

INTER-SOCIETY COLOR COUNCIL

NEWS LETTER

NUMBER 162

November-December 1962

32ND ANNUAL MEETING

The 32nd Annual Meeting of the Inter-Society Color Council will be held at the Statler Hilton Hotel, New York, New York, on Monday and Tuesday, March 11 and 12, 1963. On Monday, March 11, meetings of the color problems subcommittees will be held. As in other years, members and friends of the Council are encouraged to attend this Monday session. The annual business meeting will be on Tuesday morning, March 12.

Dr. Fred W. Billmeyer, Jr., E. I. du Pont de Nemours & Company, Wilmington, Delaware, this year's program chairman, is arranging a symposium on Tuesday afternoon which will have the general title of "Color Measurement - From Design to Production." The banquet will be held on Tuesday evening, and the banquet speaker will be Professor Isay Balinkin, University of Cincinnati, whose title will be "Light Interaction with Light, Matter, and Consciousness."

As noted in the advance announcement, a final announcement with registration blank and hotel reservation card will be sent to the membership by the middle of February, and further details will be included in the January-February issue of the Newsletter. This should prove to be a very interesting meeting for the entire membership and your editor hopes that you will all plan to attend.

COLOR IN ORGANIC FINISHES

Several members of ISCC were speakers at the 49th Annual Convention of the American Electroplaters Society. Carl Foss gave a paper on "Color Specification," B. H. Kirby gave one on "Improvement of Light and Heat Stability of Colored Anodized Coatings," and W. J. Kiernan's topic was "Color in Organic Finishes." These talks were published in the Technical Proceedings of the Society.

The Newsletter received a copy of Mr. Kiernan's paper, "Color in Organic Finishes." This paper is informative and interesting.

Mr. Kiernan introduced the historical discussion with, "In any discussion of scientific matters, it is well to deflate one's ego by reflecting upon the past before extolling the wonders of the present." The use of pigments began perhaps 150,000 years ago. Bone tubes have been found in which there was grease paint made from red and yellow ocher clays. 100,000 years ago men buried their dead in red ocher. Cro-Magnon paintings were outlined in red,

black and yellow pigments. Egyptian dynasties introduced naturally occurring blue and green pigments, and later artificially made blue and green. The Greeks added white lead, red lead, and verdigris. The earliest paints were dispersed in animal fats or suspended in water mixtures. The Egyptians probably used albumen or vegetable gums to make tempera paints. Archaeologists tell us that surfaces painted with wax or grease suspended colorants were protected by a clear varnish protective coating. "Some reservations should be taken on the protective value of varnish on grease and wax." A table in the paper lists 15 colorants used by the ancient Mediterranean world, many of which are still common pigments in the colorist's palette. Arsenic, mercury, and lead pigments were used in cosmetics. "Beauty had precedence over toxicity!" Some paintings in Egyptian tombs retain their brilliant colors after 4,000 years.

The invention of mauve by Sir William Perkin in 1856 opened a new era in paint technology. It has been reported that as early as 1863 a British stamp was printed with a lake of the mauve dye. Methyl violet was invented in 1861, alkali blue in 1862, para red in 1874, rhodamine in 1887, toluidine in 1905, hansa yellow in 1905, BON maroon in 1907, PTA toners in 1914, and phthalocyanine in 1935.

In his paper Mr. Kiernan describes the chemistry, preparation, and properties of some of the present-day, commonly used, inorganic pigments. They include iron blues, ultramarine blue, molybdenum oranges, chrome oranges, yellow iron oxides, chrome yellows, cinx yellows, cadmium yellows, red iron oxides, cadmium red, mercadmium red, chrome greens, chromium oxide, and hydrated chromium oxide.

In his discussion of organic pigments, Mr. Kiernan referred to Vincent Vesce's proposed chemical classification:

Group I Basic Class -- includes pigments such as auramine 6, magenta, methyl violet, victoria blue, rhodamine B, and methylene blue.

Group II Insoluble Azo Class -- includes toluidine red, para red, hansa yellows, hansa orange, benzidine yellow, and pyrazalone red.

Group III Soluble, Precipitable Azo -- includes lithol red, red lakes bordeaux B, pigment scarlet, BON maroon, litholrubine, permanent red 2B.

Group IV Condensation Acid Class -- includes alkali blue, peacock blue, and eosine.

Group V Anthraquinone and Vat Class -- includes alizarin, madder lake, vat yellows, indanthrone, indigos and thioindigo reds and maroons.

Group VI Phthalocyanines -- includes phthalocyanine blues and greens.

Group VII Miscellaneous Class -- includes carbazole violet, pigment green, naphthol green, and quinacridones.

The number of organic pigments seems almost unlimited. As with most organic materials, physical and chemical changes can be expected upon aging, but in every color of the spectrum one can undoubtedly find a durable organic pigment for a specific job.

The above discussion should give an idea of the enormous number of organic and inorganic pigments available to the paint manufacturer. But this is only one part of the story. As indicated in the discussion of inorganic pigments, when selecting a pigment, the formulator must take into account many characteristics. A brief list of some of these follows:

1. Pigment cost
2. Ease of grinding in a ball mill, roller mill, etc.
3. Compatibility with the vehicle and possible reaction with driers or other pigments
4. Paint stability - gelation of vehicle
5. Flocculation of pigment in the can
6. Flotation of pigment on application of paint
7. Opacity or translucency in the vehicle which is to be employed
8. Bleeding in solvent provided by the vehicle or by overcoating
9. Outdoor durability, if such is needed either in mass color or diluted color
10. Heat resistance to baking cycles and in usage
11. Toxicity
12. Fading or hue change either in sunlight or in the dark
13. Chemical resistance to acids, alkalies, or soaps
14. Spectral characteristics - metamerism - complementary undertones

One could say that hardly a pigment exists which is ideal from all standpoints. The suitability of a color pigment or groups of pigments in a paint vehicle can only be determined by actual test. This involves different preparation methods, the determination of long-time can stability and exposure to atmospheric weathering. While published literature can be of great help in solving the formulator's problems, the only sure method is to make the material and test it under the conditions of expected use.

Mr. Kiernan's paper concludes with discussions of metamerism and gloss. His comments are too extensive to cover adequately in this short summary. Mr. Kiernan has notified the Newsletter that he has a few reprints and would be pleased to honor requests for copies. Address your correspondence to William J. Kiernan, Bell Telephone Laboratories, Inc., Murray Hill, New Jersey.

HOUSE AND GARDEN COLOR PROGRAM

For 16 years House & Garden magazine has forecast consumer color preference for manufacturers, wholesalers, and retailers. The service began in 1946 with a House & Garden consumer survey conducted in retail stores across the country. Participants were asked two questions:

1. What colors do you now have in your home?
2. What colors would you have if you could?

Using the results of this survey, House & Garden convinced 96 manufacturers to produce merchandise in the preferred colors, and enlisted 57 retail stores to stock them. In 1947 House & Garden published its first annual September Color Issue promoting the sale of these colored products. This launched the House & Garden Color Program.

Since 1946 the method of determining consumer color preference has changed. Historical records are surveyed; market studies and sales tests are conducted by House & Garden consultant, Faber Birren; and House & Garden editors make reports on color trends. Today 400 manufacturers of home products and 200 stores (one to a city) participate in the program. After the promotion is under way information on the new colors is sent to 1,500 stores.

In 1947 there were 20 colors in the forecast, 10 current and 10 forecast colors. In 1952 basic pastels were added to the groups as a service to paint manufacturers, and the number of colors was increased to 36. Each year from 3 to 12 colors are dropped from the survey, and an equal number added. The trend occurs in cycles of 10 to 12 years. The last color cycle was observed in 1960 when the off-white and neutral look gave way to deeper, richer colors. When a current color reaches maximum ("falls to the mail order or chain store level") it is dropped. When forecast colors show a rise in popular acceptance they move into the current category. New colors are added to the forecast colors.

House & Garden's Color Program, originally limited to home furnishings, now extends to building materials, plastics, paints, tiles, enamels, china ceramics, and lacquer. Some products far outside the home furnishings are also made in House & Garden colors: adding machines, typewriters, pistol stocks, alarm clocks, telephones, TV, radios, and garden hoses. 171 descriptive House & Garden names have been introduced. Many are a part of the Maerz & Paul Dictionary of Color. House & Garden color chips come in either 3" x 6" chips, half mat, half glossy (\$4/set), or 1" x 2" glossy chips (50 cents per set).

COLOR IN YOUR WORLD BOOK REVIEW

Character analysis through color, a long-time hobby of Faber Birren, is now available in a paperback edition published at 95 cents by Collier Books, 1962 (121th). While written by Mr. Birren primarily for entertainment, it is the author's suggestion that it may well appeal as a business gift item or for general distribution to company personnel, dealers, and others; and for that reason arrangements can be made for discounts on quantity purchases from the publishers, Colliers Books, 111 Fourth Avenue, New York 3, New York. The material in the book is familiar to many ISCC members who may

remember the 1940 "Martin Lang" edition, and the very colorful series of separate booklets that came into wide demand during the course of an early color promotional program for Eagle Printing Company. This new edition brings this material together in a new and handy volume that may be amusing or interesting to some of our readers.

Dorothy Nickerson

PIGMENT ANALYSIS FROM
REFLECTANCE SPECTROPHOTOMETRY

As we observe the expanding application of recent developments in colorant mixture computers, certain aspects of their

historical origin come up frequently for review. Most scientific workers engaged in the study of the relationship between the color of opaque films and the optical characteristics of colorant mixtures recognize three basic milestones in the development of present day techniques. The first is Schuster's expression of atmospheric light absorption in terms of two parameters, the coefficient of absorption and the coefficient of scatter, in 1905. The second was the reduction of Schuster's concepts by Kubelka-Munk in 1931 to a mathematical form for relating reflectance and transmittance to films of variable thickness and opacity. The third was the recognition of the fact that color and hiding of multi-pigment mixtures could be treated by simple weighted addition of the individual absorption and scattering coefficients of the components by the route of the Kubelka-Munk equations. The last conclusion was reported in the Proceedings of the Physical Society by Dr. D. R. Duncan of the Paint Research Station at Teddington, Middlesex, England in 1940.

Since that time Dr. Duncan has steadily and consistently studied and demonstrated in behalf of the practical application of these principles to every day paint problems. The applied nature of his work, the limited publicity of his activities, and the laborious monotony of manual calculation by his procedures have generally obscured the significance of his contributions. The general availability of modern computing devices which permit instantaneous expression of reflectance and transmission data in terms of more basic optical constants, should encourage us to seriously review and more closely examine the procedures which have evolved from Dr. Duncan's quarter century of experience in Kubelka-Munk applications.

Dr. Duncan's most recent publication appears in the May 1962 issue of the Journal of the Oil and Colour Chemists Association (Volume 45, No. 5). It is entitled "The Identification and Estimation of Pigments in Pigmented Compositions by Reflectance Spectrophotometry." The article describes detailed methods for handling this traditionally difficult commercial problem. How far can one go in determining what pigments were used, or in what concentration, in an unknown composition by the route of reflectance spectrophotometry? The limitations of the traditional method of experienced "reading" of spectrophotometric reflectance curves is discussed. Dr. Duncan proposes the transformation of reflectance values to ratios of the absorption and scattering coefficients as a great advantage to minimize the effect of white, and to simplify the arithmetic in subsequent quantitative estimations. Making the common assumption that scattering is independent of wavelength, permits application of simplified pigment mixture terms. Dr. Duncan further proposes that predetermined single pigment reflectance data be expressed as the ratios of the absorp-

tion coefficient at uniform selected intervals of wavelength (e.g. 25 mμ) to the coefficient at one interval where absorption maximum commonly occurs. The comparison for blue pigments would be, for example, at 600 mμ; or for yellow pigments at 425 mμ. On this basis, ratios would be expected to hold irrespective of the level of white and the data of an unknown can be readily compared to predetermined data for common pigments.

Numerous examples of qualitative and quantitative pigment analysis by this technique are given. In essence, these are simplified manual techniques which may find particular application in laboratories where special purpose analogue or digital computer facilities are not available. The assumption and principles are not new, but the clarity of examples may provide an important guide to the uninitiated.

Although the article deals principally with the author's preferred techniques for simplified use of the now well recognized Kubelka-Munk equations; the completeness of the information and historical preface contributes to the better understanding of pigment/color relationship. Dr. Duncan's thorough and objective reporting does not neglect the practical but necessary appraisal of the limitations of the simplifying assumptions. Well written expositions of these principles and procedures are relatively rare and for this reason this article is specifically called to the attention of Newsletter readers.

Ralph E. Pike

SAVE YOUR
METAMERS

With the last issue of the Newsletter you received a folder containing metameric gray samples. These were prepared by Walter Granville to illustrate a forthcoming article for the Newsletter. Please save your folder. You will need it to fully appreciate Walter's treatise on this most interesting and important subject.

PICTOMANIA

A large number of very interesting magazines and publications cross the desk of the Editor of the ISCC Newsletter. In order to survey this mountain of material I try to guess what an article is about from its title. This system is only about 50% reliable. I seem to be involved in a game with the author, and he has me at a distinct disadvantage. Some titles conceal the content of the article so well that I am intrigued into reading it. Many of these are much more of a surprise than the "surprise" dishes set before me in restaurants. I came upon such a title in A. I. D. West magazine, "Pictomania." Since I have enjoyed many articles in this excellent periodical, I felt that I did not risk too much in pausing to find out what could be contained therein. I enjoyed it so much that I felt that I must share it with you. The article in A. I. D. West was reprinted by permission of Creative Crafts Magazine (Vol. 2, No. 1), 6015 Santa Monica Boulevard, Los Angeles 38, California. It is reprinted here with the same permission.

Never before in the history of art have so many paintings been produced. The reason is as simple as rolling off a logarithm. Is there anyone left today who does not paint? No stretch of the imagination would be required to believe that, were all contemporary painting extant in the world to be placed end to end one could make orbiting the earth paletteable--perhaps

just a stretch of the canvas. Now one cause of this might well be that almost everyone either paints big or aspires to paint big. Could there be something psychological about the phenomenon? Or is it simply that the painter goes along with a current trend--to combine and paraphrase a couple of slogans: Think small, paint big?

Granted, there is nothing new about painting big. One has only to recall the colossal and fashionable jobs of the 18th century. Then, however, a modicum of reason was present, the purchasers or those who commissioned, living in correspondingly big houses. Today, everyone lives in a tract house, where miniatures would make more sense. New is simply the numbers. New also is the frenzy for painting. New finally, is the exclusively subjective element--the ratio picta, so to speak. Once, if one recalls, in order to solve the difficulty, a deus ex machina was introduced: today, it is different: for deus, meus has been substituted, so that, excusing the Latin, we count on a meus ex machina.

To speak in terms of machines and use a mechanical terminology is not so far-fetched. One might suppose that, given the rule of thumb "Easel does it," a school of painting would indeed have come into being called inaction painting. (It could, of course, never develop into a movement.) But the contrary happened, and action painting came about (see our book Dada Knows Best). Now, to keep pace with the fast-moving world, action painting is being supplanted by kinetic painting. What is the motorvation, you ask? To explore and conquer outer pictorial space. However, in order to be the first, it is the contention of this writer that the painter will have to be equipped with more than the traditional spray and splatter guns. It will require a new secret weapon, soon to be released: the easel engine. The truth of the matter is that already a select group of painters are now in training, the so-called pictonauts.

Should this attempt be unsuccessful, we shall be faced not with a Hobson's choice but rather with a Hobbyson's choice. So colossal will the competition be, so strong the pressure that, instead of new and improved models coming off the assembly line only once a year, it will be twice a year. (It is conceivable that such a practice might prove a powerful stimulus to the automobile and appliance industries.) Failure would likewise mean that a kind of Gresham's law in reverse might become operative. This would occur because too many will have forgotten, if they ever knew, that the artist must draw the line somewhere, or because the tendency to hoard the less valuable will become so costly that the more valuable will be left in circulation. Aiding and abetting such a condition is the current rage to frame everything, even people, and call it a painting. Thus the palette may include everything but the kitchen stove--some have even mentioned the range in this connection--from scraps of mutation burlap to bits of crockery. One painter of our acquaintance even uses pieces of jade, having copyrighted the term "jaded palette." Lastly, speaking abstractly of course, there is the risk being run that the occult science of driptology may steal the whole show.

Now, faced with the above-enumerated dire prospects, what positive remedy or remedies might be suggested? Above all, it is the Missile Tower that provides the launching pad to send people into outer space. It is just

possible that the much-maligned Ivory Tower may be our last hope to send artists into outer pictorial space. With this in mind, the writer has composed a launching song, with apologies, entitled "None But the Lonely Art." (After all, it is a debatable question whether more people in this country suffer from a heart attack or more from an art attack.) Secondly, there is--and this is an advertisement--the writer's new Vitamin See--a patented formula, along with another, in keeping with the age, the intra-venous injection. Lastly, and for painting students, there must be a return to the tried and proven curriculum, and no more putting the art before the course.

In conclusion, all that has been said here boils down to two questions. The first, in reverse order, asked today--"Where stand the crafts?" The other asked long ago by Henry David Thoreau when someone told him that the new magnetic telegraph had established communication between Maine and Texas, Thoreau's only query was, "What's the message?"

THE COLOUR COUNCIL OF CANADA

Guest speaker for the November meeting of the council was Dr. C. E. Robinson of the Department of Mental Health, city of Toronto. His subject was "Color in Mental Health." According to Dr. Robinson, women generally show a greater response to color than men--a probable increase due to the number of men who show a defective color vision. According to Dr. Robinson, "It now seems apparent that physical health may be impaired or repaired by color surroundings--mostly by response to changing moods."

At the January meeting of the Colour Council five speakers spoke on five different subjects. The speakers were selected by lot and permitted to select from a list of seven subjects relating to color.

THE COLOUR GROUP OF GREAT BRITAIN

Two speakers were featured at the Science Meeting of the Colour Group, December 12, 1962. Dr. F. J. J. Clarke (National Physical Laboratory) spoke on the subject, Further Studies of Extra-Foveal Colour Metrics.

"In previous studies of relative luminous efficiency and colour mixture phenomena in extra-foveal vision by this author, the observer was initially dark adapted and viewed small (40' x 80') comparison fields located at 10° eccentricity on a dark surround, these being presented as half second exposures with dark recovery periods to control local adaptation. Two major innovations have now been introduced: the provision of a large field attachment for Wright's colorimeter giving bipartite matching fields of up to 10° subtense, and the provision of a system for keeping the eye adapted to a given level of Illuminant A. Measurements of relative luminous efficiency, chromatic additivity and photometric additivity have now been made under four sets of conditions: small field, dark surround and dark recoveries; large field, dark surround and dark recoveries; small field, white surround and white recoveries; and large field, white surround and white recoveries. As conditions are changed in this order, departures from chromatic and photometric additivity tend to become less marked. Nevertheless, none of the extra-foveal conditions so far tested by this author or by other workers has been found to be free from significant additivity failures."

Dr. W. A. H. Rushton (Physiological Laboratory, Cambridge University) spoke on Visual Adaptation.

"The eye adapts so rapidly and smoothly to changes in the intensity of prevailing light that the visual scene is virtually unimpaired when the sun is obscured by a cloud. A much more noticeable adaptation is seen when we go from sunlight into a darkened lecture room, and have to wait for about half an hour before full sensitivity is gained.

"Both these kinds of adaptation have been attributed to changes in the level of the visual pigments of the retina, falsely with respect to the rapid type, correctly with respect to the slow type, though even here the effect acts through a change in nerve organization.

"Rods are connected in groups of 1,000 or more to one optic nerve and a case will be made that this great group is organized as follows: (a) Each light quantum absorbed by rhodopsin results in one discrete signal sent to the integrating centre of the group, no matter what the state of adaptation. (b) Each bleached molecule of rhodopsin until it has regenerated sends a continuous message to the integrating centre modifying its space-time limits of integration - the balance between sensitivity and discrimination."

RICHARD S. HUNTER RECEIVES
ARMIN J. BRUNING AWARD

This award "for the most outstanding contribution to the science of color in the field of coating technology" was established in 1962 by John W. Masury & Sons. The award commemorates the name of Arthur "Joe" Bruning who headed the Color Control Department serving both the Masury and the H. B. Davis Companies. Mr. Bruning, a past president of the Baltimore Society, died in 1961. The 1962 Armin J. Bruning Award plaque was presented to Richard S. Hunter, President of Hunter Associates Laboratory, Inc., McLean, Virginia. Richard Hunter, known to ISCC as Dick, is a director of the Inter-Society Color Council, a voting delegate from the Optical Society of America and of the Technical Association of the Pulp and Paper Industry. He is a member of Problems Subcommittee No. 14, Colorimetry of Transparent Materials; Problems Subcommittee No. 16, Standard Methods for Mounting Textile Samples for Colorimetric Measurements; and Problems Subcommittee No. 17, Color in the Building Industry. We of the ISCC are pleased that the Federation of Societies for Paint Technology recognizes, as we do, that Dick Hunter deserves an award "for his pioneer work in the field of color and appearance measurement through instrumental techniques."

COLOR MARKETING
GROUP FORMED

In the last issue (Number 161, pp. 2, 3) the Newsletter reported that commercial application was made of the work of Problem Subcommittee on Problem 23. Since then the American Dyestuff Reporter (December 10, 1962, p. 9) reported a meeting of the Color Marketing Group. The Reporter is the official magazine of the AATCC. Twenty-six large and small companies were represented. Four workshop meetings were held on textiles, home furnishings, building materials, and retailing. Among the speakers were Kaye Leighton, who talked on lighting, and Forrest Dimmick, who discussed some psychological and physiological effects of color.

At the business meeting the following board members were elected: Louis A. Graham, American Viscose Company; Robert Eppinger, Baumritter Corporation; Dwight L. Wardell, Sandoz, Inc.; Ruth L. Strauss, interior decorator; Paul Olive, American Telephone & Telegraph Company; Beatrice West, Caloric Corporation; Everett R. Call, Call Marketing Service; Ouida Wessman, Scott Paper Company; and Richard Haskel, Seneca Textiles. Many of these people are well known to members of ISCC.

ON SEEING RED

By J. R. Notman; reprinted from the April 1962 issue of Scottish Field magazine. (In large house or small, there is plenty of scope for the colour-conscious. An architect and interior designer gives his views on colour for the Scottish home.)

In one of the Post-War Revues there was a lyric about seeing red at various times, e.g., "When people come to sup with me, And leave the washing-up to me . . ." Although it wasn't a particularly witty comment and although the rest of the revue was better, it's about all I can remember. Seeing red was then, clearly, a state of mind.

And the whole question of colour around us--and colour application--is so very much this state of mind. We see what we choose to see, and in Scotland at the moment we haven't chosen very much. Goodness knows why the black and white edicts of John Knox should have had such a long-lasting leaden effect. The arts in Scotland seem to be still strange and suffering, and the use of colour seems to be still discussed in the way that stairhead gossips lean together to mutter, "He drinks"--an association with our particularly Presbyterian preoccupations that the Devil is colourful and that colour is suspect.

Perhaps it is, of course. Colours do, in fact, provoke reactions which have no book of rules. One merely knows that Green is envy and Summer, that Blue is depression--and purity, and that Black is evil, but also mourning, even the separation from the world that one sees in the black clothes of the clergy and the "Sunday-best silk." And apart from a jaundiced look, yellow is happiness--although during the Renaissance, it could mean lust: Malvolio was persuaded into a state of mind--and yellow stockings.

The humours of the mediaeval body were certainly vivid. The choleric (from bile) man was an angry man. The sanguine (from blood) man was ruddy and cheerful. Red is still cheerful, and in Russia today who could be surprised that the words red and beautiful are interchangeable? The present political scene does seem to be more colourful than in Ancient Rome: those entering public office were required to wear whiter-than-white togas, a shade called "candidate," emblematic of their purer-than-pure intentions. Nowadays the word "candidate" is used without any such restrictions . . .

Even the complete reversal of the meaning of the word colour from concealment, a kind of camouflage, to almost a request for attention reflects the changing views of people. We know its present meaning, of course, but to discuss it is such a mental effort. To define colour we'd all eventually, vaguely, agree that it had to do with light and objects, and that would be about it. We're not used to colourful talk, that way. Of the five thousand most frequently used words in the English language, only 15 are in any way related to colour vision, and of these only five are concerned with colour.

And, of course, in Scotland we are cautious. In danger of atrophy where colour is concerned. For a nation which has been bold and imaginative in its colour weaves, producing blends any advanced nation would be proud to own, it becomes sad to look at our community landscapes whose colour caution has been encouraged by lethargy, with tenants enjoying the satisfactory safety of their settings--no dangerous, treasonable air of change, they're proud to say. Within the vast acres of cream paint and neutered wallpapers, there must be a great deal of bemused comment on the design trends now being covered by television and magazines, a great deal of surprise that such solutions are possible and efficient and comfortable. Certainly, there must be an uneasiness that the air of public opinion is changing, that some salt comment is due to season the porridge sense of one's own house.

Well, it is our responsibility. Anything we do in the selection of colours to surround us is in the properties in which we take a particular pride. If nature sets up a strong competition, as in the flaring attractions of the Tropics with large and insistent blue skies and rich vegetation, one has to meet the competition with something which will take its natural place in the setting, and compete. Ruefully, we reckon that the question of hot climates does not affect us in Scotland; we accept, work with, prefer the subtler tones. With a high tendency to haze in the sky, pure colours look merely raw. That's all right, but why should we have to search around so much, finding the necessary delight in subtle yet gay colours in only some of the villages of Kirkcudbrightshire and Fife, for example, rather than in any of our townships? Civilisation seems to have bleached our civic face almost entirely--those grim grey chasms of streets which daunt the traveller.

It's so typical of the complexity today that in the rush of decision and the ordering of our environment we sometimes forget to require of our buildings this necessary quality and condition of delight. The principles of successful architecture, put forward many centuries ago, "Commoditie, Firmeness and Delight," do still count.

Only with colour, it's getting an active delight to start up again in Scotland that does seem to be the trouble.

We seem to be standing in this day and age, feeling we're between the Devil and a deep blue sea, being persuaded by the press, the Council of Industrial Design, the Civic Trust, designs from Scandinavia, to take, for kicks a few steps.

Well, naturally, not all modern colour work is good. So many projects have copied the idion and lost the spirit. There's no virtue in novelty per se. Just as in furniture design, one cannot hope to fiddle with the leg structure and call the result contemporary, so in interior work one cannot have a wall a different colour because one's heard it's a good idea. That kind of fashion fades away and fails one. A little of our native caution is required so that we can decide upon the points to emphasise because of their potential character, and those points to conceal because they embarrass us. Due consideration, therefore, and then action, decisions on the main colour, remembering aspect, decisions on its strength, saving cannily the brighter colour for the smaller area--there's no point in declaring one's forces too soon, and this is War. We march on Dullness.

So easy, isn't it, to line up all the ammunition of the glossy design magazines upon one's side. "We march on Dullness" sounds out as if sung by a baritone in mixed company as a kind of vintage, comfortable recruiting song at an optimistic piano. And perhaps it is just that, a repeat of one's worst suspicions realised in print six years ago: "If only walls could speak," one magazine sighed. "They do, but what do they say? 'Here lives someone who is exciting to know,' or 'Abandon hope all ye who enter here.' Sometimes, like a pianist with a musical heart but stiff fingers, you may long to enliven your house but lack ideas for ways and means. You cannot think what to do. Here are many ways of . . . why-didn't-I-think-of-it-before suggestions. Colour cannot be confined to one place. It has a habit of spreading, so don't be surprised that instead of giving you 100 ideas we have given you 10,000. The more the merrier. Let the walls be voluble. Your house will be a house that lives . . ."

All by the touch of a fairy wand . . . So easy to make fun of, naturally, the rather special recipe, the suitable monologue material, but one does understand the intention behind all the tongue-in-cheek. One may very well say one doesn't want the house to live, the walls to speak, but one knows what is meant. Ideas do stimulate and the sudden vitality clears the blood stream. One argues that so many houses in Scotland have died on the owners and no one's been told, and isn't it about time one heard? One sees red again and argues fiercely for rather more colourful communities--"Neat but not gaudy," as the Devil said when he painted his tail blue.

(Editor's note: This title was listed in the last issue, but the body was inadvertently omitted.)

LIST OF ARTICLES ON
COLOR RECEIVED BY
NEWSLETTER

"Some Problems in the Analysis of Surface Coatings," C. Whalley, J. Oil & Colour Chemists' Assn., 45, No. 5, pp. 293-299 (May 1962).

"Special Decorative Effects," Hal-Curtis Felsher and Walter J. Hanau, Modern Plastics (December 1961), 5 pp.

"The Specification of Colour Rendering Properties of Fluorescent Lamps," Jan Lomens Ouweltjes, Die Farbe, 9, No. 426, pp. 207-246 (December 1960).

"Spectrophotometry and the Paint Industry," W. Lawrence, Amer. Paint J., 42, No. 16, pp. 64, 66, 68, 70 (1957); No. 17, pp. 28-29, 32, 34 (1958).

"The Standardization of Lovibond Glasses" (Statement from the Color Committee), J. O. C. S., 35, No. 3, pp. 134-135 (March 1958).

"Status of Color and Gloss Measurements in Industry," Mark P. Morse, Off. Digest, 32, No. 431, pp. 1618-1626 (December 1960).

"A Study of Binocular Color Mixture," F. Thomas, F. L. Dimmick, and S. M. Luria, Vision Research, 1, pp. 108-120 (1961).

"A Study of Metamerism in Colored Paints," Armin J. Bruning, Off. Digest, 34, No. 447, pp. 437-444 (1962).

"Study of Photo-electric Instruments for the Measurement of Colour: Reflectance and Transmittance," L. R. Dearth, W. M. Shillcox, and J. A. Van Den Akker, *Tappi*, 43, pp. 230A-239A (February 1960).

"System for Describing Visual Appearance," Deane B. Judd, *Screen Process*, pp. 42, 60 (June 1961).

"A Temporal Factor in Colour Discrimination," D. Farnsworth, *Proceedings of the Symposium on Visual Problems of Colour. National Phys. Lab., Vol. II*, pp. 429-444, Her Majesty's Stationery Office, London (1958).

"Test Methods in Spectrophotometry: Stray Light Determination," Richard E. Poulson, *Annual Meeting Opt. Soc. Amer., Biltmore Hotel, Los Angeles, Calif., 1961*. (Abstract in *J. Opt. Soc. Amer.*, 51, No. 12, p. 1457, 1961.)

"Texture and Color Are Close Allies," Walter Murray, *Amer. Painter & Decorator*, 38, No. 5, pp. 39-40 (1961).

"Theory of Color Vision," Robert M. Boynton, *J. Opt. Soc. Amer.*, 50, No. 10, pp. 929-944 (October 1960).

"Theory on the Receptor Mechanism in Color Vision," Alfred C. Schroeder, *J. Opt. Soc. Amer.*, 50, No. 10, pp. 945-949 (October 1960).

"There Is Safety in Colors," Israel Dvorine, *Amer. Paint J.*, 45, No. 41, pp. 26, 28, 30 (1961).

"Thinking Aloud," Howard Ketcham, *Discount Store News* (June 4, 1962), 1 p.

"Today's Color Order Systems" (Adapted from W. Granville's talk, "Color Order System"), *Paint, Oil and Chem. Rev.*, 122, No. 13, pp. 8-14 (June 25, 1959).

"Trends of Lightfast Hansa Yellows, Zinc Yellows and Strontium Chromates," William N. Tune, Jr., *Off. Digest*, 34, No. 444, pp. 106-108 (1962).

"Tristimulus Difference Computer," Hugh R. Davidson and Henry Hemmendinger, *Annual Meeting Opt. Soc. Amer., Biltmore Hotel, Los Angeles, Calif., 1961*. (Abstract in *J. Opt. Soc. Amer.*, 51, No. 12, p. 1459, 1961.)

"Twenty-Five Years Stiles-Crawford Effect," J. J. Vos, *Advances in Ophthalmology*, 10 (1960).

"Two Problems Associated with the Blending of Colored Fibers," J. C. Guthrie, J. Moir, and P. H. Oliver, *J. Soc. Dyers and Colorists*, 78, p. 27 (1962).

"Two-Color Threshold as Test of Color Vision," Robert M. Boynton and Mahlon Wagner, *J. Opt. Soc. Amer.*, 51, No. 4, pp. 429-440 (April 1961).

"Two-Colour Projection Phenomena," M. H. Wilson and R. W. Brocklebank, *J. of Photographic Science*, 8, pp. 141-150 (1960).

"Type in Color," Howard Ketcham, *Graphic Arts Buyer* (May-June 1962), 2 pp.

"Ultraviolet Wavelength Standard for Spectrophotometry," H. J. Keegan, J. C. Schleter, and V. R. Weidner, Annual Meeting Opt. Soc. Amer., Biltmore Hotel, Los Angeles, Calif., 1961. (Abstract in J. Opt. Soc. Amer., 51, No. 12, p. 1470, 1961.)

"Unilateral Color Deficiency, Congenital and Acquired," Jennifer Cox, J. Opt. Soc. Amer., 51, No. 9, pp. 992-999 (September 1961).

"The Unsolved Problem of Colour Perception," Deane B. Judd, Palette, No. 10, pp. 30-35 (Summer 1962).

"Use of Colors in Foods, Drugs, Cosmetics and Packaging," Technical Committee of the Dry Color Manufacturers' Assn., Amer. Ink Maker, 38, No. 1, pp. 27, 65 (1960).

"The Use of 35/32mm Films for the Production of 16mm Black-and-White or Color Prints," William E. Gephart, Jr., SMPTE, 66, pp. 97-100 (March 1957).

"Variability of Spectral Tristimulus Values," I. Nimeroff, Joan R. Rosenblatt, and Mary C. Dannemiller, J. Opt. Soc. Amer., 52, No. 6, pp. 685-691 (June 1962).

"Vector Model for Color Sensations," Jozef Cohen and W. A. Gibson, J. Opt. Soc. Amer., 52, No. 6, pp. 692-697 (June 1962).

"The Versatile Basic Colors," Louis Hansen, Lab Notes, 3, No. 3, pp. 46-47 (December 1962).

"Vision: Color; Tests," Elsie Murray, Medical Physics, 2, pp. 1161-1171 (October 1958). Supplement, 3, pp. 687-692 (Reprint 1960).

"Visual Acuity Under Red Vs. White Illumination," S. M. Luria and I. Schwartz, NMRL #328 (January 18, 1960).

"Visual Selection of Color Film Neutrals," Robert W. Burnham, J. Opt. Soc. Amer., 48, No. 4, pp. 215-224 (April 1958).

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