, as well as to every kind of coloured manufacture employed in their decoration.

Every artist in the higher branches of painting has a particular style of colouring to study, peculiarly adapted to the nature of the generality of his subjects, but the house-painter's styles must not only be as various as the uses of the apartments which he decorates, but must vary according to the different tastes of his employers: and, further, he must take into consideration not only the style of architecture, the situation, whether in town or country, but the very rays by which each apartment is lighted, whether they proceed directly from the

sun, or are merely reflected from the northern sky; he must confine himself to neither a vivid, sombre, warm, nor cold style of colouring; all must be equally at his command, and in all, the same strict attention to harmony must be observed.

The house-painter has often another very serious difficulty to encounter. A variety of highly and variously-coloured furniture is shown him, to which the colouring of the different parts of a room must be suited; it is here that his powers of balancing, harmonising, and uniting, are called forth; it is this which obliges him, as Sir Joshua Reynolds says of the artist, ever to hold a balance in his hand, by which he must decide the value of different qualities, that, when some fault *must* be committed, he may choose the least.

In toning and harmonising the colours in a picture, an artist has the assistance of light and shadow, and can make his shades accord with the tone in such a manner as to improve the general harmony; but as the colours of the house-painter and manufacturer are all liable to be placed in full light, they must be toned in themselves, to prevent that unnatural crudeness so annoying to the eye. How, then, can we account for the continued prevalence

of those gaudy paper-hangings which impinge the most powerful rays in all their vigour, or those carpets where the preponderance of bright yellow and red attracts the eye, and injures the effect of every thing which is placed upon them? And if, according to the rules which regulate the higher branches of the art, simplicity of arrangement prevents confusion, where a variety of colours are introduced, the colours, on the generality of such articles, are most erroneously arranged. These errors must proceed from a general negligence of the rules of harmony. I do not mean by this that bright and vivid colours are always offensive. I have already said that they add richness and grandeur, when used in their proper places, and in proper quantities; but they should by no means cover the floor or walls of an apartment, unless under very peculiar circumstances. It may here be observed, that in all pictures representing interiors, when a group of figures is introduced, there may occasionally appear a piece of rich drapery or furniture, painted in equally vivid and bright colours with the figures, and which may, in a great measure, improve the general effect and harmony; but who ever saw, in a work of merit, the colours on the

wall, or carpet on the floor of the apartment, making a monopoly of attraction, and causing those upon the figures and furniture to sink into insignificance?

There may be many excellencies in a picture which may compensate for a defect in harmony, and the artist may still retain a high character for drawing, expression, &c.; but nothing can excuse a deficiency in this respect either in an apartment or a piece of manufacture. If the decorations of the apartment or fabric of the cloth be costly, the defect in harmony is the more to be regretted.

I have asserted that a want of knowledge, or general negligence of the rules of harmony, is the cause of our errors in decoration and manufactures; and this fact is still apparent, even in regard to our most splendid habitations and palaces, the apartments in which, although often rendered pleasing from the interest excited by the profusion of pictures with which they are hung, too often display a want of harmony in their other decorations. This does not always proceed from the painting alone, but often from a want of unison between it and the furniture; for each may be perfect in its own

way, and yet the harshest discord exist between them.

This is an obvious defect; for when there is no particular tone or key fixed on for the colouring of an apartment,—that is, when one part of the furniture is chosen without any reference to the rest, and the painting done without any reference to the furniture, discord is generally the result. Such an incongruous mixture is, in comparison to a tastefully decorated apartment, as far as regards colouring, what a child produces with its first box of paints to a good picture.

A second and more common fault is the predominance of some bright and intense colour, either upon the walls or floor. It is evident that the predominance of a bright and overpowering colour upon so large a space as the floor or wall of a room, must injure the effect of the finest furniture.

This great error often arises from the difficulty of choosing a paper-hanging or carpet, and our liability to be bewildered amongst the multitude of patterns which are produced, the most attractive of which, on a small scale, are often, from this very circumstance, the more objectionable in regard to their forming a large mass in an apartment; par-

ticularly as the artists who design them seem to be regulated by no fixed principles, but, from their repeated deviations from the established rules of harmony, appear to give themselves up to the vague pursuit of novelty alone.

A third error is introducing deep and pale colours, which may have been well enough chosen in regard to their hues, but whose particular degrees of strength or tint have not been attended to. Thus the intensity of one or more may so affect those which they were intended to balance and relieve as to give them a faded and unfinished appearance. This may proceed from applying the general laws without any regard to the more subtle principles of the art; for although it is always necessary to subdue and temper such colours as are introduced in large quantities, yet when they are reduced by dilution alone the effect cannot be good. This error is also very common in the colouring of carpets and paper-hangings. In such productions the degree of intensity of the individual colours is seldom taken into account. A pale tint of blue is often introduced as an equivalent to the richest orange colour, and sometimes a small portion of lilac—one of the lightest tints of purple—as a balancing colour to a quantity of the

most intense yellow. This is inverting the natural order of colours altogether, as will be more particularly shown in the sequel.

There is a fourth defect, and rather a common one, and that is, a want of the media already alluded to, as uniting and harmonising an assemblage of bright colours, which may, in other respects, be perfectly well arranged; for it is a rule in the higher branches of the art, that confusion of parts of equal strength should always be avoided. A room of this description resembles a Chinese landscape, where foreground and distance are unceremoniously jumbled together.

An opposite defect to this has already been referred to,—namely, monotony, or a total want of variety; for some are so afraid of commiting errors in point of harmony, that neutral tints only are introduced, and sometimes one tint of this kind alone prevails. Variety is a quality found to exist in the most trifling as well as in the grandest combinations of nature's colouring; and it is, as already observed, in uniting and making an arrangement of various colours harmonious and agreeable to the eye, that the skill of the house-painter and manufacturer chiefly consists. It is this which produces

what is termed repose in a picture, a quality equally desirable in the colouring of an apartment.

The foregoing observations have been fully borne out by subsequent writers on this art. The writer in the *Athenæum*, already quoted, observes,—

"For our part, we are disposed to believe harmonious colouring, consistently employed in the decoration of all buildings — inhabited buildings especially, where we spend a great part of our lives —not to be either slight or unimportant in its influence on the moral tone of the inhabitants. As we may read to some extent the character of individuals in their dress, so we believe we might do so, in the character of their dwellings. Hence, a very dull-minded, tasteless people we may be pronounced to have been during the eighteenth century. A room of bright and cheerful appearance surely tends to dispel gloomy and melancholy associations, whilst a dark and dismal cell provokes them. Glitter and tawdriness disturb thoughtfulness, whilst quietude in colouring tends to suggest it.

"'Experience,' says Göethe, 'teaches us that particular colours excite particular states of feeling.' It is related of a witty Frenchman, 'Il pretendoit que son ton de conversation avec Madame étoit

changé depuis qu'elle avoit changé en cramoisi le meuble de son cabinet, qui étoit bleu.'

"The great majority of domestic apartments at the present time, even in houses of the first class, have scarcely any marked feature of decoration about them which indicates taste or knowledge. They present a monotonous sameness and deficiency of any principles of taste—the varieties of character which occur, from time to time, being regulated only by the caprices of fashion. Sometimes every room you enter is of one colour. In one of the most splendid of modern houses in the metropolis—we mean in Sutherland House—we have been especially struck with the monotony of white and profuse gilding, in the forms of the Louis Quinze period. Sometimes the rage is for warm shades of colouring, at others for cold, though the preponderating taste seems to take refuge in dull, characterless, neutral colouring. 'People of refinement' (to quote Göethe again) 'have a disinclination to colours. This may be owing partly to weakness of sight, partly to the uncertainty of taste, which readily takes refuge in absolute negation.' During one season salmon colour, as it is called, reigns supreme; then sage colour succeeds salmon; drab

follows sage or slate; and then all varieties of crimson put out the drabs. Each is employed in its turn, without the slightest reference to any of the questions which should determine its appropriateness or otherwise. It is the same with ornamental patterns. One year you find every drawing-room papered with patterns of flowers, another year scrolls will be all the rage. One year small patterns are correct—in the following, large only can be tolerated; and whilst each fashion reigned, each was exclusively used. Crimson walls in south aspects, leaden coloured ones in north aspects. Small patterns applied to rooms large and small, and large patterns to rooms small and large. A like absence of any recognized principle is seen in the carpets and hangings. When crimson walls were oftenest seen, then was the call for drab and light-coloured carpets. More by luck than any thing else, it is now the fashion to have the carpets darker in colour than the walls. We may often enter a room which, preserving something of each shifting fashion of the few past years, exhibits a violation of every principle of harmonious decoration. Walls of a hot and positive colour in a room with a southern aspect—blue ceilings fuller of

colour than the drab carpets, with curtains and hangings of scarlet—and perchance a huge sofa covered with black horse-hair. Not a single thing appropriate or consistent, but the whole a medley of unsuitableness."

To proceed properly in decoration, the tone or key is the first point to be fixed, and its degree of warmth or coldness will be regulated by the use, aspect, and light of the apartment. The next point is the style of colouring—whether gay, sombre, or otherwise. This is more particularly regulated by the use of the apartment, and the sentiments which it ought to inspire; for, as Sir Joshua Reynolds says, in regard to colouring, "What may heighten the elegant may degrade the sublime." Unison, or a proper combination of parts, is the next consideration.

The tone is generally fixed by the choice of the furniture, and this ought to have particular reference to the aspect, because the furniture of a room may be considered, in regard to colouring, in the same light as a key-note in music, or as the principal figures in a picture, and the general tone must therefore, depend upon the colours of which it is composed; for instance, if the prevailing colour be blue,

grey, cool green, or lilac, the general tone must be cool; but if, on the other hand, it be red, orange, brown, yellow, or a warm tint of green, the tone must be warm. But, as stated before, there can be no pleasing combination of colours without variety. This, by judicious management, may be given without in the least interfering with the tone, for it is merely the general colour of the furniture which ought to fix the tone, and there may be the most decided contrasts in its parts, which, by the introduction of proper medial hues throughout the room, can be reconciled and united. Apartments lighted from the south and west, particularly in a summer residence, should be cool in their colouring; but the apartments of a town house ought all to approach towards a warm tone; as also such apartments as are lighted from the north and east of a country residence.

When the tone of an apartment is therefore fixed, first by the aspect and then by the choice of the furniture, it is the business of the house-painter to introduce such tints upon the ceiling, walls, and wood-work as will unite the whole in perfect harmony. This, as I have already observed, is a difficult task: the colours of the furniture may be

arranged by a general knowledge of the laws of harmony, but the painter's part cannot be properly added without the closest attention to the more subtle operations of those laws.

The style of colouring is the next point to be fixed, and will depend entirely on the use of the apartment. In a drawing-room, vivacity, gaiety, and light cheerfulness, should characterise the colouring. This is produced by the introduction of tints of brilliant colours, with a considerable degree of contrast and gilding; but the brightest colours and strongest contrasts should be upon the furniture, the effect of which will derive additional value and brilliancy from the walls being kept in due subordination, although, at the same time, partaking of the general liveliness.

The characteristic colouring of a dining-room should be warm, rich, and substantial; and where contrasts are introduced, they should not be vivid. This style of colouring will be found to correspond best with the massive description of the furniture: gilding, unless in very small quantities for the sake of relief, or to carry off the effect of picture-frames, should be avoided.

Breakfast parlours ought to be painted in a

medial style between that of a drawing-room and dining-room.

The most appropriate style of colouring for libraries is rich and grave, and no higher colouring should be employed than is necessary to give the effect of grandeur, and unite the painting with the richness produced by the bookbinder's art. This can scarcely be done by neutral hues; but care should be taken not to disturb the quietness which ought to characterise the colouring of all apartments of this description by any masses of vivid colour.

In bed-rooms, a light, cleanly, and cheerful style of colouring is the most appropriate. A greater degree of contrast may be here admitted between the room and its furniture than in any other apartment, as the bed and window-curtains form a sufficient mass to balance a tint of equal intensity upon the walls. There may, also, for the same reason, be admitted gayer and brighter colours upon the carpet.

Staircases, lobbies, and vestibules, should all be rather of a cool tone, and the style of the colour should be simple and free of contrast. The effect to be produced is that of architectural grandeur, which owes its beauty more to the effect of light

and shadow than to any arrangement of colours; yet they ought not to be so entirely free from colour as the exterior of a mansion, but should be in colouring what they are in use—a link between exterior simplicity and interior richness.

Staircases and lobbies being made cool in tone, and simple in the style of their colouring, will much improve the effect of the apartments which enter from them.

It will be observed, that in the foregoing observations I have taken notice only of such apartments as are to be found in the town or country residences of gentlemen of modern fortune; and although the general principles I have endeavoured to elucidate are equally applicable to the palace and the cottage, yet, in the higher class of edifices, we find grand staircases, corridors, saloons, &c., requiring in every individual case a peculiar mode of treatment, for which it is impossible to lay down any general rules.

ON COLOURS INDIVIDUALLY.

WHITE is the full and unmodified action of that atomic motion which is, agreeably to the hypothesis already explained, assumed to be the cause of light being reflected from the surface of bodies, as black is understood to be the total interruption of that motion. White is therefore naturally contrasted by black. The first modification of this atomic motion that has a distinctive character, as a primary element in the chromatic series, is that which produces yellow—a less vigorous action—because the presence of colour implies shade, and shade is a modification of light towards darkness. Yellow is, therefore, the melodising colour to white in the primary series. White harmonises in conjunction and opposition with all colours. In conjunction, it produces every variety of tint, and in

opposition, it contrasts in various degrees of power, in proportion as the principle of shade or of colour is opposed to it. For instance, when opposed to blue, the contrast is less powerful than that produced by its opposition to black, but more pleasing, because the coldness of the blue thus imparts a warmth of tone to the white, however colourless it may have appeared previously to its being placed in juxtaposition with the blue. In like manner, white appears of a cool tone when contrasted with red, but pure yellow, from being its melodising colour, does not affect its tone by contrast. White, from being the representative of light, has a gay and cheerful effect upon the eye.

Popularly, there are various kinds of white—under the names, cream-white, French-white, pearl-white, —and even the terms reddish-white and bluish-white are sometimes used. But this is a false nomenclature, for all those whites are tints of specific colours, and they ought to be named as such. Cream-white, for instance, is a light tint of yellowish orange-colour; French-white—a light tint of reddish purple; and pearl-white—a light tint of bluish purple. When a light tint of any colour is placed beside the colour itself in an intense state, the tint will

certainly appear a pure white, but if placed against pure white, the colour with which it is tinged will appear, and it is, therefore, a tint of that colour. Having, however, elsewhere entered into the subject of *nomenclature* fully, and wishing to retain the original simplicity of this treatise as much as possible, I shall continue, in this Part, the same nomenclature adopted in the former editions.

French-white and cream-white are the only two whites which are generally understood, or used in decorations besides the purest white. The first of these being of all tints the most aerial, is often employed in house-painting, and when the situation, furnishing, and character of an apartment are properly adapted, it has an extremely pleasing effect. Either French-white, or cream-white, may be made the prevailing colour of a drawing-room in a country residence, and where the hangings and furniture are composed of light blue, or any other delicate tint of silk, satin-wood, various light marbles, and gilding, the most lively and cheerful effect imaginable is produced. It may be requisite to observe, that French-white, when used on walls, should be kept rather low in tone, so as not to interfere with the effect of the furniture. This peculiar

tint can only be introduced when all the other tints are light and cool in tone, as any quantity of intense or rich colouring completely subdues it; and where gilding forms part of the arrangement, a little additional warmth should be given to its tone. The same may be said of pure white—all colours brought into contact with it should be light and cool, amongst which tints of grey and green are the most suitable. Very light yellow, of the tint of the primrose, forms also a pleasing melody with pure white.

In rooms where white and other cool tints predominate upon the walls and wood-work, the furniture should be of an equally light description. Bamboo and satin-wood are the best woods. The same considerations should regulate the choice of the carpet and curtains. White, not many years ago, was the only colour in use for the wood-work of rooms of every description: it has now almost entirely given way to shades of various colours, and imitations of the finer kinds of woods. It is still, however, adopted for bed-rooms, particularly in summer residences, where its light, cheerful, and cleanly effect is extremely pleasing, when not destroyed by the introduction of strong and deep colours.

A south light is the best for white, and all such colours and furniture as assimilate to it. When it is the predominating colour in a room lighted from the north, it ought to approach slightly towards a cream-colour, so as to counteract as much as possible the cold reflexion of such a light.

In patterns for coloured manufactures, pure white ought not to be used along with intense and rich colours, unless melodised by light and delicate tints. Indeed, it ought, in manufactures as in decoration, only to be used where the character of the arrangement is of a light and delicate nature. Its effect in arrangements of deep, rich, and intense colours, is generally harsh and spotty. When employed as a groundwork for a carpet, it ought to be, to a certain extent, reduced in intensity, by which great additional effect will be given to the tints with which the pattern is coloured. When the general tone of a pattern of this description is warm,—that is, where red and yellow prevail, the white ought to be slightly tinged towards a cream-colour. On the other hand, when the tone is cool, blue or green being the prevailing colour, it may be tinged towards purple or grey. When white, however, is used, not as the medium to an arrangement, but as a contrasting colour to any particular tint, it ought to be toned with the opposite hue.

Yellow, of the three primaries, partakes most of the nature of white, being the lightest of all decided colours, and the brightest on the prismatic spectrum: it is neither a warm nor a cold colour. Its contrasting colour is purple, a compound of the other two primaries. It combines with red in producing orange-colour, and when compounded with blue, it produces green. These are, therefore, its melodising colours. It is the most powerful of the positive colours as to light, and consequently the least agreeable to the eye when unaccompanied, or when predominating in a pure state. Being the most allied to light of the positive colours, it, next to white, forms the most powerful contrast to black. There are many varieties of yellow in the popular nomenclature of colours: but what is here meant by yellow is the colour of the yellow jasmyn, or most intense lemon colour. Yellow, of course, forms a component part of all the tertiary or neutral hues, either in predominance or subordination.

The tertiary in which it is the archeus or ruling

colour is that commonly called citron, but more properly yellow-hue, which, being a compound of orange and green, the two secondaries into which yellow enters, has a greater proportion of that colour than either of the other two tertiaries. Citron, or yellow-hue, is of itself a soft and pleasing colour to the eye, and is the lightest of all the distinct hues arising out of the treble combination of the primaries. It is very useful as a contrasting colour amongst low tones of purple and crimson. In tracing yellow still further down in the scale, the next understood colour in which it predominates is the semi-neutral hue, brown, or orange-hue—a most efficient colour in all the low parts of every warm-toned arrangement.

The upper limb of the coloured diagram which faces the title-page exhibits yellow in its various combinations and gradations of hue down to black. There are, of course, countless intermediate hues and shades between any two of those upon the diagram.

In artificial lights, pure yellow apparently loses much of its intensity, because it cannot be easily distinguished from white. This occurs from all such lights being less or more of a yellow tone, and

consequently, diffusing this colour over all objects within their influence: white thereby becoming yellow, and yellow remaining unaltered.

In decoration, pure yellow cannot be employed in large masses, but merely as a heightening colour; yet light tints of yellow have a very pleasing effect in bedrooms, especially such as are lighted from the north and east, and form an agreeable arrangement with white, lilac, or chintz furniture. They have also the advantage of being easily lighted, and thereby appearing very cheerful at night.

There is no colour that requires more management than yellow in coloured manufactures, yet in these it is almost always employed in its purest and brightest tones; while the other colours which, according to their relative powers, ought to be of greater intensity, are very generally much weaker. Whether this proceeds from the ease with which it is produced in dyeing, or from a desire to produce a striking effect, it is hard to say, but its abuse in this way must be apparent to all people of taste who have paid any attention to the matter. Yellow is, however, in its various tints and combinations, of the greatest value in producing brilliancy and richness, as will be afterwards shown.

Some of Göethe's remarks upon yellow, and some of the colours that proceed from it, are curious. He says—" When a yellow colour is communicated to dull and coarse surfaces, such as common cloth, felt, or the like, on which it does not appear with full energy, the disagreeable effect is apparent. By a slight and scarcely perceptible change, the beautiful impression of fire and gold is transformed into one not undeserving the epithet foul, and the colour of harmony and joy reversed to that of ignominy and aversion. To this impression the yellow hats of bankrupts, and the yellow circles on the mantles of Jews, may have owed their origin. As no colour can be considered as stationary, so we can very easily augment yellow into reddish by condensing or darkening it. The colour increases in energy, and appears in red-yellow more powerful and splendid. All that we have said of yellow is applicable here in a higher degree. The red-yellow gives an impression of warmth and gladness, since it represents the hue of the intense glow of fire, and of the milder radiance of the setting sun. Hence it is agreeable around us; and again, as clothing, in greater or less degrees is cheerful and magnificent. A slight tendency to red immediately gives a

new character to yellow; and while the English and Germans content themselves with pale-yellow colours in leather, the French, as Costel has remarked, prefer a yellow enhanced to red; indeed, in general, every thing in colour is agreeable which belongs to the active side. As a pure yellow passes very easily to red-yellow, so the deepening of this last to yellow-red is not to be arrested. The agreeable cheerful sensation which red-yellow excites, increases to an intolerably painful impression in bright yellow-red. The active side is here in its highest energy; and it is not to be wondered at that impetuous, robust, uneducated men should be especially pleased with this colour. Among savage nations the inclination for it has been universally remarked; and when children, left to themselves, begin to use tints, they never spare vermillion and minium. In looking stedfastly at a perfectly yellow-red surface, the colour seems actually to penetrate the organ. It produces an extreme excitement, and still acts thus when somewhat darkened. A yellow-red cloth disturbs and enrages animals. I have known men of education to whom its effect was intolerable, if they chanced to see a person dressed in a scarlet cloak, on a grey, cloudy day."

It will here be observed that Göethe terms what we call orange-colour, red-yellow, and what we call scarlet, yellow-red, which is, certainly, a more correct nomenclature.

ORANGE-COLOUR is the next colour in the series; it is a compound of yellow and red, in equal proportions. Between these two colours it appears in the prismatic spectrum, rainbow, and other natural phenomena; they may, therefore, be termed its melodising colours. Its contrasting colour is blue. Orange-colour is the extreme point of warmth in colouring; because the red, in which exists the principle of warmth, is lighted up by a colour whose nature does not reduce this warmth, but, by adding light to it, gives it more intensity. Therefore, as blue embodies the principle of coldness of tone, and has least light of any decided colour, the contrast between orange and blue is more powerful than that between any other two colours. In its combination with green, orange produces the tertiary citron, and with purple the tertiary russet.

Although orange-colour is perhaps the most powerful of all colours, yet it possesses a mellow-

ness and richness which renders it one of the most effective in all general arrangements. It should, however, next to yellow, be employed with a very sparing hand; for it is, as well as that primary and red, offensive to the eye when viewed alone, and unresolved by a proper proportion of its contrasting and melodising colours and hues. The various beautiful tints produced by the dilution of orange are the most useful in heightening all ornamental colouring, amongst which that termed gold-colour is pre-eminent. Orange-colour, like the other two secondaries, has great variety of hue, according to the predominance of either of its component parts. As it advances towards yellow, by a predominance of that colour in its mixture, pure blue can no longer be employed as a perfect contrast or neutralising colour, but hues of purple, advancing towards the perfect state of that colour in the same ratio as the orange-colour advances towards yellow.

On the other hand, when orange-colour recedes towards red, by a subordination of yellow in its composition, green, in its various hues, becomes the perfect contrasting colour; and as the red predominates in the orange-colour, so ought the green to approach towards its perfect or prismatic

purity. It is not, however, always necessary or desirable that colours employed as harmonising accompaniments to one another should be of equal power, although it is most essential to the colourist to know the proper method of making them so.

Suppose orange-colour to be the key adopted for an arrangement of colours, either in the decoration of an apartment, or in the design of a carpet, or other piece of manufacture, the blue ought to be subordinate, either in intensity or quantity; and this subordination in intensity ought to be in shade rather than tint, or by neutralizing the blue by the admixture of a small portion of orange-colour.

In the medial colours employed in an arrangement of this character, the deep rich tones of russet, citron, and brown, or, more properly, red-hue, yellow-hue, and orange-hue, ought to predominate, relieved occasionally by the deepest shades of indigo or deep purplish blue. Black and white are both out of tone in such an arrangement, especially the latter.

Pure orange-colour, from its great power, is not often employed in decoration, yet many of its hues are the best adapted for window-curtains, chair-seats, and other furniture, where gorgeousness and splendour are desirable. The gold and giraffe hues so employed, along with pure emerald-green on the walls, produce, when properly harmonised by their accompaniments, one of the most pleasing effects in ordinary decoration. In this case, however, the green is the ruling colour, and such an arrangement will therefore admit of all such hues, shades, and tints being introduced as harmonise with that colour.

Red is the third in the chromatic series, and second of the primaries. It is the most positive of all colours; holding the middle station between yellow, which is most allied to light, and blue, which is most allied to shade—it is of all colours the most powerful. The secondaries with which it melodises in series are, of course, orange and purple, which are produced by its combinations with the other two primaries. Its contrasting colour is green, a compound of yellow and blue, in equal portions as to power. Red is decidedly a warm colour, and, to a certain extent, communicates this quality to every colour or hue into which it enters.

The effect of warmth is most apparent in its combinations with yellow, for in those with blue it

becomes more cool and retiring. From the medial situation of red, and from its power in subduing the effect of such colours as enter, in minute proportion, into combination with it, its name is very indiscriminately applied. The first decided or specific colour produced in its approach towards yellow is scarlet, called by Göethe yellow-red, and in its approach towards purple it produces the most splendid of all its various tones—crimson. But before arriving at either of these understood colours, there are an immense variety of tones, to all of which the general term red is commonly applied. It is not easy to describe what is meant by pure red; probably the most intense geranium-colour is the nearest approximation generally understood. That which I have given upon the diagram is the nearest I could produce by a pigment, yet it is far from being perfect.

The tertiary in which red predominates is russet, or red-hue, a medial hue between purple and orange, and consequently having a double occurrence of red in its composition; therefore, it is the most positive and warm of the hues. It is of great power and value in all the deep parts of any warm-toned arrangement, as a contrasting colour to the

deep hues of green, necessarily brought in as relieving colours. The semi-neutral marone, or purple-hue, is the next understood hue in its descent to black. This hue is the most useful of all semi-neutrals in such arrangements as are best adapted for patterns of carpets, and other variously coloured manufactures. It is deep and clear, and although allied to red, is sufficiently cool to admit of its being used as the deepest shade in such arrangements as have a predominance of cool-toned colours.

From the positive nature of red, there is no colour that requires more toning and management, when exhibited in large masses, either in decoration or in variously coloured manufacture. The effect of red individually being striking and powerful, it has, like yellow, been much too indiscriminately employed. We have only to look at nature for the proper use of this colour. We shall there see that red seldom appears in its full intensity, and when it does so, it is at that season when its effect is balanced and neutralised by the general verdure which clothes the earth. Red, however, in nature as in art, is indispensable in producing, by combination, that variety of hue so essential to

the effect of every arrangement of colours. The landscape painter knows well that neither sky, water, nor foliage, can be successfully imitated without the introduction of this colour.

Pure red, and its various approximations towards scarlet, are too violent and obtrusive to be used in large masses, either in decoration or in any general arrangements of colours upon a piece of manufacture, unless under very peculiar circumstances. It forms, however, like orange, an excellent leading colour or key-note. On all such occasions, its contrasting colour, green, ought to be tempered by being toned towards olive: bright green, if employed at all, ought to be used in very small quantities. The tertiaries ought generally to be those in which red predominates, and blue is subordinate to yellow, and these should be relieved by deep rich hues of green. A small proportion of gold-colour adds brilliancy and effect to arrangements of this description.

There is an exception, however, to this rule in decoration; some rooms are so lighted that the direct rays are entirely thrown upon the floor, and the walls left comparatively in shade. In cases of this kind, I have known a bright scarlet upon the

wall produce an excellent effect, the want of direct light preventing it from obtruding upon the eye. In such cases, deep-toned colours ought to predominate on the carpet. Gilding is of much importance in melodising and heightening the effect of apartments decorated in this style.

Crimson is, of all the tones arising from the mellowing of the primary red, the most gorgeous and useful as a leading colour. The green which relieves it best is that which approaches the citron hue. This colour, from the splendid and rich effect which it always produces, and from its being, of all the tones of red, the most cool and mellow, is much used in internal decoration. It is also, when of a proper shade and tone, an excellent ground for pictures, and associates well with gilding. This latter quality proceeds from the crimson partaking, in a small degree, of the property of purple as well as red—the one being the contrasting colour to yellow, and the other the melodising colour to orange; the colour of gold, in its lights and shadows, producing these two.

From these circumstances, crimson, of a proper depth and hue, has been generally adopted as a ground for pictures, by the proprietors of those

splendid mansions where the finest collections are to be seen. This has led to its adoption in general; but, from the great variety of hues which are produced under this name, many glaring errors have arisen. Most of the flocked papers so much in use, and erroneously called crimson, partake more of the tone of scarlet, while others are crimson on the pattern, with a tint of pink on the ground. This often arises from the pattern being of one material and the ground of another; and even when the ground and pattern are at first the same, the former, from its being a thin wash of water-colour upon white paper, is soon reduced to a pale pink—while the pattern, from its facility in collecting dust, becomes a dark sombre red.

From crimson proceeds that beautiful series of tints called pinks or rose-colours, which are so essential as heightening reds in all cool-toned arrangements.

There are various other denominations of red, but they are all, with the exception of the purest colour, compounds of two or all of the primaries.

PURPLE lies next in series to red, of which colour and blue it is composed, in equal proportions as to

power. In this state of intensity it forms the proper contrasting or neutralising colour to pure yellow. The two primaries of which it is compounded are its melodising colours. Although red be one of its component parts, it is not a positively warm colour, and is very retiring in effect: being also the darkest of the secondary colours, it bears the nearest relation to black or shade, as its contrasting colour, yellow, does to white or light. From these qualities, purple is a pleasing colour to the eye, in which respect it is second only to green. In its combination with green it produces that soft and useful tertiary colour called olive, or blue-hue, and with orange, the most powerful of this class, russet, or red-hue.

Purple has, like the other compound colours, various tones, but these are bounded in its approach towards red by crimson, and towards blue by indigo. Its tints have also popular names peculiar to themselves, such as lilac, peach-blossom, and several others.

Purple is not much used as a leading colour in decoration, which, I believe, arises from its bad effect in artificial light. It has been already noticed, that all artificial lights, used for economic purposes, are less or more of a warm and yellow tone, as any one

may observe in viewing the flame of a candle or gas-lamp in daylight. Yellow being the natural contrast to purple, and being thus diffused over it, neutralizes and injures its effect. Indeed, all cool colours are less or more injured by the effect of such lights, while warm colours, from their being allied to red, are improved in brilliancy. The diagram facing the title, by being viewed in clear daylight, and immediately after in candlelight, will illustrate this fact in a sufficiently satisfactory manner. This effect of artificial light is worthy of particular attention, for it is not only the positive colours upon which it is produced, but upon compound hues of every description, according to the predominance of one or other of the primaries in their composition.

Purple may be used in large quantities in any general arrangement, especially when of a cool tone. In the richest patterns of carpets, shawls, and such like pieces of manufacture, its deepest hues are invaluable. Its power of contrast to all the warm tones of yellow gives them additional warmth and brilliancy, while its natural clearness prevents it from ever appearing dusky or heavy, except under the influence of artificial light.

Blue is the third of the primary colours, and fifth of the chromatic series. It is, of the primaries, the nearest in relation to shade, as yellow is to light. It is the only absolutely cool colour, and communicates this quality to all hues into the combination of which it enters. The contrasting colour to blue is the secondary orange, and its melodising colours in series, green and purple; with the former of which, however, it is more discordant than either of the other two primaries are with either of their melodising colours. This gives rise to the necessity of a seventh colour of a neutral description, which ought generally to be interposed between these two colours when in their perfect state of intensity. This neutral hue is grey, the medium between warmth and coolness, and between light and shade, or black and white.

The tertiary colour olive, or blue-hue, from being the medial hue between purple and green, and arising from their combination, has a predominance of blue in its composition, and is, therefore, the tertiary that first occurs in the progress of blue to black, or to negation in shade.

Olive, or blue-hue, individually considered, is soft and unassuming, and is of great use in all arrange-

ments whether of a cool or warm tone. Its effect as a melodising hue with blue, green, and purple, will be seen by reference to the diagram. But it is in its contrasting powers in the lower hues of warm-toned or brilliant compositions that it is most valuable. It relieves and harmonises, according to its various tones, the tertiaries—russet, citron, marone, and brown. Owing, however, to the discord already noticed, it ought never to be brought into immediate contact with blue, but should be melodised by the introduction of a semi-tonic hue between them. This hue may be a grey of a warm purplish tone, which will melodise best in being blended with the blue, and produce harmony in coming distinctly against the olive in its full warmth. Slate-colour is the next hue in the progress of blue down to black, which, from its peculiar nature, cannot be used in any but cool-toned arrangements.

Blue is individually a pleasing, and, at the same time, a brilliant colour. It may, therefore, be used in any general arrangement of colours, as it is in the colouring of nature, in a much larger proportion than either of the other two primaries. As a leading colour in decoration, it is extremely beautiful when in its proper place. For instance, in the drawing-room of a summer residence, especially when lighted from the south, its effect, as a key, is cool and refreshing, as also in bed-rooms of the same description. In all variously-coloured manufactures of silk, pure blue, when properly introduced, is both sparkling and pleasing; but in worsted manufactures, its shades and tints are the most useful; but, probably from some difficulty in procuring a proper dye, it is seldom, if ever, produced in perfect purity in such fabrics. Pale tints of blue, or any other cool colour, ought never to be introduced into warm arrangements. In such cases it ought always to be used in its deepest hues and shades. This ought to be particularly attended to by designers of patterns for manufactures: for the indiscriminate introduction of light cool tints is a prevailing error amongst them. It has already been explained, that warm colours are naturally allied to light, and cool colours to shade. Light tints are, therefore, when employed in such designs, enhanced and strengthened by being of a warm tone, and are consequently neutralised and sunk as they approach to that which is cool. In the works of the most eminent artists, this coolness and subor-

dination of the shades, and glowing warmth in the lights, must be apparent to all who have paid any attention to the subject.

GREEN, although the last in the general series which I have adopted, is the medial or second of the secondary colours, because it is a compound of yellow and blue, in equal proportions—the one primary being most allied to light, and the other to shade. Its melodising colours are of course these two primaries, and its contrasting colour the remaining primary, red. As red is the most decided or pre-eminent of the primaries, so green is the most cool and soft of the secondaries, and the most pleasing and agreeable of all decided colours. It is also unlike the other two secondaries in this respect—that, in its approximation to either of its component parts, it produces no other distinct denomination of colour — all its tones retaining the same name. Out of the union of green with orange arises the lightest of the tertiary colours, citron; and out of that with purple the deepest, olive, to which it appears particularly allied.

Green is nature's favourite colour, prevailing

over the face of the landscape to a far greater extent than any other. By a beneficent exercise of the divine wisdom, it is exhibited in its greatest intensity and depth when the sun's rays are most powerful, thereby counteracting the intensity of their reflexion, and refreshing the eye by its soft and soothing influence. Green, however, like every other element in nature's colouring, seldom appears in vegetation in its primitive purity—hence the beautiful accordance between the green of the landscape and the blue of the sky, so evidently assisted in both harmony and melody by the intervention of the warm and neutral grey, which prevails intermediately in the distance of the one and the horizon of the other. Green in its various tones, as may naturally be supposed, is a favourite colour in decoration, and would be much more so, were it not that in artificial light its effect is much deteriorated, becoming in most cases dull and heavy.

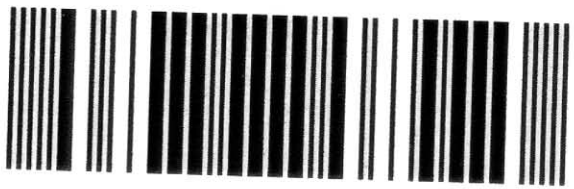
The cause of this I have already explained in treating of yellow and purple. This, however, may in a great measure be avoided by toning it, by keeping it in its proper place, and by selecting proper colours as an accompaniment to it. A rich tone of green upon the walls of a drawing-room, accompa-

nied by cream-colour, French-white, and gilding on the cornice, ceiling, and wood-work, with damask hangings of giraffe and gold colour, and a suitable carpet, never fails to produce a pleasing and splendid effect in any light. When this arrangement is inverted, that is, when the hangings and chair-seats are green, and the walls of a warm tone, the effect is equally beautiful in daylight; but in artificial light it is injured by the green being neutralised, and the warm tone on the wall rendered more effective; thus making that which is principal in the arrangement, and of the smallest quantity, recede, while that which ought to retire and be subordinate is brought forward. This applies to all other colours employed in decoration, according to their relative powers of reflecting or absorbing such kinds of light.

Of all decided colours, green may be used with most freedom in manufactures. In carpets, especially, it ought almost always to preponderate. They receive the rays of light more directly during the day than any other part of the furniture or decoration; and green, in its various hues, is not only in that light most pleasing, but also relieves and harmonises others more effectually than any

other colour. Its bright and vivid tones and tints are easily neutralised, and seldom produce crudity or harshness of effect in any arrangement. Rich and deep tones of green, especially when tempered towards a tertiary hue, harmonise with and give value to all descriptions of warm colours. Its cooler hues and shades ought, however, to be used with more caution; for they are apt to appear heavy, and although blue predominates in them to the same extent that it does in the hues of purple called indigo, yet they have not the same clearness.

As already observed, there cannot be produced any other absolutely distinct description of colour but one, and that is by a combination of the three primaries, or, what is the same thing, any two of the secondaries. Of the infinite multitude of hues which arise out of this triple combination, I have in another part adopted, as the seventh colour, the most neutral of them all, grey. Those tertiary hues that are distinguished by a predominance of one of the primary or secondary colours in their composition, I have noticed in treating of the colours themselves. In decorative arrangements, oak may be reckoned of a citron, and mahogany of



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a russet hue, and they will, of course, bear the relation of these tertiaries to the other colours with which they are associated.

Black, as already noticed, is produced by the total interruption of the action which produces light, and its natural contrast is white—being the most perfect state of that action. Black can only be used in large quantities in arrangements of a cool and sombre character, and ought always to be pure and transparent. For want of this quality in the black employed in the generality of worsted fabrics, it has always a sooty and heavy effect. It ought, therefore, to be employed in such manufactures with great caution. Perhaps the most general error in the colouring of the carpets manufactured in this country was, till of late, the too frequent use of black and white. The deepest shades should never go below indigo, marone, or brown, and the highest tints, as already observed, would be much improved by being mellowed down by some warm colour. More latitude may be taken with black in the colouring of silk manufactures, as it can be produced on that material in the greatest clearness and depth. Its use in modern decoration is rather limited, being generally confined to chair-seats, door-mountings, and dining-room chimney-pieces.

In the decorative painting, however, of Pompeii and Herculaneum, it was used in large quantities; and in combination with the intense and brilliant colours which accompanied it, produced the most splendid effect. This evidently resulted from the perfect knowledge possessed by the decorators of that period of the relative powers of their materials, which seem to have been in their hands what the keys of a powerful organ would at the present period be in those of an accomplished musician. Yet this use of the brightest and deepest colours, by the ancient Romans, was perhaps more a particular characteristic of style, than a beauty in their decorative colouring. But, as already observed, it was the best adapted to their clear skies and, in some cases, uncovered apartments.

Black, and its contrasting hue, white, are the two most dangerous elements in the whole chromatic series; the one being at the bottom and the other at the top of the scale; and particular care is, therefore, required in their management. When an arrangement of rich and intense colours is here

and there interrupted by patches or shadings of black, as too often happens in patterns of carpets and other subjects of a similar nature, the effect is harsh and unpleasant. It ought, therefore, in all such designs, to be accompanied and mellowed by those deep hues that lie next it in the natural series. White should in like manner, as before noticed, be introduced by a gradation of the lightest tints, otherwise the effect will be spotty and broken.

It is very difficult to give rules that will be applicable in all cases, but it is trusted the above will be of some use in the general practice of the decorator and manufacturer.

PART II.

ON THE PRACTICE OF HOUSE-PAINTING.

The principles which operate in the production of beauty in the art of house-painting, constitute a branch of the science of Æsthetics, with which the public are becoming daily more acquainted; but the practical department of this art is still enveloped in mystery. Such mystery, however, ought not to exist in a country like Great Britain, where this department of house-painting cannot fail to be a subject of general interest, inasmuch as it is calculated to enhance greatly the durability of our dwelling-houses and public buildings, and the comfort of their occupants, by preserving them

from the effects of a changeable climate and humid atmosphere.

In this country the ceilings and walls of the apartments in our dwelling-houses and other buildings are almost uniformly finished in plaster. Now, it is well known that this composition is remarkable for its great facility in absorbing moisture. Consequently, when an unpainted plastered apartment is left for any length of time without the benefit of a fire, or heated air supplied by other means, a portion of that humidity with which our atmosphere is generally loaded will be absorbed, and the room thereby rendered unwholesome, and its wood-fittings, as well as the plaster itself, impaired in durability.

The first and most important object in decorating a house is, therefore, to render its interior walls impervious to this absorption, and the most effectual way to do this is to paint them. Important as this operation is, it is often mismanaged to such an extent that families are put to all the inconvenience, trouble, and expense of a thorough painting several times during the best part of a lifetime, where once might suffice. The cause of this shall now be shown.

The materials employed by the house-painter, in what is termed plain painting, are—

WHITE-LEAD,	LAKE,
LITHARGE,	CALCOTHAR OF VITRIOL,
SUGAR-OF-LEAD,	VENETIAN RED,
RED-LEAD,	SPANISH BROWN,
ORANGE-LEAD,	PRUSSIAN BLUE,
CHROME-YELLOW,	FRENCH ULTRAMARINE,
CHROME-GREEN,	TURKEY UMBER,
YELLOW-OCHRE,	ENGLISH UMBER,
TERRA-DI-SIENA,	LAMP-BLACK,
INDIAN RED,	LINSEED OIL,
VERMILLION,	SPIRITS OF TURPENTINE.

With the nature, properties, and varieties of each of these ingredients used in the compounding of paint I shall endeavour to make the reader acquainted.

WHITE-LEAD forms, or ought to form, the body of almost all light-coloured paints, often constituting nine-tenths of the composition. It is a carbonate of the metal from which it takes its name, and is prepared by exposing thin plates of cast lead to the action of the vapour of ascetic acid, air, and carbonic acid. Other processes are employed for

the same purpose, but it is by this process only that the resulting carbonate of lead is obtained of that degree of density and opacity, and that perfect freedom from crystaline texture, which properly fit it for paint. This is called the Dutch process, and was introduced into England about the year 1780. It is fully described, together with the other processes, in Brande's *Manual of Chemistry*, fifth edition, p. 844. The quality of this article ought to be considered of the greatest importance by the house-painter, as upon it depends the durability of his work; yet it is, of all the materials he employs, the most difficult to be obtained in an unadulterated state. For all general purposes he procures it ground in oil to the consistency of a thick paste, which is produced by mixing the carbonate in a damp state with refined linseed oil, and passing them through a mill, in which they are properly amalgamated. It is in this process that adulteration takes place. Formerly fine chalk or whiting used to be employed by the manufacturer to cheapen this article, but when thus adulterated, the presence of the chalk was detected by its specific gravity. While this mode was in use, the late Sir John Robison, secretary to the Royal

Society of Edinburgh, being elected a commissioner of police, had a small vessel filled with genuine white-lead and a similar vessel filled with that which was procured by contract for the city works, and the difference of gravity was found to be several ounces in the pound-weight. But the possibility of detecting the adulteration of white-lead is now rendered very difficult, from its being reduced by the admixture of a cheap mineral substance called sulphate of baryta, which resembles lead in its gravity, but not in its density and opacity, and is now very largely employed in this way. Therefore the painter, who by competition must work at low rates, is naturally liable to be tempted by the offer of white-lead below the market price, by which he effects a small saving in his material, while the employer sustains a great loss from the want of proper durability in the work. The only mode of detecting the presence of baryta in white-lead is by its insolubility in dilute nitric acid, pure lead being entirely dissolved by it. But this is rather a difficult process when the paint is in its manufactured state, and the only way in which a painter can be quite safe is to make his orders worthy of the manufacturer's particular attention, by giving

the highest price, as also by taking a large quantity at a time, in which case it may be warranted free of adulteration.

From the thick paste into which white-lead is ground by the manufacturer, the painter reduces it, by means of linseed oil and spirits of turpentine, to that consistency more properly called paint, as shall afterwards be explained.

Lead supplies to the painter other materials besides its carbonate.

LITHARGE, the fused oxide of that metal, made by the simple action of heat and air in the process of extracting silver from lead, is used as a drying ingredient in the first coats of paint employed upon wood and plaster; and when linseed oil is boiled for coarse out-door work, litharge is dissolved in it for the same purpose.

SUGAR-OF-LEAD, another dryer, is made by exposing lead to the fumes of vinegar or pyroligneous acid—dissolving the white powder thus produced in excess of acid, and then crystalizing it.

RED-LEAD and ORANGE-LEAD are other oxides

of lead produced from litharge, and are converted into paint by being mixed with linseed oil, and reduced to a smooth paste by the painter. This he performs by spreading the red-lead, when mixed with the oil, upon a slab of Arbroath pavement-stone, of about thirty inches square, and working it over this surface by means of another stone, called a muller, which is of a conical form, with a base of about five inches diameter; it is generally made of whin-stone, and held between the hands of the painter while triturating the paint between it and the slab. Litharge and sugar-of-lead are also submitted to the same process before being mixed with the paint. Lead unites with iron, with the alkalis, and with earth, in producing the chrome colours, which are—

CHROME-YELLOW of various tones, from the clearest lemon to the deepest orange colour. This pigment is made by adding a limpid solution of the chromate of potash to a solution, equally limpid, of acetate, or nitrate of lead; and the tones of its colour are deepened by the addition of subacetate of lead, or rendered pale by a solution of alum or sulphuric acid, in the course of their

manufacture. There are also reds, blues, and greens, which are chromates, and made by processes of a somewhat similar nature, but the yellow is by far the most important to the house-painter—being almost the only bright yellow now in use. Like most other manufactured colours, it varies greatly both in quality and price; and the only security the painter can have for its being genuine, and of the finest quality, is to purchase it from a manufacturer of high respectability, and give the highest price. It comes from the manufacturer in dry lumps, and is converted into paint by the process already described.

The Ochres are another class of yellows of which there is great variety. They are a native earthy mixture of silica and alumina, coloured by oxide of iron, with occasionally a little calcareous matter and magnesia, and are found between strata of rock and sand. Ochre varies in colour from a light tint of tempered yellow to a tempered red, and in price from 1d. to 1s. per lb.

Yellow-ochre may be made of a dull red-hue by being gently calcined. Native red-ochre is called red chalk, but is never converted into a pigment.

The lower qualities of ochre are found in large quantities in this country, and are used for mixing the commonest kinds of paints for out-door work, floor-cloths, &c. The finest quality is found at Siena, in Italy, and is called—

Terra-di-Siena. This species of ochre is as useful to the professor of high art as it is to the house-painter. It has great density, without opacity, and produces delicate tints when mixed with white paint, or when used as a transparent colour upon a light groundwork. The house-painter who wishes to do ample justice to his employer, should use no other yellows for interior painting besides chrome-yellow of the best kind, and *terra di Siena*, because by these two pigments every colour or hue, of which yellow is an element, may be produced, and because they are the only yellows that can be depended upon for durability.

When calcined, *terra di Siena* forms one of the most beautiful hues of reddish orange or brown, which is as useful in producing tints, by its admixture with white paint, as it is by its transparency in giving richness to shades when used as a glazing colour.

Of Reds there are many kinds, principally manufactured. Perhaps the only native red, besides the burnt ochres, converted into a pigment by the house-painter, is Indian Red.

Indian Red is brought to England in its native state, which is that of a very rich iron ore, full of gritty particles, but of these it is generally freed before being converted into paint. It is of various tones, but all of a slightly purplish character, and when reduced, by being mixed with white paint, produces very delicate tints. It is not transparent, and, consequently, cannot be reduced to a tint in any other way. It is, like most other native colours, remarkable for its permanency; and it, as well as the other native colours, are converted into paint by the same process explained in reference to the manufactured colours.

Cinnabar is the native red sulphuret of mercury, but is superseded in its use as a pigment by the factitious cinnabar, called Vermillion, which, like the native kind, is a compound of mercury and sulphur.

Vermillion is manufactured in England, Holland, and other parts of Europe, but the finest quality is manufactured in China, which, however, is often adulterated before it reaches the hands of the painter. Field says of this colour—"It is true that vermillions have obtained the double disrepute of fading in a strong light, and of becoming black or dark by time or impure air; but colours, like characters, suffer contamination and disrepute from bad association; it has happened, accordingly, that vermillion which has been rendered lakey or crimson by mixture with lake or carmine, has faded in the light, and that when it has been toned to the scarlet hue by red or orange lead, it has afterwards become blackened in impure air, &c. Hence the ill fame of vermillion both with authors and artists."*

Real Chinese vermillion is a permanent and a beautiful colour—it is an impalpable powder, possessing great density and opacity when mixed as a paint, but from the ease with which it is adulterated, and the consequent difficulty of obtaining it pure in this country, it is requisite to commission it direct from China in order to ensure its being genuine: it

* Field's Chromatography, &c., see p. 93.

costs in China about 4s. 10d. per pound. Its price in this country varies from three shillings to six shillings per pound.

Lake is another manufactured red used by the house-painter. Its tones vary from scarlet to crimson, and the methods by which it is produced are very numerous. The best lake is made from cochineal, and the worst is made by the precipitation of tinctures of Brazil-wood and other dyeing drugs, upon alumina and other earths. The best lake is made in China, but it can be so well imitated, in all but its durability, by the European manufacturer, that it is very difficult to be had, being seldom brought down to any of the Chinese ports with which we trade.*

Lake is transparent, and more used in that way, than mixed as a tint with white-lead. When used as a crimson for polychrome work upon ceilings, it is mixed with spirits of turpentine instead of oil, because the spirits hold a greater body of it

* As a proof of this, I may mention, that within the last three years, I have sent orders both to Canton and Hong Kong for lake, which have not yet been executed, while there was no difficulty in regard to vermillion.

in solution; but this shall be explained more fully in the sequel. Lake varies in price according to quality, from ten shillings to sixty shillings the pound-weight. Some of the beautiful madder lakes made by Field are, I believe, much more expensive, but they are only for the palette of the professor of high art.

Rose-pink is a coarse kind of lake, produced by dyeing chalk or whiting with decoction of Brazil-wood, but it is only fit for paper-staining.

Colcothar of Vitriol, the purplish red peroxyde of iron, made by adding solution of soda to the solution of sulphate of iron or copperas, is another red used by the house-painter. It produces the chocolate paint so much in use for the woodwork of kitchens, servants' halls, &c. It is cheap in price, and very durable. This substance, when carefully washed, is the rouge of the silversmith.

Venetian Red, Light-Red, and Spanish Brown, are burnt ochres of coarse quality, and used by the house-painter as red pigments.

A native Blue is unknown in the art of house-

painting. Indeed there are only two native pigments of this colour, namely, Saunder's blue, found near copper-mines. which has the defect of turning green when mixed with oil, and blue-ochre, a subphosphate of iron found in Cornwall and in North America. Field says—"What Indian red is to the colour red, and Oxford ochre to yellow, this colour is to the colour blue." But it is not in general use, or easily procurable.

Prussian Blue is one of the most important pigments to the house-painter as a manufactured blue. It is the percyanide of iron, and is produced by heating to redness dried blood, or other animal matter, with an equal weight of pearl ash, till reduced to a paste, which is again reduced with water, filtered, and mixed with a solution of one part of proto-sulphate of iron and two parts of alum. The precipitate of this is greenish, but it absorbs oxygen from the atmosphere which completes the process. It is a deep and powerful colour, mixing well with white paint in the production of all tints of which blue is an element, and is at the same time decidedly transparent. It is, like most other manufactured pigments, of various qualities.

Factitious Ultramarine is now much used by the higher class of house-painters, where richness, brilliancy, and permanency of colour are required. There are various qualities of this pigment, and it is consequently sold at various prices, from five shillings to forty shillings a pound; but that made by Guimet, who invented it in 1828, is decidedly the best, and is never, when genuine, sold below the highest price. This is very little inferior to the lazulite (*lapis lazuli*) ultramarine, used in high art. It was made by Guimet in the following manner:—A mixture of sulphur and dry carbonate of soda was heated to redness; when the mass fused, another mixture of silicate of soda and aluminate of soda was sprinkled into it by degrees. The crucible in which this was performed was then again exposed for an hour to the fire, by which time the ultramarine was formed, only it contained a little sulphur, which was separated by means of water. Various other processes have since been invented, all proving that ultramarine is a compound of silicate of alumina, silicate of soda, and sulphurate of sodium, the colour being the result of the reaction of the latter constituent upon the two former. The blue of the diagram is Guimet's ultramarine.

One of the most useful pigments in the hands of the house-painter is Umber, of which there are two kinds—Turkey umber and English umber.

Turkey Umber is decidedly the best of the two. It is a variety of ochraceous iron ore, chiefly brought from Cypress, and is of a greyish tone of brown, approaching yellow-hue. It is of great density, producing a variety of beautifully chaste tints when mixed with white paint, and assisting the drying of all paints of which it forms a constituent. When calcined, its colour approaches more the tone of russet or red-hue, and is, in its burnt state as well as in its native state, the most efficient pigment in the production of all varieties of drab and stone-colour. The inferior umber called English, is a native earth found in Derbyshire, Somersetshire, and other parts of England, and is used instead of Turkey umber upon low-priced work.

The *media* or vehicles by which these pigments are mixed, when applied in house-painting, are first, linseed-oil; secondly, a mixture of linseed-oil with spirits of turpentine; and, thirdly, spirits of turpentine alone, with some drying ingredient.

These drying ingredients are litharge and sugar-of-lead, already noticed, and a kind of varnish called japanner's gold-size, made of the refuse of gum copal, or gum animà, litharge, and umber dissolved by heat in linseed oil and spirits of turpentine, thoroughly amalgamated and purified.

Linseed-Oil is the only oil used by the house-painter. It is, as its name implies, produced from linseed. The following is the process:—The seed is first bruised, either by the original mode of being pounded in hard wooden mortars by pestles shod with iron, set in motion by carns, driven by horse or water power, or by a hydraulic mill. The seed thus triturated, is put into woollen bags, which are again wrapped up in hair-cloths, and the oil expressed, either by these bags being squeezed between upright wedges in press-boxes, by the impulsion of vertical rams driven by the same mechanism, or subjected to the more powerful operation of the hydraulic press.

This material varies little in quality, and is not liable to be adulterated. The only superiority of one kind over another is in its age and clearness; for where a large stock is kept, it is found that in

about six months there is a considerable accumulation of refuse at the bottom of the cistern, which is only fit to be employed in mixing coarse paint for out-door work. Linseed-oil varies greatly in price, according to the demand for the cake which is necessarily manufactured along with it, and is used for fattening cattle, as also according to the state of the seed market, sometimes changing from £25 to £40 per tun, in the course of a few months; so that the tradesman whose capital and premises enable him to take the advantage of the market, often effects a great saving upon this article.

Linseed-oil is sometimes boiled with litharge to make it dry quick, but when it is thus treated, it is unfit for good work, as shall afterwards be shown.

Spirits of Turpentine is now much used as a vehicle by the house-painter. This oleaginous spirit is extracted from the semi-liquid resinous substance which exudes from a certain species of *pinus*, or fir tree. It is separated from the resin, by being distilled along with water, and is colourless, limpid, and very volatile, having a peculiar, but not disagreeable nor unwholesome smell. Its qua-

lity depends upon its freedom from holding any of the resin in solution, with which it was combined while in its native state. The price of spirits of turpentine is as fluctuating as that of linseed-oil.

These are the materials used by the house-painter in the manufacture of that covering intended to secure the plaster and wood finishings of buildings from the injurious effects of a changeable climate and a humid atmosphere. The methods by which they are applied to this purpose shall next be explained.

ON THE METHODS OF EXECUTING PLAIN PAINTING.

The mixing and laying on of the materials just treated of may with as much propriety be looked upon in the light of a manufacture, as the making of paper or the spinning and weaving of cotton, flax, or wool into cloth; because the painter produces a fabric which will be either coarse or fine, durable or otherwise, according to the quality of the materials mixed together in the paint, and the manner in which they are manipulated in their application, as is the case with other manufactured fabrics.

A painter can easily mix two pots of paint, of which no builder, superintendent of building, nor even a painter himself, unless of much experience, could, in looking upon them, form an opinion as to their comparative value; yet they would bear the same relative value to each other that two equal

quantities of paper-maker's pulp would bear, one of which was intended for making the best drawing-paper, and the other for the commonest printing or writing paper—perhaps their relative value might be as one to two. Now, the paint in the one pot, that was not above half the value of that in the other, would, from its want of density and body, spread over a much larger surface of wood or plaster work, than the more expensive mixture, just as the inferior pulp would make by far the greatest surface of paper. The product of the paper-maker can be examined in the hand, looked through, and tested in various ways as to the quality of the material employed, whilst the quantity in a given superficies is ascertained by the pound-weight of substance. But this is not the case with the product of the painter; the various coats agreed to be put upon the wood and plaster of a building cannot be taken off and looked through nor examined in any way to find out their quality, neither can the quantity of material in a given surface be guessed at, so that he may receive the same price per yard for the greater number produced by the pot of low-priced paint that he would receive for the smaller number produced by the high-priced pot of paint, or may reduce

his rates in proportion to the saving effected in material and workmanship. This is one cause of such differences being found in the estimates of painters when brought into competition for work. The most unscrupulous have always the best chance where no other distinction except that of price is made. The following is the proper mode of proceeding in the manufacture of this fabric upon plaster work, the description of which will equally apply to the painting of wood-work, only the latter is less absorbant.

White-lead ground into a thick paste, as already described, is reduced, by mixing it with linseed-oil, to the consistency of thin cream, adding as a dryer a little litharge ground in oil, as described, and sometimes a little red-lead. This is called the priming, or first coat of paint. If on applying this the plaster be found very absorbent, so that in passing the brush over it in spreading out the priming, the oil is so quickly absorbed as to leave the white-lead rough and dry upon the surface, more oil should be added to the mixture in order that the plaster may be deeply saturated. To prevent this absorption, some painters use boiled oil in their priming, but this is not doing the work justice, for when the oil is boiled it is more viscid, and does not penetrate so far into the plaster, but runs smoothly over the surface. Raw oil, being limpid, penetrates the plaster less or more according to the facility with which it is absorbed, and, when dry, thus far hardens the wall; but boiled oil, being more unctuous and viscid, forms only a thin film or, if it penetrates at all, it is but a short way. It is sometimes found requisite, when the plaster has a very close skin upon it, to mix a little spirits of turpentine with the priming, to help the absorption; but such cases are of rare occurrence.

There is a practice amongst painters which, in some cities, where the prices of their work is much reduced, prevails to a great extent. It is this. They wash over the plaster and wood-work, (especially the former) with a weak solution of glue, called size, before the application of the first coat of paint; this prevents the absorption of the oil, and causes the paint to spread over a much greater surface than it would have done had this preparation not been applied. This practice is very injurious to the work, (especially the plaster) by depriving it of that hardening which the absorption of the linseed-oil produces. The paint, even supposing it to be

good, forms little more than a thin weak film, which is effectually separated from the plaster by the thin pelicle of glue below it; whereas, in the absence of this preparation, the absorption of the oil leaves the paint like a firmly united crust upon the surface of both wood and plaster. (Note B.)

We shall, however, suppose that the priming or first coat of paint has been properly mixed, and applied, and allowed to stand for a few days to harden. The number of days will depend upon the temperature kept up in the apartment, upon the weather, and also upon the absorption that has taken place; the experienced painter only can say when the second coat ought to be applied.

The second coat should be made thicker than the first; but its particular degree of relative thickness will depend upon the degree of absorption that has taken place in the application of the first coat. Sometimes a great proportion of it bears out—that is, drys with a gloss; in which case the second coat ought to have a good body of white lead in it. At other times, it is found that no part of the first coat bears out, and that even some portions of it have had the oil so completely absorbed as to leave nothing on the surface but a dry powder. When

this is the case, it is a sure sign that the plaster is of such a nature as to receive the full benefit of the oil; and, that it may be properly saturated, the paint for the second coat is kept rather thin. Before applying this coat, the work should be rubbed with fine sand-paper. If the second coat bears out properly when dry, the third coat will form the groundwork for the finishing process; but should it not bear out properly, the work will be understood to require five coats; and, therefore, another coat of plain oil-paint is applied.

The groundwork for finishing upon is composed of white-lead, diluted with equal parts of linseed-oil and spirits of turpentine; the thinness of the latter enabling a greater body of white-lead to be held in solution, and thus increasing the density of the mixture. Into this such ground pigments are put as will alter the white paint to a tint of the colour in which the work is to be finished, along with a little sugar-of-lead as a dryer. This tint is made deeper than the intended finishing-coat, by which means the solidity and durability of the colour is increased. The thicker this coat is made, and the more it is spread out with the brush, the more durable will be the fabric, and the finer will be its surface.

In some establishments, the workmen are allowed to bestow more time and labour on twenty square yards of surface, than they are in others allowed to bestow on double that quantity.

This ground colour is generally dry enough to receive the finishing-coat on the second day after it is applied, and should not stand above a few days, as its becoming too dry prevents that incorporation of these two coats, so essential to equality in the opacity or deadness of the surface and to the solidity of the tint.

The finishing-coat is white-lead in the state of a thick paste, already described, diluted with spirits of turpentine only, and mixed with such ground pigments as produce the desired tint, to which is added a little sugar-of-lead or japan gold-size as a dryer. This species of paint, when of a light tint, is of great density, and, as from the volatility of the spirits of turpentine, it soon thickens after leaving the brush, great precision and despatch must be employed in applying it. This is the only coat of paint that, in finished work, meets the eye of the spectator, and he cannot, from looking at it, have any idea of those that are underneath, and upon which the durability of the work principally depends. This

underwork may be worth fourpence a yard, or it may be worth ninepence a yard, and the surface of the finishing-coat look equally well. This, as well as the variety in the quality of pigments, sufficiently accounts for the variable durability of paint work—some houses requiring to be re-painted in four or five years, while others will require little more than washing for twenty-five or even thirty years.

This method of finishing is called flatted painting, and is now sometimes stippled, by being wrought over with the point of a dry brush immediately after being laid upon the work in the usual way, which gives it an equal and fine surface. In almost all that kind of painting improperly called *cheap painting*, as also in all cases where a painter agrees to finish new work with three coats of paint—a coat of size is introduced between the first and second, or between the second and third coats. This is not so destructive of the quality of the work as the application of size before the first coat, but it is bad enough, and is a practice that ought on no account to be resorted to. It is this practice that so often, in the re-painting of a house, causes the necessity of removing the old paint entirely; because, if this be not done, the

coats of the old paint separate where these sizings have taken place, and come chipping off along with the new painting which has been put above them. Thus a heavy extra expense is incurred where a considerable saving ought to have been effected; for good old painting, when properly polished down, forms the best groundwork for new painting.

Where there are knots in wood-work, it is requisite, before priming it, to secure the resin which is concentrated in them. This is now done by means of covering them with a species of varnish, made by dissolving gum-lac in spirits of wine; and, as a further security against the resin coming through the paint, leaf metal is fixed above this varnish by means of japan gold-size.

ON THE MATERIALS EMPLOYED IN ORNAMENTAL PAINTING.

Having endeavoured to make the reader in some degree acquainted with the varieties of materials employed by the house-painter, and the various modes in which he applies them in what is termed plain painting, I shall now give some account of the ornamental department, in which is included the imitating of woods and marbles. But before entering upon this part of my subject it is requisite to state, that besides the pigments already enumerated, other two are required in imitating woods. These are Vandyke-brown and ivory-black. The first of these is a species of bog earth of a fine deep tone, and semi-transparent; and the second an animal charcoal, produced by burning ivory in close vessels —a pigment as valuable to the professor of high

art as to the humble imitator of nature's more minute beauty in the grains of wood.

Copal Varnish is also a most important material connected with this department of the art of house-painting, and also sometimes added to plain painting, by which the beauty and durability of such work is greatly enhanced. There is no material in which the painter has greater latitude as to quality and price than this; and certainly none in which the inexperienced are more likely to be deceived, or the selection of which requires more care on the part of the most experienced.

The best copal varnish is made by dissolving the finest gum-copal in clarified linseed oil and spirits of turpentine. The process by which the amalgamation of these ingredients takes place is both difficult and uncertain in its operation. When this varnish is made so as to dry quickly, gum animà and sugar-of-lead are added to the ingredients already named.

Gum copal is the produce of three or four different kinds of trees, and is therefore, in itself, of different qualities. But all its varieties being very expensive, many other ingredients are introduced into

this varnish by the manufacturer, in order to cheapen it. The various qualities thus produced are sold to the painter at prices varying from eight shillings to thirty-four shillings a gallon. This is the latitude afforded by the manufacturer, but it is well known that the painter can reduce the cheapest quality to a still lower degree, by the introduction of boiled linseed oil, a practice the bad effects of which become apparent in about a year after the work is finished.

No painter can judge of the quality of copal varnish by merely examining it. Indeed, so uncertain is the operation of making it, that the manufacturer himself must submit it to various practical tests before he can with safety put it into the hands of those tradesmen whose custom he is anxious to retain. From this cause some of the larger manufacturers have on hand from twenty to thirty different qualities of copal varnish, which they apportion to their various customers according to the price given, the quantity generally ordered, and the certainty of payment; often making the price of an inferior, equal to that of a superior quality, in order to cover the risk of a bad debt.

This varnish, when of the best quality, is a clear limpid fluid, capable of hardening without losing its

transparency. It gives a lustre to the work upon which it is spread, and adds greatly to its durability in defending it from the action of the air. Really good varnish becomes quite hard, does not crack, does not become discoloured by age, and does not lose its lustre for many years, whilst inferior varnishes either do not harden, crack, or soon lose their lustre, and expose to decay the work upon which they are applied.

A coat of fine copal varnish, applied upon stippled plain painting, not only greatly enhances its effect, by giving it the appearance of enamel, but renders it of a doubly durable nature, without adding greatly to the expense.

ON IMITATIONS OF WOODS AND MARBLES.

Many people of highly cultivated minds have a dislike to imitations of woods and marbles in house-painting. This must arise from the imperfect manner in which these imitations are often executed—the most monotonous plainness being more endurable to a correct and well-educated eye, than an imperfect imitation of nature.

If certain woods and marbles be beautiful in themselves, and if they be chosen for the fitting up of the interiors of edifices, as much on account of the gratification they afford the eye, as from any other quality they possess, what reasonable objection can be raised to the appropriate substitution of a good imitation, where the reality cannot be had? What are the lath-and-plaster divisions, and the stucco-mouldings and rosettes

on the ceilings of a building in any of the classical styles of architecture, but an imitation of the manner in which the ancients constructed their marble soffits? How often do we see, in other styles of architecture, the construction of wood-work imitated in lath and plaster! How often do we find apparently strong beams supported by trusses crossing from wall to wall of an apartment, which beams seem to support others of a lighter kind which cross them above, and form the ceiling into panels, all constructed of lath and plaster! Surely ceilings may be as appropriately painted in imitation of marble or wood as constructed in imitation of these materials! Indeed, when the material is imitated in the construction, the design of the architect cannot be complete until the painter's imitation follows. (Note C.)

The humble art of imitating woods and marbles is in some measure allied to the high art of portrait-painting, in being also an imitative art, and requiring a degree of natural genius in the grainer, as such artists are technically called, to enable him to avoid the fault so common in both arts, namely, that of producing a caricature of the object of which he attempts to produce a correct resemblance. It is well known that there are a great number of painters of cheap portraits, whose professional practice lies amongst a class of society not remarkable for their appreciation of works of art. The productions of such geniuses are almost sure to stare one in the face on entering the public-room of an hotel or tavern, in the caricatured resemblance of the landlord, accompanied sometimes by his beloved wife, respected mother, or interesting children, all as stiff and flat as if cut out of pasteboard. It requires but a slight knowledge of art to feel that such productions, were they often obtruded on the notice of the well-educated and refined, would, in the course of time, embue their minds with something like a dislike to portrait painting generally. Fortunately for this art, however, the works of this class of portrait painters are not often necessarily obtruded upon the notice of the higher classes.

It is not so with respect to the artists who imitate that species of nature's endless beauties, which the various kinds of woods and marbles exhibit; the mere mechanic and the man of genius in this branch of art have very generally an equal chance of having their work placed before the high-

est classes of society, occasionally in their own mansions, but oftener in our churches and public buildings, which being generally painted according to what is erroneously supposed to be the cheapest estimate, are of course in the lowest style of the art.

In the graining department there are artists who excel in woods, and others in marbles; some excel in imitating one kind of wood only, some in one kind of marble, others in two or three, and very rarely one who excels in all the varieties of both. The wages of these artists vary from twenty shillings to forty shillings a week, so that, in sufficiently large establishments, the value of the work may be greatly enhanced by placing the various kinds of imitation in the hands of the best qualified artists. It often happens, however, that the consideration of these, and all other facilities for producing superior work which some establishments may possess, are set aside, and offers asked from five or six painters, whose materials, workmen, and style of execution, differ much more widely than the amounts of their estimates. Thus it often happens, that where great expense has been incurred in the architectural decoration of a building, we find painting of the lowest class,

both as to want of durability in the plain painting, and of artistic feeling in the imitation-work and other branches of the ornamental department.

To abolish imitations of woods and marbles in house-painting because they are so often badly done, would be a retrograde movement in this important branch of the useful arts. It would be much better for people of taste to endeavour to improve the practice of this department by taking some interest in it, and becoming sufficiently acquainted with its nature to enable them to judge between the good and the bad, the true and the false.

The wood or plaster upon which an imitation of wood or marble is to be produced, is, or ought to be, painted in four or five coats, by the process already explained, with this difference, that the last coat is not diluted entirely with spirits of turpentine, but partly with oil, and that in applying it, a still greater degree of care is requisite to avoid leaving any marks of the brush upon its surface. It thus requires much more time to paint work for grounds of this description than for plain finishing.

In imitating oak this groundwork is tinted of such a colour as may be suitable to the tone of the oak intended to be imitated; for there is great variety in

the wood itself, both as to tone and depth, so that the painter can adopt that which is most suitable to the light, the aspect, and the furnishings of the apartment. The tones of this wood vary from a tint of yellow, yellow-hue, or orange-hue, to deep shades of the two latter, for all those tints and shades are to be found in various specimens of the natural wood. Hence it is, that imitation-oak is one of the best media for a general arrangement of colour in an apartment; and the more especially, because this wood may be imitated upon the ceiling, walls, or wood-fittings of any apartment—all these parts being often constructed of real oak.

When the ground-work is quite dry, a thick unctuous mixture of semi-transparent paint is prepared, varying in its tone and depth according to that of the kind of oak to be imitated. This is laid equally and smoothly over the ground-work, after which a toothed instrument made of steel, ivory, horn, or wood, (for all these kinds of graining-combs, as they are technically named, are in use,) is drawn through this composition, by which it is separated upon the ground-work into minute portions, representing the grain of the wood. As this grain is open or close in the real oak, according to the modes in which the

tree has been cut, the graining-combs are made various in the breadth of their teeth.

The larger transverse septa of oak are, in general, very distinct, producing beautiful flowers when cut obliquely, and these are imitated by the painter either by wiping off portions of the grained paint with a cloth, or washing it off with spirits of turpentine. This part of the process requires some taste in the choice of the configuration of the champs, or flowers, as they are called, because in the natural wood they are found in great variety.

In this simple matter it is astonishing to mark the variety that exists in the tastes of the grainers, and how an apprentice boy, from intuitive feeling, will sometimes surpass the most experienced workman in giving beautiful forms to the flowers.

When the grain of the wood is thus completed it is allowed to dry, after which it is lightly shaded with transparent brown, either in oil or water colour. This part of the process is technically called glazing, and completes the imitation, which is then varnished with copal varnish. In cheap work the flowering, the glazing, and the varnishing are, one or other, and sometimes all, dispensed with, there being nothing above the plain painting but the graining

substance, whilst the ground-work, instead of being four or five coats of good paint, is produced by one coat of glue-size and two coats of inferior paint. Boiled linseed oil, with a little *dryer* in it, is sometimes used on such work instead of copal varnish.

Imitation mahogany is painted upon grounds varying from a low-toned tint of orange colour to a deep hue of yellowish red. The grainer provides himself with *terra-di-Siena*, Turkey umber, Vandyke brown, ivory-black, and lake, each being ground to an impalpable paste in water. One or more of these he mixes with small beer, or any other slightly tenacious liquid, to a thin stain. With this he imitates the natural pores of the wood, by laying it on in small portions, and, while it is wet, stippling it carefully with a dry brush. The stain is then made deeper, and its tone enriched and applied in masses, to represent the beautifully variable shades for which mahogany is so remarkable. These shades he softens, by working upon them slightly with a brush made of badgers' hair, called a softener, which operation must be performed with despatch, as the process must be completed upon each divisible portion of the work while the stain is in a fluid state. This shading is often greatly

enhanced by being produced with two tones of staining-colour simultaneously—the one light and cool, and the other deep and warm; but to perform this properly, requires great taste and dexterity on the part of the artist.

Immediately after this shading is dry, the reeded grain of the wood is given by a light cool-toned stain, in a thin flat brush being lightly drawn over the shades and gently softened with the badger-hair brush. Should the shades be deep, the whole is then secured by a coat of some thin binding substance that will sufficiently penetrate the water-colour and bind it to the ground-work, but if light, the varnish itself will be sufficient. This ought to be of the finest quality of copal varnish.

Satin-wood is imitated by a similar process to that employed in imitating mahogany, with the exception of that part which produces the effect of pores. The ground-work for satin-wood is a light tint of yellow.

Maple-wood is imitated in the same way. The effect of the small bird-eye knots, and apparent light and shade by which they are accompanied, being produced by the points and sides of the artist's fingers while the stain is in a fluid state.

The ground is a very light tint of yellowish pink or cream colour.

Some artists introduce the shades and veins of the heart of the tree, especially in imitating Spanish mahogany and maple-wood; but this requires to be done with great taste and judgment, otherwise, plain shades and veins are much to be preferred.

Imitation rose-wood is not so often introduced in house-painting as it used to be. It is done upon a ground-work of a deep hue of yellowish red; and the stain is made of ivory-black, and applied with thin flat graining-brushes, like the over-grain of mahogany, and sometimes with sable-hair pencils set in a case. It is afterwards shaded, secured, and finished with the finest copal varnish.

Imitation oak has been greatly used in halls, staircases, libraries, and dining-rooms, and it will be observed, from the description of the process, that it must be very durable, especially that part of it by which the pores or grain of the wood is represented. The varnish used upon it is not necessarily of the finest quality, but ought still to be unadulterated copal varnish. When, however, it is desired to have a superior lustre, or to be polished

in the style of a coach panel, which it is sometimes, the finest quality only should be used.

Imitation mahogany, from its greater beauty, and from the growing taste for full-toned colouring, is now often employed, instead of oak, as a decorative painting for the wood-work of such apartments as I have just enumerated. Mahogany, like oak, is to be found of various tints, shades, and tones of its particular hue. Its imitation may, therefore, be adapted to almost any style of furnishing.

Imitations of maple-wood and satin-wood are used almost exclusively on the wood-work of drawing-rooms and boudoirs, and although they cannot be varied in tone to the extent of either oak or mahogany, yet there is a sufficient latitude to enable the decorator to render either of them harmonious with the peculiar tones of the colours with which they are to be associated. The finest copal varnish should always be used upon imitations of all the fine kinds of woods, by which their durability and beauty will be greatly enhanced.

To imitate marble well, requires, on the part of the artist, an intuitive feeling for beauty in both form and colour. The veins of some marbles often exhibit great beauty in their ramifications, and often

produce very beautiful forms by their intersecting each other: such as the white-veined, the Siena, the black and gold, and some others. Marbles of the breccia kind, such as the *verd-antique*, the *rosso-antico*, and almost all other conglomerates of the same description, are masses of various indefinite forms, and the success of the artist depends greatly upon the character he gives those forms, and the skill with which he at the same time imparts to the mass that distinguishing feature in all nature's works—infinite variety.

The imitating of marbles enables the house-painter to break his colours, and thus impart to them a quality, the value of which is well known to professors of the higher branches of the art of painting. The colours of marbles are various, and amongst them are to be found representatives of the six positive colours, in various degrees of intensity of hue, of tint, and of shade. For instance, we have yellow and orange in some of their most beautiful varieties in *giallo-antico*, or *Siena;* varieties of red in *rosso-antico;* most beautiful blue, in various tones down to clear grey, in *lapis lazuli*; and equally beautiful greens in *malachite, verd-antique* and *serpentine* marbles. Probably there

is not any positively purple marble, yet there is one of the *breccia* kinds which possesses hues of that colour of sufficient power to harmonise as a contrasting colour, either with *giallo-antico* or *Siena.**

On the negative side we have white, grey, and black marbles. So that by good imitations of marble, the house-painter can introduce every variety of colour, naturally broken and tempered.

Marbles are imitated by various processes, but they require in the first instance a good and substantial ground-work of four or five coats of plain painting, smoothly wrought.

White-veined marble is imitated by drawing the veins with a charcoal crayon through a coat of wet white paint, into which they are blended with a dry brush of an oblong form made of the finest bristles, and called a marbler. When quite dry, it receives a thin coat of white-lead, ground in spirits of turpentine, and fixed by copal varnish of the finest quality, but not so strongly as to have a lustre whendry.

White marble is generally imitated wherever the stucco-work represents carving; but of all mar-

* The only specimen I know of this marble is an antique chimney-piece at Floors Castle, the seat of his Grace the Duke of Roxburghe. It has been imitated on the columns of the telling-room and lobby of the Commercial Banking Company's premises in Edinburgh.

bles it is the most difficult to imitate successfully, because it is impossible by paint to give the imitation that degree of translucency which is one of the greatest beauties of the real marble.

Siena and *giallo-antico* marbles are imitated in a somewhat similar manner. Light tints of yellow and orange colour are blended together upon an equally light ground-work, and the veins drawn through them while wet, with crayons made of coloured pigments. These veins are softened into the tints by going over them lightly with the brush called the marbler, just described. When this part of the process is dry, the white crystalline specks and veins are added by means of white-lead ground in spirits of turpentine, fixed with a little copal varnish, and applied with quill feathers. When this is quite dry, the whole is varnished.

To imitate verd-antique and other breccia marbles, the colours are laid upon the ground-work in masses, and, while wet, they are mottled with crumpled paper, cloth, or sponge. The masses of white and black are by some artists produced by paper torn into the forms required, moistened with water, and stuck upon the ground-work, during the mottling process This is taken off whenever that process

is completed. Other artists produce these masses simply by painting them above the mottling with camel-hair pencils.

The practice of marble painters, however, is so various in respect to the imitating of these particular kinds of marble, that nothing more than the above general idea of it can be given. In all marble painting, great care should be taken to avoid the use of oil as much as possible, because it tends to change the colours and produce tawniness, so that wherever it is practicable, the vehicle ought to be a mixture of spirits of turpentine and copal varnish only. But it requires great dexterity and considerable practice to work without oil, owing to the volatility of the spirits of turpentine and the quick setting of the varnish.

ON THE VARIOUS MODES OF DECORATING THE CEILINGS AND WALLS OF DWELLING-HOUSES.

ALTHOUGH the dwelling-houses of the ancients do not seem to have been remarkable for interior comfort, yet we find, from the ruins of Pompeii and Herculaneum, that the Romans at an early period of their history were not only acquainted with the art of plastering interior walls, but also the art of rendering plaster impervious to dampness. We find from the ruins of the Alhambra and other architectural remains of the ancient Moors, that that remarkable people were likewise acquainted with these arts. (Note D.)

But in this country plastering and stucco-work seems not to have come into any thing like general use, as an interior decoration, till within the last century; although we know it was introduced above three hundred years ago.

Previously to the introduction of these arts into this country, the ceilings of the apartments in our dwelling-houses generally consisted either of the boards upon which the lead-work or slating of the roof was laid with the couples which supported them, or, where one apartment was surmounted by another, of the planks which formed the floor of the latter, and the joists which supported them. In the first case, the couples, and the beams which united them, were occasionally ornamented by carving, as in Westminster Hall, and in many other ancient edifices in England, and they were occasionally further adorned by varnishing, painting, and gilding. And in the second case, the ceiling was often constructed under the joists by a framing of woodwork formed into panels, which were either filled with wood or stretched canvas. When the former was employed, the whole ceiling was often oiled or varnished, and the panels emblazoned with armorial devices; but when the panels were filled with canvas, it was painted all over, and decorated with various devices: sometimes scripture pieces, or historical subjects, were painted upon them, and specimens have been found, with subjects in which the Christian and heathen mythology are mixed. Many curious specimens of this

style of decoration still exist in Scotland; perhaps the most remarkable is one in a large room at Pinkie House, the seat of Sir John Hope, Bart., which is decorated with mythological subjects and arabesque ornaments.

One of an earlier description, decorated with national devices, exists in a tolerable state of preservation in the ruins of Falkland Palace, others in some of the most ancient apartments of Holyrood Palace, and in the small room in Edinburgh Castle where James the VIth was born. A very curious specimen of this style of decoration was lately found in a house on the Castle-hill of Edinburgh, once occupied by Mary of Guise, a portion of which is preserved in the Antiquarian Museum of Edinburgh.

At this period the interior surfaces of walls were generally lined with wood framed into panels, and called wainscoting. This, in the generality of apartments, reached from the floor to the ceiling, being divided about three feet from the floor by a moulding called a surbase. This wainscoting of walls continued in use long after the introduction of plastered ceilings; and in ordinary houses was painted white, the paint being mixed with a coarse kind of varnish, made by dissolving common resin

in spirits of turpentine. In the panels over the doors and chimneypiece were often introduced landscapes or other pictures, either in colour, or in shades of brown or grey. When a high style of decoration was required, the whole panelling on the walls was similarly embellished, a specimen of which still remains in excellent preservation in the Council-room of George Watson's hospital near Edinburgh.

It seems the walls of the room at Pinkie House, already referred to, were decorated in a similar style with the ceiling; but the room being used as a receptacle for the wounded at the battle of Prestonpans, the painting was so disfigured, and the woodwork so injured, that the whole was removed, and plain finishing substituted.

In the mansions of the nobility this wainscoting was only carried a short way up the wall, generally from three to six feet, according to the height of the room. The space between the wainscoting and the cornice was hung either with tapestry, silk damask, or embossed leather. The manner in which tapestry and damask were hung, admitted of their being taken down for the purpose of being cleaned and aired, a process which the embossed leather did not require, as its surface was impervious

to moisture and easily washed. Plastering, as already observed, was introduced into this country upwards of three hundred years ago, and in some of the early specimens it seems to have been used instead of canvas for filling in the panels of ceilings. In this manner it has been employed on the ceiling of the Chapel Royal of St James's, the panels of which are formed of wooden framework upon a plaster ground. This ceiling was painted by Holbein in 1540, and I believe is still in a state of tolerable preservation.

From that period, down to the middle of the seventeenth century, many beautiful specimens of ornamental stucco-work, in the Elizabethan style, were introduced into England, and a few into Scotland. Of the latter, there are two in excellent preservation at Winton House, the mansion of Lord Ruthven, and other two in Moray House in Edinburgh. But, about the middle of the seventeenth century, a new style seems to have been introduced, of a much bolder character, composed principally of fruit, flowers, and scroll-work in high relief. Specimens of this style of decoration exist in Holyrood Palace, and in many of the mansions of the nobility and gentry throughout Scotland.

The earliest specimens of walls finished in plaster that are to be met with, seem to have been intended exclusively for painting upon, as the surface is made of an even roughness, to the same extent as the twilled canvas used in portrait painting. An excellent specimen of this style is still in good preservation in Milton House, Edinburgh. It was painted by a French artist called De la Cour, a pupil of the celebrated Watteau. Judging from existing specimens of the works of De la Cour, he seems to have been pretty largely employed by the Scottish nobility.

Plastering of ceilings and walls, with stucco ornaments in various styles, is now the almost universal mode of finishing the apartments of dwelling-houses and public buildings, and I have already observed, that the most effectual method of rendering plasterwork durable, and the apartments in which it is employed truly wholesome, is to have it thoroughly painted.

In treating of imitations of woods and marbles, I have likewise observed, regarding the painting of plastered ceilings, that when constructed in imitation of any other material, they ought also to be painted in imitation of it. When plainly finished,

however, they may be painted in any way, either in tints of colour or pure white. Sometimes they are finished in flatted painting of four or five coats, as already described; at others, merely primed with one or two coats, and finished in distemper colour. This latter mode of finishing is more aërial in its effect than flatted painting, but not so durable.

Distemper is a word derived from the French "détrempe," meaning a preparation of opaque colours ground in water, and fixed by the admixture of size, paste, or gum. Colouring plaster work in distemper, differs from fresco painting, inasmuch as the latter is applied while the plaster is quite wet, and is thereby incorporated with it, whilst the former is applied when the plaster is quite dry, and lasts only so long as the animal or vegetable substance which binds it withstands the action of the atmosphere, and this is seldom more than two years, unless when the surface of the plaster has been rendered impervious to absorption by one or two coats of paint.

Ceilings, when richly ornamented in stucco-work, are often heightened with gilding, and picked out with positive colours, as a preparation for which they must be painted in five or six coats, and flatted. The process of gilding has not yet been described,

and I shall therefore give a short account of it in this place.

Gilding, as applied in decoration, is performed by the following process:—

Very fine ochre is ground in linseed oil to an impalpable paste, and then reduced to a thin consistency by the addition of more oil, and placed in a warm temperature for about twelve months, in order to render it viscid, and impart to it the property of retaining a degree of tenacity for several hours after it is dry. This is called oil gold-size, and with it all the parts intended to be gilded are painted, and will be ready to receive the gold-leaf in from twelve to eighteen hours thereafter. Gold, from its great beauty and durability, is the most valuable of all ornamental substances; but its weight and high price would render its use in decoration exceedingly limited, were it not that from its extraordinary density and malleability it may be made to cover a larger surface than an equal quantity of any other body.

The leaf gold generally used is in thickness not more than one two hundred and eighty thousandth of an inch, but in special cases it is made thicker.

Gold leaf, from its extreme thinness, is very diffi-

cult to handle, and its proper treatment is the result of much practice and great care on the part of the workman. It is received from the manufacturer in leaves of about three inches square, which are placed between the leaves of small books, generally if not always, made from old printed paper, each of which contains twenty-five leaves, and is technically called by painters and gilders a book of gold. But the gold beater always calculates by the thousand leaves. The leaves of these small books are rubbed with red chalk, to prevent the leaves of gold from adhering to them.

The tools by which leaf gold is applied by the decorator are a cushion, a knife, a tip, some cotton wool, and a dusting-brush. The cushion is a small thin board, the upper side of which is covered first with fine cloth, and next with thick leather with the rough side outwards; one half of the surface of the cushion is surrounded with a screen of parchment about three inches high, and on the under side of the board are fixed two pieces of leather, one to secure the thumb of the workman's left hand, upon which, while in use, it rests, and the other to receive the knife. The knife itself is about six inches long, quite straight, and having a smooth

but not very sharp edge. The tip is a thin layer of camel hair, the ends of which are fixed between two cards of about three inches long, leaving about two inches of the hair free; and a dry painting-brush, called a sash-tool, answers the purpose of a duster. The decorator opens a book, and allows the leaves of the gold to fall from between those of the paper, one by one, upon the screened half of the cushion, to the number of about ten or twelve, less or more according to the work to be done, but never more than the full number contained in one book. He then takes the cushion upon the thumb of his left hand, the tip between the same thumb and fore-finger, and the knife in his right hand; upon the point of the latter he lifts a leaf of gold from the screened end of the cushion, and flattens it on the other end by blowing gently upon it. He then cuts it with the gold-knife into such pieces as the work requires, takes the tip between the fore-finger and thumb of his right hand, placing the knife between those of the left, and with the former he lifts the pieces of gold-leaf from the cushion and lays them upon the parts which have been painted with the gold-size. The hair of the tip is made slightly tenacious by being drawn through the hair of the

head, and thus it easily lifts the gold-leaf from the cushion. This is called oil-gilding, in contradistinction to burnished and matt-gilding, and is the only kind practised by the house-painter. It is washable, and when properly done, will last for upwards of a century.

When the stucco enrichments on ceilings and cornices are heightened with gilding they are sometimes, but not so often as they ought to be, picked out with positive colours. There is no branch of the painter's art that requires more care and judgment than this. If the colours be used in their full intensity, crudity and harshness are likely to be the result. Tempering and balancing are as much required in the mixing and arranging of the colours upon a picked-out ceiling, as they are in the mixing and arranging of those employed in a picture. These colours are greatly improved, and have much the appearance and quality of fresco painting, by being reduced from their dry state to paint by spirits of turpentine only, and fixed by the admixture of a little of the finest copal. When mixed of ordinary oil-colours they are almost certain to change, and to become heavy in their effect; but, treated as I have described, they never change.

Their proper management, however, both in the mixing and laying on, requires care and experience.

I now come to the various modes of decorating the plastered walls of our ordinary apartments; of which modes there are two now in general use, namely, painting and paper-hanging. Having already made the reader acquainted with the former, I shall now give some account of the latter.

Paper-Hangings were, I believe, first imported into Britain from China, and next from France, and still continue to be imported from both those countries. They were begun to be manufactured in this country about two hundred years ago, at first in a very rude style, but latterly with more care and refinement, though much still remains to be done by our paper-stainers to raise the art to that degree of excellence to which it has been brought in France. Paper-hangings were first used in imitation of, or as a cheap substitute for the tapestry or damask previously in use, and were glued to coarse canvas, and stretched upon the wall in a similar manner to those more expensive fabrics—hence the name paper-hangings. Now, however, the paper is fixed to the plaster by means of glue and paste; a solution of the former being applied to the plaster, and the

back of the paper being thickly coated with the latter. There are various kinds of paper-hangings manufactured in this country, all of which are made in pieces of twelve yards long. The cheapest are made of coarse papers, coloured in the pulp like blotting paper, but of various tints, and upon this a pattern of a uniform colour is printed, in distemper, by a stamp used in the hand, or by a cylinder.

The next kind, and that which is in most general use, is made of various qualities of cartridge-paper, upon which a solid flat ground of distemper is laid, and the pattern stamped upon it either by machinery or by the hand. According to the quality of the cartridge-paper and ground-work, as also the number of times it must go through the stamping process to produce the various tints and shading of the pattern, is the price of this kind of paper-hanging regulated. The next class is composed of those that have satin grounds, the lustre of which is produced by friction. These grounds are often embossed with patterns, some of which represent watered silk, and others a flowered or striped pattern; upon this a coloured pattern is printed in distemper, in the same way as upon the plain grounds. This class of paper hangings is of all

others the best, as it is the most impervious to the absorption of moisture from the atmosphere—the most easily cleaned, and, decidedly, the most durable. The next highest priced paper is that called flocked paper, which is produced by the pattern being stamped on any description of groundwork with japan gold-size, and dyed wool minced into powder shaken over it while the pattern is still wet. This woollen powder, which is called flock, then adheres to the japan gold-size which forms the figure of the pattern. When this is dry the loose flock is dusted off, and the pattern is generally enriched by the application of additional blocks, with colour or dry, in which latter case the flock receives an impression which considerably enhances its effect. The next class are those in which the pattern is either wholly or partially produced by metal: the metal is either applied in powder, in the same manner as flock, or in leaves like those of gold. This metallic powder is bisulphurate of tin, and the leaf metal is made of fine copper, or a mixture of copper with zinc, tin, or some other metal that will give it more the colour of gold than when in its native state. These metals are often added to coloured and flocked patterns. Paper-hangings upon which leaf metal

is employed, are much more expensive than those done with the metallic powder; but the leaf kind has much greater brilliancy, and is more durable than the other.

Having endeavoured to make the reader acquainted with the nature of the covering which a plastered wall receives from the operations of the painter, when the proper materials and workmanship are applied, I shall now attempt to explain the nature of that which the Paper-hanger's art affords. Let us take, for example, what is termed a body-ground paper,—one of those sold at from three to five shillings a piece of twelve lineal yards, which are equal, when hung, to little more than six superficial square yards of painting, and examine the nature of the clothing which the wall has received when the operation of hanging it has been completed.

The first part of the process, as already noticed, is to give the plaster upon which the paper is to be fixed, a coat of size: this is an animal substance, liable to be softened by the humidity of the atmosphere, and to consequent putrefaction. Above this we have the thick coating of paste by which the paper is fastened to the plaster. This paste is a vegetable substance, also liable to be softened by dampness,

and consequently subject to mildew and rot. The paper itself is composed of a pulp made from hemp, or cotton rags, hardened by size, and it is therefore likewise easily softened by moisture, and subject to putrefaction and mildew; while the distemper-colour which forms the pattern and its ground-work, is, like all that is under it, easily softened by absorbing the humidity of the atmosphere. Now, I dare say most of my readers may have occasionally met with writing-paper, the odour of which was very unpleasant, and when they reflect that this odour always arises from the size used in hardening the paper, having become putrid from dampness, they will easily comprehend what effect the moisture from the atmosphere must have upon a papered wall where so much size has been necessarily employed. Although most people know how easily paper mildews when kept damp for a few days, and that the exhalations from putrid animal substances and mildewed vegetable substances are both very unwholesome; yet few seem to reflect that this unwholesomeness may arise from the improper use of paper-hangings on the interior walls of their dwellings.

In bed-rooms and drawing-rooms, into which the external air is not necessarily admitted, unless in

dry weather, and in which the temperature is kept pretty uniform, no injurious effect may take place from the use of paper-hangings, especially with respect to those that are satin-grounded; yet it is often found, in removing old paper from the walls of such apartments, that there are considerable masses of rottenness and mildew between it and the plaster. This may very generally arise from accidental dampness, and in some cases may be accounted for by the apartment being long unoccupied, and not properly secured against the effects of atmospheric dampness. The ancient mode of using paper upon canvas was much preferable to what is now practised, because they formed together but a thin body, which could not absorb much dampness from the atmosphere, and would dry rapidly on a fire being lighted in the apartment; whereas plaster is often put on a brick partition, about a foot thick, which, on any natural change in the temperature of the atmosphere from coolness to warmth, will continue to absorb moisture until its whole mass rises to the same temperature as the atmosphere itself. In Scotland, we often find this humidity condensing upon the painted walls of our lobbies, staircases, corridors, and passages, until it accumu-

lates upon the surface to such an extent as to run down in streams upon the floors and steps. Now, in the case of the walls of such apartments being papered, all this accumulation of moisture is absorbed, and must afterwards be given out, combined with the effluvia from the decayed animal and vegetable substances necessarily employed in this mode of decoration. Painting is, therefore, decidedly preferable to papering in lobbies, staircases, corridors, and passages, both in point of wholesomeness and durability, the more especially as they cannot be kept at so equal a temperature as the apartments to which they lead, and to which they are the reservoirs of air in bad weather and during the night, whilst all other inlets are closed. Neither is paper a good decoration for the walls of a dining-room, because it absorbs the steams from the table, which must be again given out along with the effluvia of the substances already described. The quantity given out, as the absorbed moisture evaporates from a papered wall, may be so small as not to make any perceptible impression upon the sense of smell; but that it must, to some extent, contaminate the atmosphere of the apartment, while it continues to be given out, cannot be denied. The prepo-

session in favour of paper-hanging has doubtless arisen from its producing an apparently clothed and warm effect to the eye, as also from the gaiety and cheerfulness that it is capable of imparting at a smaller cost than any other mode of decoration. And certainly for bed-rooms, where the disadvantages to which I have alluded are not so likely to be felt, these qualities give it a preference. Satin-grounds, however, should always be preferred to body-grounds for bed-room papers, as they are not only the most wholesome, but, from their greater durability, are ultimately the cheapest.

In respect to the walls of drawing-rooms, there are many styles of decoration equally as suitable as paper-hangings in producing the effects of gaiety, cheerfulness, and grandeur, and at a cost not exceeding that of the generality of gilded and flocked paper-hangings so employed; while, taking into consideration the much greater durability of the painting, such styles of decoration prove ultimately to be less than half the expense of papering. Such of those styles of decoration as I have been for the last twenty years in the habit of practising, and such as I have more recently invented, I shall endeavour to describe.

Stippled Flat Painting and Gold.—The process of stippled flat-painting has already been described, and its great durability and real comfort commented on. Upon this kind of painting, whatever the tint may be, the gilded pattern is produced by the following process :—

The outline of the pattern is first drawn upon paper, and closely pricked with a needle. This paper is called a pounce, and when the paint is quite dry, it is laid upon the wall, and rubbed over with a bag of powdered charcoal, which, going through the pricked outline, leaves an impression of it upon the wall. The pattern is generally confined within a few superficial square feet, and of course the process is repeated until the whole wall is covered. The decorative artists then proceed to paint the pattern on the wall with oil gold-size, and afterwards to apply the gold-leaf by the process already fully described. Some patterns are so simple that the gold-size may be applied by a stencil; that is, cutting the pattern out of very thin pasteboard, or painted paper, and laying this cut-out paper on the wall, and applying the gold-size through it with a largeish brush. The most simple patterns are composed of stars, rosettes, or sprigs, and sometimes of

a mixture of two of those, placed at intervals of from ten to twenty inches apart, according to the size of the room, or taste of the employer. The richer patterns are made occasionally to embody some of the devices of the armorial bearings of the proprietors of the mansion, or monograms of their initial letters, surrounded by rosettes, and united by festoons and sprigs. Indeed, there is such ample latitude for variety of pattern, that the decorator need not necessarily, in the course of many years' practice, make two drawing-rooms exactly the same in this respect. The stippling of the ground-work imparts great richness to the gilding, and prevents that tinsel glare that is produced by gilding on a plain surface.

Imitation of Gold Embroidery.—This is the richest style of gilded decoration applied to drawing-room walls, and the following is the process :—The walls are painted four or five coats in the usual way, and allowed to harden ; they then receive a coat of very thick tenacious paint, of which bees-wax and gum-mastic are ingredients. While this coat is wet, a fine toothed ivory graining-comb is drawn through it, first diagonally down from right

to left, then from left to right, and lastly in a vertical direction. By this process the appearance of cloth composed of strong threads is produced upon the wall. This thick coating requires eight or ten days to harden, even in warm weather. When it is quite hard it receives a coat of flat paint, of any tint that may be chosen, which prevents the impression made by the comb from being very distinct at a little distance. The outline of the pattern is produced above this by a pounce, and is gold-sized and gilded in the usual way. It will now be found that the effect of the light reflected from the points of the granules that are gilded gives the pattern the appearance of being wrought in thread of gold.*

Decorative Bordering.—This style is equally suitable to either dining-rooms or drawing-rooms, and admits of great variety. It consists of painted and gilded borders being made to surround the apartment at top and bottom of the wall, and occasionally, where the room is uniform in its divisions, they are

* This style of decoration has been executed with great effect upon a pure white ground, in one of the largest, and finest drawing-rooms in the neighbourhood of Edinburgh. The pattern was composed of festoons of laurel, with a monagram of the family name.

tion of the effluvia from the animal and vegetable substances already described. Now, on a painted wall this moisture condenses on the surface, and a current of fresh air will rapidly dry it off, while occasional washing will remove any residuum that may accumulate from the evaporation of this moisture. In the patent imitation of damask, these advantages are combined with a clothed and comfortable appearance to the eye.

There are two processes by which the patent imitation of damask is produced upon plastered walls. The first is by thoroughly painting the plaster in four or five coats, then outlining a pattern upon it in black-lead, and coating it over with a thick substance composed of oil, mastic varnish, bees-wax, sugar-of-lead, umber, or other colouring pigments, and making an impression on this with an iron comb while it is wet. The impression of the comb is then obliterated upon the pattern by the thick substance being smoothed upon it with a camel-hair pencil; the whole, when quite dry, is then painted over with any colour, and varnished with copal.

The other method is that now almost uniformly adopted. The plaster is, as in the first process, thoroughly painted, and the outline of the pattern im-

pressed upon it by means of a pounce, this outline is filled in with the thick tenacious substance already mentioned, which, however, may now be made opaque by the introduction of white lead. Fine pit or sea sand is prepared by drying and sifting, and while the tenacious substance with which the pattern has been painted remains wet, the sand is thrown against the wall with some force until the pattern be all covered with it; when this is quite dry, which will be in the course of a few days, all the loose sand is carefully brushed off, leaving only what adheres firmly to the tenacious substance of which the pattern is formed. The whole is now carefully painted over with a coat of flatted paint of the same colour as the ground-work. The process by which these two kinds of imitation damask are produced, although different, are the same in principle,—that is, the effect of damask is given by means of the combination of a rough and a smooth surface only, without any variety of tint or shade.

Imitation Morocco is another excellent style of painting very suitable for either libraries or dining-rooms. It is, like the varnished imitation of damask, produced by laying upon a thoroughly painted wall

a coat of thick tenacious paint, and giving it the peculiar effect of the surface of morocco, by means of a toothed instrument made either of ivory or steel, and finishing it with another coat of paint, and one of varnish.

There are many other styles and processes by which the walls of dwelling-houses and public buildings may be decorated by the painter; but what I have here given are the most practically useful, and, while they are not more costly than paper-hangings of equal appearance, have the advantages of greater cleanliness and durability.

NOTES.

Note A. p. 44.

A correspondent of the "*The Fine Arts Journal,*" (No. X. p. 171,) referring to an article that appeared in No. V. of the same journal, has treated the subject of the power of music, in conveying a meaning, independently of its being accompanied by words, in so masterly a manner, that I shall give his letter entire :—

"I much regret the paper on the Descriptive Power of Music, in your 5th number, has not met with an answer from more competent hands than mine; which I was in hopes would have been the case, and had forgotten the subject until in your last appeared an assumption that the argument was proved, than which there never was a greater error. In that paper it is stated, that 'if an individual were asked what he meant by *so descriptive,* unless the said piece of music was of itself described —for instance, as the Pastoral Symphony, or the many overtures to operas, which of course are intended to have reference to the opera itself—he would answer by commencing *de novo,* the same string of epithets; being totally unable to say what was the music described, or what it was even characteristic of. This is not put forward as a mere statement, but as a fact.'

"I doubt the fact; but if true, it cannot affect the question: because we do not go to hear music for the sake of adapting

words to all we hear, and are not therefore prepared to class and express our ideas on the moment, or even on once hearing. When the term *so descriptive*, is used, the meaning is, that words could with facility be adapted to the music from its capacity to continue any course of *ideas* to which it may give rise in the mind. If it is required of music to convey *facts and substances*, more is demanded than even language can offer, without that most convenient word, conventionalism.

"A slow or quick time has a different effect on the nervous system where no conventionalism exists, and no difference of habit could alter the effect. It might just as well be said, that being intoxicated by a strong liquor was only a conventionalism, and that if we had accustomed ourselves to get drunk on water it would have become an highly intoxicating beverage, and that we might have drank whisky-toddy by the gallon without its having any effect on the nervous system.

"The colour for mourning does not affect the mind of the observer who feels not sorrow for the person in black: it is not intended, and does not influence the feelings, without knowledge of the parties.

"The person in black frequently only professes grief or respect for those gone, nor are the colours used in different countries by religious sects intended to excite your feelings, otherwise than by indicating the rank the wearer holds in society, and that he claims personally a due share of respect. The particular colour in none of these cases is supposed to arise from or evidence the idea; it is only a livery of rank or condition. Admitting the laws regulating the harmony of colour and sound are the same, C. J. fails in any way to connect them with his subject.

"'A sound *per se*, or succession of sounds, conveys no idea but a noise;—*agreeable or otherwise, as the case may be.*' Now, without noticing these last words, which admit the whole question, we will force it out of the first part—a noise. You are

awoke in the night by a noise—nothing follows. Is not the suspense productive of terror? The noise is repeated. Let it be what it will, it conveys to your mind something: it is descriptive of some action or accident.

"A single blast from a trumpet *is a noise*; true, and several blasts *may be* a greater noise. I have heard such where they should not have been; but a succession of sounds *may* be a production of an effect. Let C. J. produce the following to any uninitiated person, and ask if these chords have no effect on the mind of his listeners, even on the pianoforte. He need not try it on the instruments for which he knows it is written; and if even separately from its story, from all that may be supposed to convey any intention, let him say whether it does not affect the minds of his hearers, with sensations producing ideas. If so, it is descriptive; no matter, though the impression be different in each hearer, it is still descriptive.* Here is but a portion of a sentence, a word, a syllable, doing all that is deemed possible. The error is in calling on the mind of any one hearing a symphony to put a story or description to what has been heard without reflection or re-hearing. We do not go to hear music for the purpose of adapting words, and hence are not able to do so on their being demanded from us; nor am I aware that any one person has ever indulged the idea in public. It is in some measure a novelty that would, I am sure, be productive of much gratification; so different is my opinion to that of your correspondent. To put a story or description to what the mind has heard for the first time would be very difficult; though I have heard a leader with a lively imagination improvise, and continue a single story throughout a whole symphony of Haydn. On first hearing a portion of Rossini's *Stabat Mater*, without a know-

* We are unable to insert the music, but it will be sufficient for our musical readers that the passage is from the part of the Commendatore in *Don Giovanni*, to the words "*Don Giovanni, a cenar teco m'invitasti, et son venuto.*"

ledge of the meaning of the words or the intention, it forcibly impressed me as such as angels might chaunt in praise of the Deity, and that music of such pretension had never been presented to me in all I had before heard; the most elevated still falling short of what the mind demanded. Here was the abstract idea, true evidence of character only. On being again presented to the mind, if amplification ensued, that would be evidence of its being descriptive; no matter if, as before stated, different individuals thought differently on the subject—a ship is to you or to me a ship; to others the same would be a barque, a brig, a schooner; this being a defect in our knowledge, not in the ship itself; and all who make nothing but a noise out of the above chords, may justly doubt their own capacity to judge of more complicated or more lengthened portions of musical productions.

"In this argument we have nothing to do with pieces that have had words adapted.

"They are by its nature totally inadmissible: if wishy-washy without them, it can only prove an inefficient composer or author in each particular case; but has no reference to the question at issue.

"But the pieces without number of the three composers cited, that have no ideas at present attached to them by authority that will come within the generally accepted term, 'so descriptive,' will enable any of your readers to test this question; and, in the full hope that some one of them will do so, and favour you with merely an abstract, I leave the question thus to be decided by others, confident of the result.

"If we consider this more philosophically; if we inquire and define what a sensation is, and how the mind is acted upon by external objects to produce sensations of pain or pleasure, we shall be coming more to the marrow of the question, and this shall be done, if the position cannot be demonstrated without it, on a future occasion, if you will favour me with the space.—I am yours, &c. G."

Note B, P. 124.

In one of the most wealthy and populous cities in Scotland, the journeymen, in memorialising their masters, commence as follows:—

"Painters' Hall, —— —— 8*th May*.

"We beg leave, most respectfully, to intimate, that at a general meeting of the journeymen painters, held within the society's hall, on Monday evening the 6th instant, it was unanimously resolved—'That we respectfully bring under your notice a few of the grievances at present existing in the trade.' . . . Amongst the numerous evils of which we have to complain, we beg leave to submit the following:—

"First, it is a notorious fact that a number of employers in this city have, for a long period, been in the practice of taking into their employment an unlimited number of half-bred and run-away apprentices, young men who are quite incompetent to execute any part of our work in a satisfactory manner. Such a system is prone to innumerable evils; inasmuch that it has been the cause of a great portion of the public sending to a considerable distance (Edinburgh, &c.) for painters to execute their work."

"The second evil is of a very serious nature, not only to us but to the public generally; that is, the too frequent and abundant use of size to all kinds of painting work, which most unjustly deprives us of labour, our only inheritance, at the same time dealing unjustly to the public, your only support. There are so many glaring proofs before us of this evil, that were it made known to the public, the consequences would be most serious to those parties adopting such nefarious practices—a system against which no honest employer can compete, and which will be put down at all hazards."

This memorial not being satisfactorily received by the master painters, a bill, upwards of two feet long, and about a foot

and a half broad, was posted throughout the city in question stating that

"The journeymen painters of ——— have for a long time viewed with astonishment and indignation the nefarious system which several of the master painters of ——— have adopted in the execution of painting—a system of fraud unparalleled in the history of any trade. We have hitherto allowed the practice to continue, in the hope that the public would find out the disgraceful manner in which their work has been executed; but the evil, instead of being detected, is progressing to an enormous extent. So indiscriminate is the application, that from the drawing-room to the kitchen, the pernicious article of SIZE is substituted for OIL PAINT.

"To give some idea to non-professionals of the manner in which this system operates, it will be necessary to enter into detail,—

"1st, Estimates wherein work is to receive *four coats* is thus schemed:—A coat of strong size is first applied to the whole; it then gets the first coat of paint; another coat of size follows. The second and third coat of paint is then put on, which finishes it. Here, it is seen, a full coat of paint is saved on the walls and other parts which come more immediately under inspection; and when it is taken into account that cornices are never hit in, backs of shutters, presses, &c. receiving but *two coats*, it will be found to be a very profitable system to the dishonest employer.

"2d. Estimates for three-coat work. It receives a coat of full-strength size, another coat of reduced size, mixed with whiting; it then receives its first coat of paint; another coat of reduced size, called clear cole, prepares it for varnish; but if it be finished in flat, the clear cole is not necessary. Here, again, the system is carried out on work that the three coats, if all put on, would not be sufficient to make a proper and durable job. But it is on work intended for imitations that the WHOLESALE SYSTEM OF PLUNDER IS CARRIED OUT. For example, take a dining-room, which should get three coats for oak (walls, ceiling, and wood-work); it receives a coat of full-strength size another coat of reduced size, mixed with whiting; it then gets a coat of round colour, which finishes it for the grainer. Now, we ask, if parties who adopt this wholesale system of plunder are worthy of public patronage?

"We would caution the public to be careful of who they employ, for the system has arrived at such a pitch that it would require CONSTANT WATCHING to prevent the use of SIZE and ADULTERATED LEAD."

In respect to the workmen employed, the bill gave a list of ten establishments, employing in all 158 hands, 71 of whom were journeymen, and 87 were apprentices.

Whether these accusations were true, to the extent here assumed, or whether they have been as yet contradicted by any of the parties against whom they were so publicly brought forward, I do not know; but that a system of the kind does prevail in other cities, as well as that in which this meeting took place, there can be no doubt, and it is but just to the more respectable portion of the profession that every opportunity should be taken to make the public acquainted with the fact.

NOTE C, P. 134.

SUCH was the opinion of the celebrated Author of Waverley. Mr Lockhart, in his life of that great man, observes, "In the painting of the interior too, Sir Walter, personally directed every thing. He abominated the common-place daubing of walls, panels, doors, and window-boards, with coats of white, blue, or grey, and thought that sparklings and edgings of gilding only made their baldness and poverty more noticeable. He desired to have about him, wherever he could manage it, rich, though not gaudy hangings, or substantial old-fashioned wainscot work, with no ornament but that of carving, and where the wood was to be painted at all, it was done in strict imitation of oak or cedar. Except in the drawing-room, which he abandoned to

Lady Scott's taste, all the roofs were in appearance of antique carved oak, relieved by coats of arms duly blazoned at the intersections of the beams, and resting on cornices, to the eye of the same material, but really composed of casts of plaster of Paris."—(*Life of Sir Walter Scott*, vol. v. p. 323.)

Sir Walter certainly did, as Mr Lockhart observes, direct every thing personally, connected with the building and decoration of his mansion, and it remains to this day not the least interesting and remarkable creation of his wonderful mind.

It is now upwards of twenty-seven years since I had the honour of receiving the orders of Sir Walter regarding the decoration of the first part of Abbotsford House that was built. These orders, which were given on the eve of his leaving for London to receive his baronetcy, were of too important a nature, and given in too remarkable a manner, not to leave an indelible impression on the mind of one so ready to devote his best energies to their execution. Every thing connected with the memory of that great man being full of interest, I trust I shall be excused, for here giving a few reminiscences, of what passed on that occasion, and during the progress of the decorations at Abbotsford.

The first stipulation made by Sir Walter was, that, as he would be absent during the whole progress of the work, which he required should be finished by his return to Scotland, I should remain with the workmen upon the spot, and superintend it personally, in order that the directions he had given me, (which were all verbal,) should be strictly followed. He ordered me to paint the dining-room ceiling, cornice, niches, &c. in imitation of oak to match the doors, window-shutters, and wainscoting, which were made of that wood; to emblazon some small shields in the bosses of the ceiling, with their heraldic metals and colours, and to fix four pictures on certain parts of the wall, namely one of a lady (called the flower of Yarrow,) over the chimney-piece, another, a portrait of General Fairfax, on the centre of the opposite side of the room, and two small ones over the doors'

one of which, if I recollect rightly, was a view of the ruins of Melrose Abbey by moonlight. These, after being fixed to the wall by a narrow moulding of oak, were to be surrounded with an imitation of a carved frame of the same material, painted in light and shade upon the flat plaster. To cover the remainder of the wall he gave me an Indian paper of a crimson colour, with a small gilded pattern upon it. This paper he said he did not altogether approve of for a dining-room, but as he had got it in a present expressly for that purpose, and as he believed it to be rare, he would have it put upon that room, rather than hurt the feelings of the donor. I observed to Sir Walter, that there would scarcely be enough to cover the whole remainder of the wall after the pictures were fixed up, to which he replied, that in that case I might paint the recess for the sideboard in imitation of oak. The small armoury adjoining, he directed to be painted altogether in imitation of oak, as also the wood-work of his library and staircase; the walls of the former being painted a plain colour of a quiet tone, and those of the latter and passages, in imitation of stone-work. The decoration of the bed-rooms, and painting of the servants' apartments were left to be ordered by Lady Scott.

Most of my readers will be aware that the mansion-house of Abbotsford was built in two distinct portions—a period of four years elapsing between the completion of the first and that of the second. The first part consisted of the present dining-room, the present breakfast parlour, which was then Sir Walter's library and study, and in which many of the celebrated novels were written,—the small armoury entering from the dining-room, with the bed-rooms and attics above these apartments. This was the portion of the mansion to which the orders I have mentioned related, and the accommodation of which were eked out by what remained of the original small house that stood upon the property. These orders I received early in March 1820, and with eight assistants commenced their execution on the 20th of

that month, and had the whole finished by the end of April, as agreed.

The recess for the sideboard, at the end of the dining-room, had at first been finished in imitation of oak, but finding that there was a sufficient quantity of paper to cover this as well as the other parts of the wall, I had it put on above the painting, in the belief that Sir Walter had agreed to the painting of it merely as an alternative, arising from the supposed want of paper. In giving his orders regarding the painting of the staircase and lobby he made no allusion to the steps of the one, or floor of the other ; and as there were no floorcloth or stair carpetting ordered I had them painted in imitation of marble, the floor of the lobby being in the figure of an ornamental pavement.

Sir Walter returned to Scotland about the end of April, and either before going to Edinburgh, or soon thereafter, visited Abbotsford. He arrived in the evening, and had no sooner put his foot upon the painted pavement of the lobby than he observed, "I surely did not order this to be done." I then explained to him that as no orders had been given for any other covering to the bare stones, I had taken the liberty of painting them ; he replied that he did not so much object to the painting, as to the making of imitation joints crossing the real ones, and good-naturedly added, that he believed the stones themselves would rise up in evidence against the impropriety of such a proceeding. And so it literally turned out ; for in less than two years the true joints of the pavement, notwithstanding all my labour to conceal them by puttying and polishing, began to show themselves, intersecting most awkwardly those false joints by which I had endeavoured to imitate an ornamental arrangement of marble slabs. On entering the dining-room he had no sooner expressed his satisfaction with the general effect, than the papered recess in which the sideboard stood attracted his attention ; and he asked if it had not been agreed that it should be painted in imitation of oak. When I explained how it came to be papered, he said it was all right, but that he heartily wished the paper had fallen short as I had at first anticipated, for having seen in some ancient houses in England these recesses fitted up in real oak, he was convinced it was the proper style. I did not mention to Sir Walter at this time that the recess had been painted in imitation of oak before the paper was put upon it, in case the taking of it off might destroy the painting, and put the room for some time in an unfit state to receive company, which would not then have suited Sir Walter's arrangements. In the morning, however, I examined the state of the painting, and finding it quite good underneath the paper, had two of my most expert workmen employed in removing that covering from its surface without Sir Walter's knowledge, so that when he came down to breakfast the recess was completely finished in imitation of oak frame-work instead of being covered with crimson paper, as he had seen it the night before. In casting his eyes round the room, he immediately observed, "I must surely have dreamt that that recess was papered like the rest of the wall, although the recollection of having seen it so is too vivid, and too much mixed up with other facts for me to believe it a dream—it is like enchantment.—How has it been changed in so short a time?" The matter was then explained, and he was highly pleased.

The plans for the second and greater portion of the mansion were, as the former plans had been, supplied by Mr Blore the architect, of London, from Sir Walter's own suggestions, given verbally while there in 1820. These plans comprised the great entrance-hall, the library, the drawing-room, the study, and the small oratory, with additional bed-rooms above, and accommodation for servants below these apartments ; and the execution of the work was commenced early in 1821.

The great interest that Sir Walter took in the building and decorating of this part of his mansion, and his knowledge of the subject, are strongly evinced in his letters to his friend Mr Daniel Terry, the actor, who, being resident in London at the time, seems to have rendered him considerable assistance. Mr T. seems also to have engaged Mr Atkinson another London

architect, to carry out Sir Walter's ideas in respect to the details of the plaster work, wood finishing, &c. of the interior.

In a letter to Mr. T., dated Abbotsford, November 10th 1822, he says—"I got all the plans safe, and they are delightful. The library ceiling will be superb, and we have plenty of ornaments for it without repeating one of those in the eating-room . . . I have had three grand hawls since I last wrote to you. The pulpit, repentance-stool, King's-seat, and God knows how much of carved wainscot, from the Kirk of Dunfermline, enough to coat the hall to the height of seven feet,—supposing it boarded above, for hanging guns, old portraits intermixed with armour &c. It will be a superb entrance gallery: this is hawl the first. Hawl the second is twenty-four pieces of the most splendid Chinese paper, twelve feet high by four wide, a present from my cousin Hugh Scott, enough to finish the drawing-room and two bed-rooms. Hawl third is a quantity of what is called Jamaica cedar-wood, enough for fitting up both the drawing-room and the library, including the presses, shelves, &c: the wood is finally pencilled, and most beautiful, something like the colour of gingerbread ; it costs very little more than oak, works much easier, and is never touched by vermin of any kind. I sent Mr Atkinson a specimen, but it was from the plain end of the plank: the interior is finely veined and variegated. Your kind and unremitting exertions in our favour will soon plenish the drawing-room. Thus we at present stand. We have a fine old English cabinet, with China &c.,—and two superb elbow-chairs, the gift of Constable, carved most magnificently, with groups of children, fruits, and flowers, in the Italian taste: they came from Rome, and are much admired. It seems to me that the mirror you mention, being framed in carved box, would answer admirably well with the chairs, which are of the same material. The mirror should, I presume, be placed over the drawing-room chimneypiece ; and opposite to it I mean to put an antique table of mozaic marbles, to support Chantrey's bust. A good sofa would be desirable, and so would the tapestry screen, if really fresh and beautiful ; but as much of

our furniture will be a little antiquated, one would not run too much into that taste in so small an apartment. For the library I have the old oak chairs now in the little armoury, eight in number, and might add one or two pair of the ebony chairs you mention. I should think this enough, for many seats in such a room must impede access to the books ; and I dont mean the library to be on ordinary occasions a public room. Perhaps the tapestry-screen would suit better here than in the drawing-room I have one library-table here, and shall have another made for atlases and prints. For the hall I have four chairs of black oak. In other matters we can make it out well enough. In fact it is my object rather to keep under my new accommodations at first, both to avoid immediate outlay, and that I may leave room for pretty things that may occur hereafter. I would to Heaven I could take a cruise with you through the brokers, which would be the pleasantest affair possible, only I am afraid I should make a losing voyage of it. Mr Atkinson has missed a little my idea of the oratory, fitting it up entirely as a book-case, whereas I should like to have had recesses for curiosities, for the Bruce's skull, for a Crucifix, &c. &c.—in short, a little cabinet, instead of a bookcloset. Four sides of books would be perfectly sufficient; the other four, so far as not occupied by door or window, should be arranged tastefully for antiquities &c., like the inside of an antique cabinet—with drawers, and shottles, and funny little arches. The oak screen dropped as from the clouds; it is most acceptable ; I might have guessed there was only one kind friend so ready to supply hay to my hobby-horse. You have my views in these matters and your own taste ; and I will send the *needful* when you apprise me of the amount total. Where things are not quite satisfactory, it is better to wait a while on every account, for the amusement is over when one has room for nothing more."

In regard to the carved oak from the Kirk at Dumfermline, it did not turn out so useful as Sir Walter thought it would. The pulpit was, if I recollect rightly, circular, and some other difficulties arose during the progress of the carpenters' work, in its

application to the wainscoting of the entrance-hall. A further supply was therefore required, and upon this subject Sir Walter wrote to me from Abbotsford, asking me if I knew of any thing of the kind in Edinburgh that could be purchased at a moderate price. At that time there were no shops in Edinburgh, such as those where old oak carvings can now be so easily obtained—for I believe Sir Walter Scott's adoption of these articles as a decotion, gave the first impulse to that rage for them which has since existed, and which is now so well responded to by all who deal in other antiquities. This letter brought to my recollection that at the door of a house that stood (and still stands) in a wood-yard at the foot of Wariston's close, in the High Street, there was a white painted porch with carved panels, the figures upon which used, long before, to be a subject of admiration to me and other boys attending a school in the neighbourhood. I therefore called upon the owner, and obtained permission to examine it. Upon doing so, I found it was made of oak, and that the figures in the panels were allegorical of the cardinal virtues, &c. The owner of these panels told me that there were originally twelve of them; but having found that eight were sufficient for his porch, he had sold the other four to a friend who had fitted them up as the doors of an enclosed bed. He told me also that he had purchased them, with some other old wood, in the neighbourhood of Holyrood Palace, in one of the apartments of which they had originally formed the decoration of a portion of the wall. He agreed to let me have those in his possession for as much money as would cover the expense of putting up a new porch to his house, the amount of which he was to ascertain, and at the same time gave me the address of the party who had purchased the other four. When I acquainted Sir Walter with those particulars, giving him at the same time a sketch of the panelling, with its dimensions, he immediately replied, authorising the purchase of it, as also of that portion which the original proprietor had parted with, as the panels were in size, shape, and style the very thing he required for the completion of the wainscoting of the

entrance-hall; and desired to know as soon as possible whether I had succeeded in procuring the whole or only the portion which formed the porch; "For," he added, "we must cut our coat according to our cloth; and if we only get the porch we must then just stretch our leather as much as we can." The whole was at last purchased, and now forms a principal part of the wainscoting of the entrance-hall.

I now regret having parted with the letters I received from Sir Walter at this time, and during the progress of the decorations; but they were all given to friends who collected atuographs, as I did not then consider that I should ever have again to refer to them.

Again, in January 1823, he writes to Mr Terry as follows: "I am first to report progress, for your consideration and Mr Atkinson's, of what I have been doing here. Every thing about the house has gone *à rieu mieux*, and the shell is completely finished; all the upper story and garrets, as well as the basement, have had their first coat of plaster, being first properly fenced from the exterior air. The only things which we now greatly need are the designs for the ceilings of the hall and drawing-room, as the smiths and plasterers are impatient for their working plans, the want of which rather stops them."—(*Life*, vol. v. p. 238.) Again, in the same letter, he says,—"I am completely Lady Wishfort as to the escrutoire. In fact my determination would very much depend on the possibility of showing it to advantage; for if it be such as is set up against a wall, like what is called, *par excellence*, a writing-desk, you know we have no space in the library that is not occupied by book-presses. If, on the contrary, it stands quite free, why, I do not know—I must e'en leave it to you to decide between taste and prudence. The silk damask, I fancy, we must have for the drawing-room curtains; those in the library we shall have of superfine crimson cloth from Galashiels, made of mine own wool. I should like the silk to be sent down in the bales, as I wish these curtains to be made up on a simple useful pattern, without that paltry trash of drapery, &c. &c. . . .

The chairs will be most welcome. Packing is a most important article, and I must be indebted to your continued goodness for putting that into proper hands."

The building was sufficiently advanced by the beginning of 1824 to admit of the painting being commenced. I therefore, with ten assistants, repaired to Abbotsford on the 21st of February for that purpose. The style of the painting having been often discussed during the progress of the building, I had thereby acquired a perfect understanding of Sir Walter's ideas upon the subject, and, consequently, no specific orders were required on this occasion. Indeed Sir Walter was himself often at Abbotsford during the progress of the work.

The old carved oak fitted up in the entrance-hall, gave a key to the decoration of that apartment. Above the wainscoting which surrounds the wall there was plain deal-work to which the ancient armour, warlike instruments, banners, &c. were to be fixed. The old portraits, mentioned in Sir Walter's letter to Mr Terry, were not hung in this apartment, there being a sufficient quantity of the more appropriate kind of decoration just detailed. At the east end there were two Gothic niches of the richest description, and large enough to contain figures in full suites of armour. These, and another very handsome niche at the other end, were constructed of stucco casts from originals in stone at Melrose Abbey. The ceiling and cornice were also of stucco-work, the former representing massive gothic beams reaching from side to side, intersected in the centre by one principle beam reaching from end to end, and resting upon brackets with shields n front of them, and at the intersections in the centre. The fire-place was surrounded by a beautifully carved stone chimney-piece, after the cloister arches at Melrose Abbey. The windows were of stained glass. Of these, he says in a letter to Lord Montague, (now Duke of Buccleuch,) "As I think heraldry is always better than any other subject, I intend that the upper compartment of each window shall have the shield, supporters, &c. of one of the existing dignitaries of the Clan Scott; and, of course, the Duke's arms and your Lordship's will occupy two such posts of distinction. The corresponding two will be Harden's and Thirlestane's, the only families now left who have a right to be regarded as chieftains; and the lower compartments of each window will contain eight shields (without accompaniments), of good gentlemen of the name, of whom I can still muster sixteen bearing separate coats of arms."—(*Life of Scott*, vol. v. p. 269). To the best of my recollection, some difficulty occurred in carrying out the latter part of Sir Walter's idea in regard to these windows, and the coats of arms of the sixteen gentlemen were ultimately painted on the wall on shields arranged round the entrance-door to the study, appearing to be linked together by a chain, painted also on the wall. In directing the painting of this apartment, Sir Walter desired that it should all be done in imitation of oak; not like wood-work newly fitted-up, but to resemble the old oak carvings as much as possible. Neither would he allow it to appear like old oak newly varnished, as he had strictly forbid the varnishing of the old oak itself. He said, if it were possible, he should like the whole to appear somewhat weather-beaten and faded, as if it had stood untouched for many years. The doors, architraves, and part of the wainscoting were fitted up with new oak, and this he also ordered to be toned down to match the old carvings. All this was accomplished to his entire satisfaction.

The shields on the ceiling, amounting to about fifty or sixty in number, and about a foot and a half square, were, like the rest of the ceiling-work, made of stucco, and quite plain. Those that covered the intersections of the beams along the centre he allotted to the armorial bearings of his own family. Sir Walter took great interest in this part of the decorations. And in writing to Mr Terry on the 29th October 1843, he says, the interior of the hall is finished with scutcheons, sixteen of which running along the centre, I intend to paint with my own quarterings, so far as I know them, for I am uncertain as yet of two on my mother's side. . . . The scutcheons on the cornice I propose

to charge with the blazonry of all the Border clans, eighteen in number, and so many of the great families, not clans, as will occupy the others. The windows are to be painted with the different bearings of different families of the clan of Scott, which with their quarterings and impalings will make a pretty display."—(*Ibid.* vol. v. p. 313). Again, in writing to Mr Constable on the 29th of March 1824, he says,—"For the roof-tree I tried to blazon my own quarterings, and succeed easily with eight on my father's side ; but on my mother's side I stuck fast at the mother of my great-great-grandfather. . . . If I could find out these Rutherfords, and who they married, I could complete my tree, which is otherwise correct ; but if not, I will paint clouds on these three shields, with the motto *Vixerunt portes ante.*"—(*Ibid.* v. p. 345.) Sir Walter did not succeed in his inquiries, therefore the three shields in question were painted in clouds, but with a different motto from the above, the words of which I do not exactly recollect. The shields at the ends of the cross-beams contained the scutcheons of the eighteen Border clans, and those of about twenty other distinguished families. For some of these Sir Walter had got small sketches by a young gentleman of Jedburgh, an amateur, but they were far from being correct, which, when pointed out to Sir Walter, he said it would be better to begin *de novo*, and take them all, or as many as I could find, from Nisbet's heraldry and other books in his study, and added, that I might come into that apartment for this purpose at all times, whether he was there or not, as it would not in the least disturb him. One error committed in the drawings of the amateur amused him a good deal. Amongst the sub-ordinaries in heraldry there is a figure called Torteaux, representing a little circular cake of bread, of which Nisbet quotes from a Spanish herald the following story: —"One of the kings of Spain being to give battle to the Moors, convened his principal captains and commanders to eat ; telling them, that so many cakes as they did eat, each of them would kill as many Moors: and after a memorable victory, considering how many cakes each had ate, some five, eight, or twelve, took as many

torteauxes in their arms, or added them to their ancient bearings; and this is the reason why so many torteauxes are carried in the arms of the nobles of Andalusia, so that they are taken by the French, Italians, Spaniards, English, and us, for cakes of bread." Sir Walter seemed much interested by this quotation, and as the amateur had emblazoned the shield of the Blairs of Balthyock with three tortoises, instead of torteauxes, he was greatly pleased that the error had been detected; for he considered, as he expresses himself on a similar subject, in the letter to Mr Constable already referred to—"These things are trifles when correct, but very absurd and contemptible when otherwise." He was much amused with the idea of the ancestor of the Blairs having eaten three reptiles instead of cakes, before going to battle, and often afterwards referred to this particular shield, and the story of the Spanish king.

When all the shields were emblazoned, Sir Walter gave me instructions to paint an inscription in ancient black letters along the top of the wall on the side opposite the entrance door, the inscription was nearly in the following words:—"These be the coats armories of the clans and men of name wha keepit the Scottish Borders in the days of old." This was so arranged that one long word, or two short ones, came between each pair of shields, and when finished greatly improved the general effect in a decorative point of view, by forming a connecting link between the scutcheons on that side of the hall. On observing to Sir Walter that something of a similar kind would be required to balance it on the other side, he agreed that there certainly was a want of balance, and said he would bring me something to fill up the vacant spaces. In a very few minutes he returned with the following context, written on a slip of paper,—"They were worthy and brave in their times, and in their defence God he them defended."

Before hanging up the armour, or placing the full suits of mail in the niches, Sir Walter was most anxious to have all the steel and iron secured from rusting, which he feared it would be liable to in an apartment like the entrance-hall where the external air was necessarily so often admitted, and in all states of the

atmosphere too. This I accomplished by having all the coats of mail and warlike instruments cleaned with rotten-stone and water, and, when perfectly dry, placing them before a good fire, and giving them a thin coat of the clearest copal varnish. I saw them about fifteen years thereafter without the slightest mark of rust upon them, and I believe they remain so till this day. While the cleaning and varnishing was going on, Sir Walter carefully watched its progress, and used often to admire the effects of the light, as it fell upon the armour through the stained glass windows while it lay in groups upon the floor of the hall.

On one occasion when a largeish quantity of it was heaped up opposite the windows, and by chance pretty well grouped, the sun's rays striking upon it tinged with the various hues of the stained glass, he expressed himself strongly regarding its beauty, adding, "I wish my friend William Allan were here—what a glorious study for him!" In regard to the armour, he says to Mr Terry, in writing to him on the 9th of January 1823,—"My wainscot will not be altogether seven feet—about six. Higher it cannot be because of the pattern of the Dunfermline part; any lower I would not have it, because the armour, &c. must be suspended beyond the reach of busy rude fingers to which a hall is exposed. You understand I mean to keep lighter, smaller, and more ornate objects of curiosity in the present little room, and have only the massive and large specimens, with my fine collection of horns, &c. in the hall."

In reference to the cedar already mentioned, he says in the same letter,—"The cedar, I assure you, is quite beautiful. I have seen it sawn out into planks, and every one who looks at it agrees it will be more beautiful than oak. Indeed, what I have seen of it put to that use, bears no comparison unless with such heart of oak as Baldock employed, and that you know is veneered. I do not go on the cry in this, but practical knowledge. Mr Waugh, my neighbour, a West Indian Planter (but himself bred a joiner,) has finished the prettiest apartment with it that I ever saw. . . . . I give up the Roslin drop in the oratory; indeed I have long

seen it would not do. I think the termination of it may be employed as the central part of Mr Atkinson's beautiful plan for the recess in the library; by the by, the whole of that ceiling, with the heads we have got, will be the prettiest thing ever seen in these parts."—(P. 239).

The whole of this ceiling, with its pendants, was painted in imitation of the cedar of which the fittings were made; but the wall between the top of the book-cases and ceiling gave Sir Walter a great deal of concern. This formed a narrow stripe all round the apartment, and it could not be done in any of the usual modes of wall decoration, as the book-cases were actually part of the fittings of the room, and had not the slightest appearance of being placed against the wall like pieces of furniture. At last the idea of a piece of painted imitation drapery hanging from the cornice was suggested to him, and he at once adopted it. It was painted of a sombre hue of green, in order to relieve the red hue of the cedar, which it effectually did; and that it might also partake of the richness of the backs of the books with which the cases underneath it were filled, it was embellished with devices in gold colour. Sir Walter often said that this was the only part of the decorative painting that he could not come to a decision upon in his own mind, but when he saw it finished he expressed himself highly gratified, and his mind relieved of an uncertainty that had occasioned him some uneasiness.

Notwithstanding the length of this note, it can scarcely be considered complete without the addition of the following quotation from the correspondence of the great man whose ideas on decoration it is intended to elucidate. To his friend Mr Terry he says, on 18th February 1824,—"Your very kind letter reached me here (Abbotsford) so that I was enabled to send you immediately an accurate sketch of the windows and chimney-sides of the drawing-room, to measurement. I should like the mirrors handsome, and the frames plain; the colour of the hangings (meaning the paper) is green, with rich Chinese figures. On the side of the window I intend to have exactly beneath the glass, a plain white

side-table of the purest marble, on which to place Chantrey's bust. A truncated pillar of the same marble will be its support; and I think that, besides the mirror above, there will be a plate of mirror below the table; these memoranda will enable Baldock, [a London upholsterer] to say at what price these points can be handsomely accomplished. I have not yet spoken about the marble table; perhaps they may be all got in London. I shall be willing to give a handsome, but not an extravagant price. I am much obliged to Mr Baldock for his confidence about the screen. But what says poor Richard? 'Those who want money when they come to buy, are apt to want money when they come to pay.' Again poor Dick observes,—

'That in many you find the true gentleman's fate,
Ere his house is complete he has sold his estate.'—

So we will adjourn the consideration of the screen till other times; let us first have the needful got and paid for. The stuff for the windows in the drawing-room is the crimson damask silk we bought last year. I enclose a scrap of it that the fringe may be made to match. I propose they should be hung with large handsome brass rings upon a brass cylinder, and I believe it would be best to have these articles from London,—I mean the rings and cylinders; but I dislike much complication in the mode of drawing them separate, as it is eternally going wrong; those which divide in the middle, drawing back on each side like the curtain of an old-fashioned bed, and when drawn back are secured by a loop and tassel, are, I think, the handsomest, and can easily be made on the spot; the fringe should be silk, of course. I think the curtains of the library, considering the purpose of the room, require no fringe at all. We have, I believe, settled that they shall not be drawn in a line across the recess, as in the drawing-room, but shall circle along the inside of the windows. I refer myself to Mr Atkinson about the fringe, but I think a little mixture of gold would look handsome with the crimson silk. As for the library, a yellow fringe, if any. I send a draught of the window inclosed; the architraves are not yet up in the library,

but they are accurately computed from the drawings of my friend Mr Atkinson. There is plenty of time to think about these matters, for of course the rooms must be painted before they are put up. I saw the presses yesterday; they are very handsome, and remind me of the awful job of arranging my books. About July, Abbotsford, I think, will be finished, when I shall, like the old Duke of Queensberry who built Drumlanrig, fold up the accounts in a sealed parcel, with a label bidding "the deil pike out the een of ony of my successors that shall open it."

Note D, P. 184.

Upon this subject Professor Hosking makes the following excellent remarks,—"The exhumated city of Pompeii has very clearly proved that notwithstanding the extent and general beauty of the public buildings of the Romans, the houses of the commonalty were exceedingly plain and confined, while those of the higher classes, though internally elegant, were externally unpretending. The rooms were small and badly arranged, imperfectly secluded from the public gaze, and quite exposed to the inmates; pervious alike to the summer's heat and winter's cold. Indeed the house of a Roman gentleman presents a very convenient model for a prison, but without many of the comforts which in modern times are thought necessary even in such places.

"In consequence of the refinements which now pervade the manners, habits, and customs of civilized life, and civilization having extended itself from the noble and the learned through almost the whole social system, men are no longer contented to admire the beauty and magnificence of public edifices, whether ecclesiastical or civil, and to witness the splendour and elegance of the palaces and mansions of the wealthy; but all are anxious to see in their own habitations that degree of decoration and beauty which they find so productive of pleasure and pleasurable emotions. Thus architecture is no longer confined to the temples of the Divinity and the palaces of the great, but its beauties

are sought everywhere. In every edifice whose inhabitants have been fitted by education and habit to appreciate and enjoy the charm which arises from symmetry of form, beauty of proportion, and elegance of detail, the aid of architecture is required." *Encyclopædia Britannica*, Art. '*Architecture*,' p. 28). In another part (p. 44), the Professor observes, that "A person accustomed to the comforts and conveniences of houses in this country finds much to complain of in a modern Italian mansion, but not so much as an Italian would in the house of an ancient Roman; and from analogy we may believe that a Roman of the empire would have reason to complain of a Grecian domicile, even of the Periclean age; and a Greek again might have been abridged of the comforts of his house in the palace of an Egyptian."

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The Edinburgh Review, Oct. 1843.

"These works are highly honourable to Mr Hay as a practical man. He has been long known as an extensively employed and elegant artist in the department of decorative painting; and he has found leisure, notwithstanding the pressure of his professional avocations, to appear before the public as an author, with strong claims to its attention and respect. He is one of the few artists who have drawn the resources of their profession from the recognised fountains of knowledge; and who, in offering the lessons of their experience at the shrine of science, have been anxious to listen, in return, to her infallible counsels. The disposition to this species of exchange, and to introduce into the intellectual community the principles of free intercourse, is by no means general; but we are confident that art will not sufficiently develop her powers, nor science attain her most commanding position, till the practical knowledge of the one is taken in return for the sound deductions of the other.

"Many causes have concurred to place art and science at variance: but these causes have been gradually diminishing, and in the present advanced state of the mechanical and useful arts, they have almost wholly disappeared. It is in the fine arts, principally, and in the speculations with which they are associated, that the controlling power of scientific truth has not exercised its legitimate influence. In discussing the principles of painting, sculpture, architecture, and landscape gardening, philosophers have renounced science as a guide, and even as an auxiliary; and a school has arisen whose speculations will brook no restraint, and whose decisions stand in opposition to the strongest convictions of our senses. That the external world, in its gay colours and lovely forms, is exhibited to the mind only as a tinted mass, neither within nor without the eye, neither touching it nor distant from it—an ubiquitous chaos which experience only can analyze, and touch transform into the realities which compose it—that the beautiful and sublime in nature and in art derive their power over the mind from association alone—are among the philosophical doctrines of the present day, which, if it be safe, it is scarcely prudent to question. Nor are these opinions the emanations of poetical or ill-trained minds, which ingenuity has elaborated, and which fashion sustains. They are conclusions at which most of our most distinguished philosophers have arrived. They have been given to the world with all the authority of demonstrated truth; and in proportion to the hold which they have taken of the public mind, have they operated as a check upon the progress of knowledge.

. . . . . "While opinions like these were considered as sound and well established, philosophers never thought of studying the laws of visible direction in single and double vision, by which all the difficulties of the subject have been subsequently removed; and, in like manner, while the present theories of taste prevail, there can be no inducement to discover the rules of harmonious colouring, or to investigate the origin of beautiful forms, or to develop the laws of regular and irregular symmetry. When speculation, however, is thus in the ascendant, and theorists least apprehensive of danger, truth is often securing auxiliaries from localities the least likely to supply them. The sovereignty of association in matters of taste had never been recognised by practical men, who study nature principally through the eye; and the painter, the sculptor, the architect, and the landscape gardener, had been striving in their respective spheres to discover those 'laws of harmony,' both in colour and form, which ought to regulate the taste, and direct the hand of the artist. In so far as we know, Mr Hay is the first and the only modern artist who has entered upon the study of these subjects without the trammels of prejudice and authority. Setting aside the ordinances of fashion, as well as the dicta of speculation, he has sought the foundation of his profession in the properties of light, and in the laws of visual sensation, by which these properties are recognised and modified. The truths to which he has appealed are fundamental and irrefragable; and the conclusions which he has deduced from them will admit of no modification either from taste or fashion. In the adaptation of his principles, indeed, to the various circumstances in which they are to be applied, taste and judgment are undoubtedly required; and even in the decoration of the boudoir and the drawing-room harmony of colour and symmetry of form may be made to co-exist with, and even to control, the caprices of fashion, and the glitter of meretricious ornament.

"Notwithstanding some trivial points of difference between Mr Hay's views and our own, we have derived the greatest pleasure from the perusal of these works. They are all composed with accuracy, and even elegance. His opinions and views are distinctly brought before the reader, and stated with that modesty which characterizes genius, and that firmness which indicates truth."

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The British and Foreign Medical Review. No. XXXV. P. 171.

"There is harmony of numbers in all nature—in the force of gravity—in the planetary movements—in the laws of heat, light, electricity, and chemical affinity—in the forms of animals and plants—in the perceptions of the mind. The direction, indeed, of modern natural and physical science is towards a generalization, which shall express the fundamental laws of all by one simple numerical ratio. We would refer to Professor Whewell's 'Philosophy of the Inductive Sciences,' but more particularly to Mr Hay's 'Researches into the Laws of Harmonious Colouring and Form.' From these it appears that the number seven is distinguished in the laws regulating the harmonious perception of forms, colours, and sounds, and probably of taste also, if we could analyze our sensations of this kind with mathematical accuracy. We think modern science will soon show that the mysticism of Pythagoras was mystical only to the unlettered, and that it was a system of philosophy founded on the then existing mathematics, which latter seem to have comprised more of the philosophy of numbers than our present."

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Fraser's Magazine.

"We have now gone over all Mr Hay's works, but, we confess, not in a manner calculated to

do them the justice they deserve. This, indeed, could be done only in the pages of a work devoted to scientific pursuits, and whose particular class of readers may be supposed to possess that peculiar turn of mind which delights in philosophical inquiry, and in the abstruse investigations of science. In a periodical like ours, such inquiries would be out of place.

"Yet, enough has been said, it is presumed, to show that the author of the works we have just been noticing is a remarkable man. He undoubtedly is. He is a leader in his vocation; one of those men who stand prominently out in the front of his fellows, and who, by the force of original genius, have acquired a certain ascendency over the public mind.

"Looking to the philosophical spirit and character of Mr Hay's treatises, we cannot but consider them valuable acquisitions, their purpose being to improve the general taste, and by consequence—for it is a consequence thereof—to contribute to the advancement of civilization.

NOTICES OF THE "FIRST PRINCIPLES OF SYMMETRICAL BEAUTY," IN

The Spectator, Oct. 31, 1846.

"This is a grammar of pure form, in which the elements of symmetrical, as distinguished from picturesque beauty, are demonstrated, by reducing the outlines or planes of curvilinear and rectilinear forms to their origin in the principles of geometrical proportion. In thus analyzing symmetry of outline in natural and artificial objects, Mr Hay determines the fixed principles of beauty in positive shape, and shows how beautiful forms may be reproduced and infinitely varied with mathematical precision. Hitherto the originating and copying of beautiful colours have been alike empirical; the production of a new design for a vase or a jug has been a matter of chance between the eye and the hand; and the copying of a Greek moulding or ornament, a merely mechanical process. By a series of problems, Mr Hay places both the invention and imitation of beautiful forms on a sure basis of science, giving to the fancy of original minds a clue to the evolving of new and elegant shapes, in which the infinite resources of nature are made subservient to the uses of art.

"The volume is illustrated by one hundred diagrams, beautifully executed, that serve to explain the text, and suggest new ideas of beauty of contour in common objects. To designers of pottery, hardware, and architectural ornaments, this work is particularly valuable: but artists of every kind, and workmen of intelligence, will find it of great utility."

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The Athenæum, Jan. 2, 1847.

"The volume before us is the seventh of Mr Hay's works. It is the most practical and systematic, and likely to be one of the most useful. It is, in short, a grammar of form, or a spelling-book of beauty. This is beginning at the right end of the matter; and the necessity for this kind of knowledge will inevitably, though gradually, be felt. The work will, therefore, be ultimately appreciated and adopted as an introduction to the study of beautiful forms.

"The third part of the work treats of the Greek oval or composite ellipse, as Mr Hay calls it. It is an ellipsis of three foci, and gives practical forms or vases and architectural mouldings, which are curious to the architect, and will be very useful both to the potter, the moulder, and the pattern-drawer. A fourth part contains applications of this to practice. Of the details worked out with so much judgment and ingenuity by Mr Hay, we should in vain attempt to communicate just notions without the engravings of which his book is full. We must, therefore, refer to the work itself. The forms there given are full of beauty, and so far tend to prove the system."

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The Glasgow Courier, Nov. 10, 1846.

"This is a work which could not fail, under any circumstances, to be highly appreciated by those professionally engaged in the pursuits of art, as well as by that numerous class amongst general society who are now happily accustomed to feel an intelligent interest in connection with the productions of artistic genius; whilst it seems to possess at the present time more particularly, a very high degree of value in relation to the efforts now made under legislative encouragement for advancing amongst the producing classes a knowledge of the principles of symmetrical beauty by the instrumentality of schools of design. In conclusion, we may state that, valuable as all Mr Hay's preceding works on painting and design are acknowledged to be, we question whether there is any one of them which can claim to rank superior, if even equal, to the present, in point of practical value. And we feel much pleasure in recommending it to general notice as a work fitted to convey both instruction and pleasure to the artist as well as the general reader."

NOTICES OF "THE PRINCIPLES OF BEAUTY IN COLOURING" IN

The Spectator.

"In this new analysis of the harmonies of colour, Mr Hay has performed the useful service of tracing to the operation of certain fixed principles the sources of beauty in particular combinations of hues and tints; so that artists may, by the aid of this book, produce with mathematical certainty the richest effects, hitherto attainable by genius alone. Mr Hay has reduced this branch of art to a perfect system, and proved that an offence against good taste in respect to combinations of colour is in effect a violation of natural laws.

"The volume is of beautiful exterior, fit for the drawing-room table; and the diagrams of colours are bound up in a separate volume connected with the text, yet distinct from it, like two books under one cover, so that the reader can refer to the illustrations without interruption."

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The Britannia.

"From Mr Hay's theory, scientifically stated and ably reasoned, it results that the mind has in its very constitution certain instincts directing it to the perception of beauty in colour as in

sound, and that the greatest artist in colour, at least, is he who follows those instincts most unerringly. Mr Hay is well skilled in the practice of colour, and in its harmonious combinations; and more confidence, therefore, will be felt in his conclusions when it is known that his own success sprung from the application of his own principles.

"Mr Hay has illustrated his theory by examples in colour, disposed, not on the artistic, but on the mathematical principles, and has spared no labour to render his Essay acceptable to the scientific inquirer."

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The Athenæum.

"Mr Hay is already well known to our readers by a long series of books on beauty. We had first, 'The Natural Principles and Analogy of the Harmony of Form' developed; then, not long after, his Treatise on 'Proportion, or the Geometric Principle of Beauty;' and next, his 'Essay on Ornamental Design,' with its fifty-seven plates. Thus much on beauty of form; but we have also had a similar series on beauty of colour—first, in 'The Laws of Harmonious Colouring;' then in 'The Nomenclature of Colours, Hues, and Tints;' and, finally, the conclusion of this matter, in 'The Principles of Beauty in Colouring,' now before us. We have enumerated these six steps of this series, because we have regarded, and do still continue to regard, the production of Mr Hay's works as a remarkable psychological phenomenon—one which it is instructive both for the philosopher and the critic to study with care and interest, not unmingled with respect. In these books we behold a strong, manly, honest mind, endowed with considerable sensibility, and working its way slowly, laboriously, almost even groping it, among the chaotic masses of beautiful and unbeautiful things in the material world, in the endeavour to extricate from this heterogeneous mass a few of those beautiful, deep-seated, elusive truths, in virtue of which inert matter becomes endowed with that living soul which we love, which we call beauty, and which Plato denominated *το καλον και αγαθον*, the soul of the world. In this long series of Mr Hay's works, we are enabled to trace his progress from year to year in this arduous pursuit of the beautiful and true. We see how his mind has been gradually guided by Nature herself out of one track, and into another, and ever and anon leading him to some vein of the beautiful and true, hitherto unworked."

NOTICES OF "THE NOMENCLATURE OF COLOURS," &c. IN

The Daily News.

"A nomenclature of colours, in which their enumerable hues and tints should be divided from their primary elements, has long been a desideratum It is so, however, no longer, thanks to the talent and industry of Mr D. R Hay.

"In this work Mr Hay has brought a larger amount of practical knowledge to bear on the subject of colour than any other writer with whom we are acquainted, and in proportion to this practical knowledge, is, as might be expected, the excellence of his treatise. There is much in this volume which we would most earnestly recommend to the notice of artists, house decorators, and, indeed, to all whose business or profession requires a knowledge of the management of colour. The work is replete with hints which they might turn to profitable account, and which they will find nowhere else."

"An anxiety to be useful, to render his knowledge and acquirements subservient to practical purposes, is evident in every page of Mr Hay's work, a quality which cannot fail to be duly appreciated by all who take an interest in the advancement of art."

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The Athenæum.

"We have formerly stated the high opinion we entertain of Mr Hay's previous exertions for the improvement of decorative art in this country. We have already awarded him the merit of invention and creation of the new and beautiful in form. In his former treatises he furnished a theory of definite proportions for the creation of the beautiful in form. In the present work he proposes to supply a scale of definite proportions, for chromatic beauty. For this purpose he sets out very properly with a precise nomenclature of colour. In this he has constructed a vocabulary for the artist—an alphabet for the artisan. He has gone farther—he constructs words of three syllables. From this time it will be possible to write a letter in Edinburgh about a coloured composition, which shall be read off in London, Paris, Petersburgh, or Pekin, and shall so express its nature that it can be reproduced in perfect identity. This Mr Hay has done, or at least so nearly, as to deserve our thanks on behalf of art, and artists of all grades, even to the decorative artisan—not one of whom, be he house painter, china pattern drawer, or calico printer, should be without this simple manual of 'words for colours.'"

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The Scotsman.

"Here is another professional work by Mr Hay, and one distinguished by all the characteristics by which his other works recommend themselves to public notice and favour—vigour, originality, and an entire and thorough mastery of his subject.

"Taking the work altogether, there can be no doubt of its being one of the very best of its kind that has yet been presented to the public. The amount of practical knowledge it contains, and the masterly way in which that knowledge is placed before the reader, cannot fail to impress him with sentiments of the highest respect for the talents and acquirements of the author. Nor will these sentiments be weakened by noting the philosophical spirit in which, when opportunity offers, he treats his subject—affording in this, evidence of an order of intellect equal to much greater things than the demands of his profession."

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The Courant.

"The whole tenor of the work evinces, on the part of the author, a sincere desire to advance art, a spirit of genuine philosophy, and a lively appreciation of the beautiful. Never before has been exhibited so systematic, so complete, so satisfactory an arrangement of colours. The whole of the chromatic scale, through all its gradations and modulations, is shown. Its melodies, harmonies, and contrasts, are all clearly

defined. All the individual colours, tints, and hues, are placed in their proper position, extending through a series of two hundred and forty. The arrangement is so skilful, that the eye wanders delighted over them all, from the fiery and exciting colour of red, down to the most gentle and retiring of the neutral tones."

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The Glasgow Constitutional.

"This, perhaps, will be found to be the most generally useful of the many valuable and very ingenious works with which its indefatigable author has, within these few years, enriched our literature. It so far surpasses all previous attempts of the kind as to preclude any comparison with them.

"The book addresses itself more immediately to those engaged in the study of the arts, sciences, and manufactures; and of its value and importance to this class of persons we need say nothing. But we would strongly recommend it also to the attention of all who take an interest in objects of taste, as containing an amount of information which they will find nowhere else, and from which even those whose eye has been most carefully cultivated in the perception and discrimination of colour, will find that they have much to learn."

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Edinburgh Weekly Journal.

"Mr Hay may in his works, both as an artist and an author, be almost considered as the founder of a new department of design. That he was thoroughly master of his subject, the warm approbation which has greeted his works on Harmonious Colouring, Form, Proportion, &c., sufficiently evinces; and the present work may be considered as the practical application of some of the theories propounded, as, after teaching his disciples how to use their tools to produce the best effects, he here gives the tools themselves, viz., colours, mapped out, arranged, classified, and described, not only as to the essential composition, qualities, and effects of each, but also its relations to its neighbour and its antagonist tints, and the exact influences over all by the interference, more or less, of the two great opposites, black and white, darkness and light."

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The Glasgow Argus.

"Mr Hay is not alone a patron of the arts, but, as an instructor of the followers of art, he is a benefactor to the public. All his works, whether he writes upon ornamental design, or the harmony of form, the laws of harmonious colouring, or brings his comprehensive mind to bear analytically upon the geometric principles of beauty, while they improve and delight the reader, render him the more capable of being of use, by extending his sphere of action, and placing him nearer that perfection it must be the constant aim of every artist to arrive at.

"The primary colours are taken by Mr Hay in their natural order; and not only will the artist and the connoisseur find ample material for thought, but the naturalist, the mineralogist, and the botanist, will discover new lights opened out to them of the most valuable tendency.

NOTICES OF THE ESSAY ON "ORNAMENTAL DESIGN" IN

The Athenæum, April 12, 1845.

"In conclusion, Mr Hay's book goes forth with our best wishes. It must do good. It must be prolific of thought—stimulant of invention. It is to be acknowledged as a benefit of an unusual character conferred on the arts of ornamental design."

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The Spectator, January 4, 1845.

"Mr Hay has studied the subject deeply and scientifically. In this treatise on ornamental design, the student will find a clue to the discovery of the source of an endless variety of beautiful forms and combinations of lines, in the application of certain fixed laws of harmonious proportion to the purposes of art. Mr Hay also exemplifies the application of his theory of linear harmony to the production of beautiful forms generally, testing its soundness by applying it to the human figure, and the purest creations of Greek art."

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Fraser's Magazine, Jan. 1845.

. . . . . "We come now to Mr Hay's last, and, we are almost tempted to say, his best work, because of the more popular nature of its interest. Each part is enriched by diagrams of great beauty, direct emanations of principle, and, consequently, presenting entirely new combinations of form. Had our space permitted, we should have made some extracts from this 'Essay on Ornamental Design;' and we would have done so, because of the discriminating taste by which it is pervaded, and the forcible observations which it contains; but we cannot venture on the indulgence."

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Civil Engineer and Architect's Journal, May, 1845.

"Mr Hay has paid particular attention to this branch of design, which is of extensive application, and as to which few accessible examples exist. It will, from its intrinsic interest, prove an attractive work for the study and the drawing-room."

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Renfrewshire Advertiser, Feb. 1845.

"So broad are the principles, and so pervading the illustrations, which Mr Hay has laid down in this work, that it cannot be said to include no other students than those connected with the industrial arts, to whom he has addressed his able and important Essay. It involves the whole range of ornamental design."

NOTICES OF THE WORK ON "FORM" IN

The Athenæum.

"The study of *the true*, *the good*, and *the beautiful*, has formed an important occupation of life in all highly civilized nations, and has been inculcated by the truest patriots and the highest philanthropists. Science, virtue, and beauty, form the noblest elements of creation, and of the human soul—they form the first objects of

our national institutions, the highest elements of a national character, and the best themes of a national literature.

"It would be a great step in the advancement of our national civilization, were the love of the beautiful, and the power of appreciating the value of its manifestations, more intimately mixed up with the associations and habits of our countrymen. That we have artists of high powers—architects of consummate skill—that we have, or have had, Barrys and Cockerells, Wilkies and Ettys, Landseers and Mulreadys, Flaxmans and Chantreys and Westmacotts, is matter of national congratulation, but does little to prove the existence of a high standard of national taste. The habit of enjoying the beautiful, and the power of appreciating it, should pervade the national character, should determine its national institutions, and be diffused among the peasantry of our streets and hamlets. 'The farmer and the mechanic (we quote Channing) should cultivate the *perception of beauty*.'—'Every man should aim to impart this perfection to his labours.' Were every man a judge and appreciator of beauty, then, indeed, might we expect forms of loveliness and grace to pervade the regions of domestic and every-day life—to replace, in our streets, the expensive ugliness of our street decoration—in our homes, the vulgarities of ornamental deformity—and in our churches, the distortions and anomalies of meretricious decoration.

"We hail, therefore, with delight, the appearance among us of any evidence of progress towards the diffusion of correct principles in taste, of accurate knowledge in art—and we receive the work before us as a harbinger of better times—as an index of the wider diffusion of knowledge in art.

"Hay on 'Harmonious Colouring' formed the precursor to Hay on the 'Harmony of Form.' The former work was chiefly designed to correct and direct the public taste in the decorations of domestic life: the present has a higher aim—the determination of the forms and proportions which give to objects and structures a maximum of beauty.

"The fact that Mr Hay, by an independent process of his own mind, versant about proportion and beauty, has arrived exactly at some of the identical proportions of the Platonic theory, as we understand and apply it, is to be reckoned as an important psychological phenomenon, demonstrating the inherence of certain fixed and essential principles of proportion and beauty in the human soul.

"All Mr Hay's proportions are, therefore, good. They exist in the best specimens of perfect architecture; they are necessary elements in judicious decoration. They give rise to symmetry and simple numerical proportions in angular compositions They pervade the works of the Greek artists, and were the identical principles taught by the philosophers who gave wisdom to the times of Pericles and Phidias."

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The Court Gazette.

"This is a work of great talent and value. It has the peculiar merit of being new and original, in the midst of the sickly spirit of repetition, which seems to shed its drowsy influence over the largest department of modern publication. It is devoted to Form. The author is one of the individuals peculiarly endowed with that rich gift which constitutes the sculptor, the architect, and the painter; and hence the ingenious theory developed in this work, which logically associates sight with sound, geometry with acoustics. It is the developed theory of Plato, who eloquently commented on the music of beautiful forms—a theory which Darwin, the Platonic poet, in a note to his 'Temple of Nature,' practically carries out, by suggesting the construction of a machine which, while producing the varied notes of the gamut to the ear, should, at the same time, present to the eye the 'various modulations' of the prismatic colours. Mr Hay's theory is somewhat like this, but practically developed for the painter, the sculptor, and the architect. The illustrated architectural examples deserve especial notice. The geometrical production of the façade of a Doric temple, from the projected combination of the vescica piscis, or double circle—(the freemasons' secret of Ancient Egypt, and the monastic architects' of the middle ages)—is most curious. We cordially recommend to our readers this ingenious work, which is profoundly philosophical in its geometrical analysis of abstract form, and replete with the exciting spirit of poetry and music in its tasteful associations."

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The Sun.

"The object of this treatise is to show that the impressions made upon the eye by forms are really founded on natural principles; and that the proportions and peculiarities of form which produce the most pleasing impressions, are in reality, as well as appearance, dictated by nature, being a response to those principles in the human mind. The treatise is singularly well written, both as respects manner and matter, exhibiting a force and closeness of reasoning which lead to the inference that the author has a decided *penchant* for mathematical pursuits, and is extensively acquainted with that difficult and complicated science. He gives several curious and interesting plates, illustrative of certain theories advanced in the course of his treatise. These plates are finished off with the utmost nicety, and artists and men of science will derive many a useful suggestion from them."

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The Glasgow Herald.

"It is, of course, impossible, in a cursory notice like this, to do more than indicate the general character of the very profound, as well as extremely interesting theory which Mr Hay has propounded. . . . . The volume, we may remark in conclusion, contains numerous most beautiful diagrams, illustrative of the author's theory; and the reader may feel himself amused, as well as instructed, by studying 'the melody of the portico of the Parthenon,' expressed in musical notes, as well as by the intervals of Mr Hay's scale of harmony of form."

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The Glasgow Citizen.

"This is decidedly an able, as well as original, publication, in some degree in the subject, but more so in the author's manner of treating it.

"To persons of taste and knowledge in art, Mr Hay's work will be peculiarly acceptable, and we are confident that such will consider it as no slight contribution to the cause of art and science."

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The Caledonian Mercury.

"This treatise on the principles of linear harmony, will eminently conduce, we think, to one main object, which its ingenious author seems to have had in view, namely, the improvement and guidance of the public taste in judging of works of art that owe their excellence to beauty of form. Mr Hay has here undertaken to demonstrate, and, so far as we are able to judge, he has done so clearly and convincingly, that the impressions made upon the eye by forms are really founded on natural principles—that the proportions and peculiarities of form which produce the most pleasing impressions are dictated by nature, being a response to these principles in the human mind—and that forms are, in all respects, analogous to sounds; so that a system of linear harmony may be established similar to that which regulates the arrangement of musical notes."

NOTICES OF THE WORK ON "HARMONIOUS COLOURING ADAPTED TO DECORATION," IN

The Critic, May 1, 1848.

"The volume before us is an evidence of the great progress which has been made of late years in the taste for decorative art. . . . . To Mr Hay belongs the merit of having been among the first to invite the attention of his countrymen to decoration as an art. He first reduced to rule and reason the paints and papers to be used in the various rooms of a dwelling. The choice of colours was little more than a freak of fancy, until he showed why one should be preferred to another."

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Fraser's Magazine.

"In the absence, in the general case, of all indications of taste in the internal decorations of our dwellings, or which is, perhaps, yet more to be lamented, in the presence of the evidences of a bad one, our understandings have been hitherto wrapped in a kind of Cimmerian darkness, as regards the employment of decorative painting for domestic purposes, for the embellishment of our dwellings. A ray of light, however, and a brilliant one, has been let into this dark profound by Mr Hay, who not only points to a better state of things, but leads the way. Urged by the irrepressible energies of an active, vigorous, and original mind, Mr Hay has stepped from the ranks of a profession, hitherto of the humblest pretension—a profession whose practice was thought to require little judgment, and still less taste—and has rendered himself remarkable by the ability with which he exposes this fallacy. Mr Hay has, in truth, elevated house-painting to the dignity of an art—an achievement which he has accomplished simply by recognising principles, the power of which in producing the *most beautiful*, in both form and colour, his own practice has long illustrated. In his 'Laws of Harmonious Colouring,' Mr Hay blends the scientific with the practical, which, in popular language, means two things: first, that he begins at the beginning of his subjects; and, second, that he gives reasons for all he advances.

"The art of house-painting has hitherto been considered a very humble one; but it would be no difficult task to show, that it is far from being so inherently, and that its degradation was wholly the result of combined negligence and incapacity. The proof of this may be found in the elevation to which it has been raised by the genius and talent of Mr Hay."

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The Spectator.

"Mr D. R. Hay of Edinburgh affords another and a striking proof of the advantage, as well as the pleasure, derivable by a craftsman in intellectualizing his labour by scientific study. He thoroughly understands his subject—a merit that does not belong to all writers—and he lay down the principles of Harmony in Colour, as applicable to decorative purposes, explicitly and fully and in a practical manner."

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The Morning Chronicle.

"In the early part of his work, Mr Hay throws a most important light on the theory of colours, by the agency of which he has been enabled to go much further towards the elucidation of this subject than any previous writer. He then, in a lucid manner, explains the relations which colours, in their various tints, hues, and shades, should have to each other to produce an harmonious result.

"After the extracts we have made, it is hardly necessary to observe, that this is a work of great originality; and we have not the least hesitation in adding, that we believe that a diffusion of the knowledge of the principles laid down in it would prove of material use to our manufacturers. In addition also to the utility of the study of those laws which regulate harmonious colouring to those engaged in productive industry, there can be little doubt that a knowledge of them would greatly enhance the pleasure derived from pictorial art."

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The Atlas.

"This is a new and improved edition of Mr Hay's work on the 'Laws of Harmonious Colouring, and is adapted to every art and science in which colours form an accessory. Every line of this useful book shows that the author understands his business; and he has contrived to intellectualize his subject in a very interesting manner. The principles of harmony in colour, as applied to decorative purposes, are explained and enforced in a lucid and practical style, and the relations of the various tints and shades to each other, so as to produce an harmonious result, are descanted upon most satisfactorily and originally. The applications of the laws of colouring to house-painting is an era in science; and the precepts given cannot fail to dignify the calling, by converting it into an imaginative as well as an agreeable and useful pursuit."

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The Ulster Times.

"We are happy to see that the good taste of the public has called for a third edition of Mr Hay's ingenious treatise on this interesting subject. While we hail Mr Hay's work as likely to popularize the delightful study of which it treats, we can assure the scientific and the refined, that they will find in it many observations worth their attention."

The Architectural Magazine.

"It is impossible to peruse the work before us without being convinced that the author is thoroughly acquainted with the science of his art. We have given as distinct an idea as we can of Mr Hay's treatise without the aid of his coloured plates; and we have done so with a view of showing every young architect, or other person connected with houses or furniture, how much they may gain from Mr Hay's book. In short, there is no other such work on the subject of which it treats, and none of which it may be so truly said, that it ought to be in the hands of every one at all connected, however remotely, with building or furnishing. We repeat, that we cannot too strongly recommend Mr Hay's work to our readers."

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The Edinburgh Chronicle.

"This work, written by an eminent citizen of Edinburgh, has been long before the public, and has been so highly appreciated, that it has now undergone three impressions. It is well worthy of this great success, for it is a production of uncommon originality and genius; and, while it is honourable to the taste and talents of its author, it cannot fail to prove extremely useful, not merely to the young aspirant, but to the most experienced and eminent artist, particularly to the house-painter. House-painting has hitherto been considered as scarcely connected with art at all, and has consequently, in practice, been characterized by no exhibition of taste or 'harmonious colouring;' but Mr Hay has struck out new lights as to his profession, and has shown in this publication that the business of a house-painter should be founded on science, and regulated by laws, as well as the higher departments of art. And, what is more, he is the great sublime he draws. In his own extensive business, he has carried most successfully into effect those great principles which he has so well developed in the work before us; indeed, his own bright example has done for the art of 'harmonious colouring,' in this city and neighbourhood, more than has been effected by his predecessors in the same profession for centuries.

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Chambers' Journal.

"An exceedingly instructive little volume has fallen under the notice of the editor, entitled, 'The Laws of Harmonious Colouring, adapted to House-Painting," by D. R. Hay, house-painter in Edinburgh, and a perusal of which would be sure to refine the taste of the artisan engaged in this ingenious profession, and be particularly serviceable to gentlemen in the embellishment of their residences. It will have been often remarked, that the colouring of the walls in our houses is in many cases unpleasing to the eye, and quite out of character with the furniture, the carpets, the degree of light, or the nature of the chambers. One room is painted green, because *green* is a pretty bright colour; while another, for some reason equally frivolous, is daubed over with a pink salmon tint. To correct these, and many other absurdities in house-painting, Mr Hay has presented us with a variety of comprehensive rules."

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The Literary Journal.

"We are glad that Mr Hay's book has gone to a second edition; and we doubt not that the ability and excellent knowledge of his profession which it displays, will meet with the reward to which they are well entitled."

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The Patriot.

"It is impossible to read Mr Hay's clear, lucid remarks, without being at once convinced that he is completely master of his subject. Indeed, we have never perused a work which, in a less obtrusive manner, contained more useful and well arranged information."

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The Civil Engineer and Architect's Journal.

"Mr Hay's book is the fourth edition of a work decidedly esteemed for its practicability, cheapness, and the soundness of its principles; and to it is added, in this edition, an excellent treatise on house-painting. It is, indeed, the cheapest and best book on the subject, and one to which our readers, of all classes, may refer with advantage and delight."

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Loudon's Encyclopædia of Architecture.

"After consulting all the works that are considered the most valuable on the subject of house and ornamental painting, we think that by far the best, and indeed the only one that embraces principles, is a work entitled, 'The Laws of Harmonious Colouring,' &c., by Mr D. R. Hay, house-painter, Edinburgh. We strongly recommend Mr Hay's work to every painter who aims at excellence in his profession, and to every amateur who wishes to judge for himself."

Ancient and Modern Art, Historical and Critical. By George Cleghorn, Esq.

"But of all the treatises on the harmonic theory, those of Mr Hay of Edinburgh—already well known to the public for his excellent work on the 'Laws of Harmonious Colouring'—are the most satisfactory. He has illustrated his subject by a series of publications, embracing 'The Harmony of Form;' 'Proportion, or the Geometrical Principle of Beauty Analysed;' 'The True Principles of Ornamental Design as applied to Decorative Arts,' &c. In the opinion of the best judges, he has all but arrived at the solution of the Platonic theory—a discovery which involves an important psychological phenomenon, demonstrating the existence of certain fixed principles of proportion and beauty in the human mind. The development of such principles may be of essential service in their application to architecture, and that description of decorative art connected with geometrical figures. It is impossible to read these treatises without being convinced that the author is well versed in geometry, music, and acoustics. His style is clear, graceful, and philosophical. His works are not only highly interesting, but quite original, and well worth the attention both of the artist and the philosopher.

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