LOCAL COLOR GROUPS

Reports of meetings of the local color groups carried in the News Letter evidence the Inter-Society Color Council's desire to encourage the activities of these groups. It is now the beginning of a new season for each of the groups; and in order that those who are reached by the News Letter may make contact with any group which holds meetings that those readers might attend, we list below the names of the groups (in order of date of formation), with the secretary or other officer with whom contact may be made by anyone who wishes to receive notices and attend meetings. In addition to the local groups which have been formed in this country to discuss and disseminate color information, the Color Group of the Physical Society (of Great Britain) holds regular meetings throughout the year. The present Secretary is Mr. R. C. Horner, The Physics Laboratory, Sello Works, Woodman Road, Brentwood, Essex, England.

WASHINGTON AND BALTIMORE COLORISTS: Holds three or four dinner meetings each year. Contact Dorothy Nickerson, Box 155, Benjamin Franklin Station, Washington 4, D.C.

CHICAGO COLOR GROUP: Now inactive; if interested in holding meetings in this territory, contact Walter C. Granville, Container Corporation of America, 38 South Dearborn Street, Chicago 3, Illinois.

BOSTON COLOR GROUP: Usually holds a series of about six dinner meetings. Contact Arthur W. Cornell, Forbes Lithograph Co., P.O. Box 513, Boston 2, Mass.

NEW YORK COLOR ASSOCIATES: Intermittent meetings. Contact Mrs. Elizabeth Burris-Meyer, 220 Madison Avenue, New York 16, N.Y.

CALIFORNIA COLOR SOCIETY: Holds monthly meetings, usually at Art Center School, Los Angeles. Contact A. H. King, 5027 Long Beach Avenue, Los Angeles 11, California.

PHILADELPHIA-WILMINGTON COLOR GROUP: Plans four meetings for the coming year; see News Letter No. 77 for details. Contact Dr. S. C. Kelton, Jr., Rohm & Haas, P.O. Box 219, Bristol, Pennsylvania.
A Symposium on the Present Status of Visual Science in Theory and Practice was held in Boston on September 10, 1948, by the Delegates from the American Psychological Association in conjunction with the Annual Meeting of that association. The Symposium was arranged and conducted under the chairmanship of Professor Harry Helson of Bryn Mawr College.

The stimulating program of invited participants and topics was as follows: Color Terminology, S. H. Newhall, Eastman Kodak Company; Color Systems, R. W. Burnham, Eastman Kodak Company; Psychology of Color - Fact vs. Theory, Elsie Murray, Cornell University; Visibility Functions as Index to the Mechanism Underlying Color, M. J. Zigler, Wellesley College; Effect of Illumination on Acuity and Tests of Night Vision, F. L. Dimmick, U. S. Submarine Base, New London; Color Vision and Factor Analysis, J. Cohen, University of Illinois.

This is the first symposium of this character to be conducted by the psychologists. Judging from its success and the remarks heard following it, a precedent probably has been established. It is interesting to note, despite the broad scope of the symposium topic, the preponderance of titles concerned specifically with color or color vision.

ICI MEETINGS IN PARIS

The following report on the eleventh session of the International Commission on Illumination held in Paris, June 29 to July 7 has been received from Dr. D. B. Judd who there represented the Optical Society of America and the National Bureau of Standards.

"The meetings were marked on the one hand by the noteworthy competence of the local French committee on arrangements, and on the other by a very encouraging international accord on most of the colorimetric questions presented. The sessions, carried on in French with interpolated translations into English, or vice versa, were very well handled, and the numerous after-hours tours and entertainments went off with an éclat truly French. The two sessions of Technical Committee 7 (Colorimetry and Artificial Daylight) were attended by 35 to 50 delegates and visitors. The Secretariat report prepared by the American committee (K. S. Gibson, Chairman, M. Luckiesh, D. MacAdam, P. Moon, and D. B. Judd) was presented by me at the direction of the chairman (Prof. P. Fleury, first session; Dr. W. D. Wright, second session). Many of the recommendations of the Secretariat Report were accepted with little dissenting comment. It was agreed not to adopt the proposed illuminant E (equal-energy chromaticity) but to continue with standard illuminants A, B, and C. Definitions of excitation purity and colorimetric purity both for self-luminous and non-self-luminous specimens were adopted as recommended except for editorial changes. The committee requested Messrs. Davis and Gibson to determine the relative energy of illuminants B and C below 370 mp, as they offered to do. The color of illuminants is to be expressed in terms of the chromaticity coordinates (x,y); and the color-rendering properties by luminance in agreed spectral bands, British practice in this regard being provisionally recommended.

"Following presentation by me of the results of an NBS check of Jacobsen's findings (J. Opt. Soc. Amer. 38, 442; 1948) that the ICI standard observer weights the short-wave extreme of the spectrum too lightly to accord with visual colorimetry of titanium pigments, the Committee voted to have 'the several National Committees sponsor research to study the adequacy of the standard luminosity function with special reference to the two ends of the spectrum.' There is a prospect of redeterminations of
the luminosity function from Holland, France and Great Britain as well as this country.

"Further study was also recommended (1) on the question of a standard illuminant having relatively more ultra-violet energy than illuminants A, B and C, for the colorimetry of fluorescent materials, (2) on the relative merits of various scales (5 were suggested) for specifying the colors represented by points lying on the straight line joining the ends of the spectrum locus on the chromaticity diagram, (3) on the merits of the concept 'metric purity' defined as 'the chromaticity interval between the points representing the adopted achromatic stimulus and the sample stimulus on any assumed uniform-chromaticity scale or chart,' (4) on methods of appraising color-rendering properties of illuminants including that provisionally recommended, and (5) on the correspondence between colors as actually perceived and the specification of them in the ICI system.

"Substantial majorities approved the following colorimetric terms together with their definitions: luminance (L or B), luminance factor (\(\beta\)), dominant wavelength (\(\lambda_d\)), complementary wavelength (\(\lambda_c\)), excitation purity (\(p_e\)), colorimetric purity (\(P_0\)), chromaticity, tristimulus values (\(X, Y, Z\)), chromaticity coordinates (\(x, y, z\)), lightness, and hue. The U.S. vote on luminance factor (ratio of the luminance of a reflecting or transmitting surface viewed from a given direction to that of a perfect diffuser receiving the same illumination) was 'no' because our terms are luminous directional transmittance or luminous directional reflectance, and also because we are getting away from such terms as reflection factor and transmission factor. However, there is no doubt that a single term covering both reflecting and transmitting specimens is needed. Examination of the above list of colorimetric terms reveals some important omissions. No agreement was reached on the definitions of color, brightness, luminosity, or saturation. It is pertinent to quote some comments received from Dr. W. D. Wright, Chairman of the British Committee on Colorimetry and Artificial Daylight in a letter of July 12 to Miss Nickerson: 'Thanks to the useful preparatory work put in particularly by the British and American committees, we were able to reach agreement at Paris on most of the colorimetric points under discussion. The only points which had to be deferred were the choice of the term for subjective brightness - we could not decide between brightness and luminosity - and the definition for saturation. Luminance was agreed, also tristimulus values, chromaticity coordinates and so forth, and the symbols \(X, Y, Z\), for tristimulus values. The last was the only defeat sustained by the British in spite of a moral victory in the Secretariat Report. I'm not sure whether you were aware that we had criticized American practice on this point as being out of line with the 1931 resolutions, and I think that on this point there is no doubt we were legally correct. On the other hand, I think we secretly realized the American practice was rather convenient and our case was weakened by our failure to produce any attractive alternative. At the session where the vote was taken I happened to be in the chair, so I had to be condemned to impartial silence, a most unusual role for me! Still, no one was very heartbroken, and it only means we have to think up a new way to write our colour equations. The situation about saturation was rather amusing. The Dutch had criticized the U.S. definition, the Americans had criticized the British definition, so Judd, Horner (the new Colour Group Secretary) and myself spent Tuesday afternoon in Judd's hotel room arguing out what we meant by saturation. It then transpired that we meant rather different things which no mere juggling of words could make the same, so we agreed to let the matter stand over with Americans using it in one sense (rather the sense of Munsell chroma) and we using it in another sense, with no international definition for the time being. About 12 P.M. that night, Horner and I were drinking coffee out of doors at the Café de la
Paix and looking through Evans' Color to see what it was like. To our great delight we found on p. 118 a definition of saturation which was exactly what we, and Horner in particular, had been maintaining was the British interpretation of the term. I must admit that he also later tended to associate it with Munsell chroma, but we went to bed happy in the thought that there was some crack in the American armour.

"The result of the conference (Wright, Horner, Judd) was a clarification of the British and the U.S. usage which, I think, may be summarized as follows:

<table>
<thead>
<tr>
<th>British</th>
<th>United States</th>
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<tbody>
<tr>
<td>Psychophysical</td>
<td>Psychological</td>
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<tr>
<td>Dominant wavelength</td>
<td>Hue</td>
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<td>Luminance</td>
<td>Luminosity</td>
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<tr>
<td>Purity</td>
<td>Saturation</td>
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<tr>
<td>Munsell hue</td>
<td>Hue</td>
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<tr>
<td>Luminance factor</td>
<td>Lightness</td>
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<tr>
<td>Munsell value</td>
<td>Munsell value</td>
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<tr>
<td>Munsell chroma</td>
<td>Chroma</td>
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In the argument between luminosity and brightness, I think the United States usage is preferable; but the British position on chroma and saturation has much to commend it. A really clear statement of what the British mean by saturation has not yet been formulated in purely subjective terms. When this has been done it is likely that an international accord can be reached."  

D. E. Judd

I.E.S. COLOR SCALES WORKED OUT

Munsell Value Scales for Judging Reflectance, developed in cooperation with delegates of the Illuminating Engineering Society and other ISCC members, are now available. In the course of the work many types of charts were suggested, and subsequent samples produced for approval. The early work was initiated by Dr. H. P. Gage, the final design of the charts being worked out with the help of Miss Dorothy Nickerson who, working with I.E.S. members, devoted several months of concentrated effort to completion of development of the scales.

The set of scales consists of 11 charts, 2 x 8 1/2 inches, the samples being mounted on the vertical edges of the charts. One chart displays 19 neutral value steps between black and white; the other ten display value scales (2/ through 9/ value) of weak and maximum chromas for ten major hues, red through yellow-red, yellow, etc., back through red-purple. Weak chromas are shown on the left side of each chart, maximum chromas on the right. Under each color chip is its Munsell notation. Opposite each chip are numbers representing percent reflectance under each of three illuminants, A, C and S. These are I.C.I Illuminant A (a tungsten-filament lamp operating at 2846°K); Illuminant C (average daylight at about 6700°K); and S for illumination by a limit-blue sky.

Each of the charts is covered with a cellophane envelope, and they are fastened together at the lower edge by a swivel post which allows them to be fanned out for easy selection of the nearest matching color for walls or other surfaces in which
there is interest. The set of scales, together with directions for use and masks of white, grey and black, are enclosed in a fabricoid case designed for the purpose. Essentially, the charts provide a pocket photometer for the chromatic and neutral colors met in engineering practice, although they also present a convenient tool for many other uses. They should be of assistance to the architect and decorator as well as the illuminating engineer not only when reflectance is in question, but as a convenient set of reference color scales. They serve to present the ordered relation of value to reflectance in such a way that they can be used to learn how to make memory judgments or estimates which often would be adequate if only one knew just how to make them.

The scales are produced and distributed by the Munsell Color Company, Inc., 10 East Franklin Street, Baltimore 2, Md., at $12.50 per set.

**CELADON**

While in California (see News Letter No. 77) your eastern ISCC members who went there for the recent meeting had the privilege of seeing some of the interesting and very fine work that the Kings are doing in porcelain. They have a high-fire kiln, and for years have been keeping careful and accurate records of results of their various firings. Examples of their work may be found in museums all over the country.

The color of much of their work is celadon. To some of us this was a new color term, yet we found that it was widely known in the ceramic field. In order to share our new bit of information with other ISCC members to whom it might also be a new term, we asked Louisa King to look up the derivation. Following is the resulting note she supplied, for which we thank her.

The name "Celadon" is defined by English dictionaries as sea green, blue green or willow green, particularly as applied to a ceramic glaze. The name has been held to be derived from the character Celadon, the shepherd lover in the drama L'Astree, an early 17th century romance by Honoré d'Urfé. The play was produced at the time when the green-glazed porcelain was largely imported into France, and since the shepherd Celadon was dressed in a costume of similar color, his name became associated with the porcelain. By another derivation, however, the name was said to be a corruption of Salah-ed-din (Saladin), who gave a present of forty pieces of this ware in 1170 A.D. to Nur-ed-din, Sultan of Damascus. The Chinese name for this ware is "ch'ing tzu'u," which most authorities translate as "green porcelain." However, the word "ch'ing" is defined in Chinese dictionaries as "the color of nature; green, blue, black, or a drab neutral tint"; and it is true that celadon ware can be gray, blue, blue-green, green or yellow-green. The ware made for export, however, was mostly green.

**TCCA**

As yet unreported in News Letter pages are the contents of 13 single-spaced typed pages of releases by the Textile Color Card Association of the U. S., Inc., in which its capable Managing Director, Mrs. Margaret Hayden Rorke, transmits to the Association's multitudinous cooperating organizations here and abroad, confidential advance information on color style and color trends and advice on juxtapositions of the new colors in harmonious ensembles. Because of a tremendous docket of News Letter material on hand in recent months, some of this TCCA news went unreported and is now a little out of date, so we shall concentrate on 1949 Spring Colors and let you in on the Association's secrets for spring. Our limited space does not permit of our reporting very fully nor utilizing to the full Mrs. Rorke's inimitable choice of descriptive language by which she contrives so successfully to cast an aura of romance.
about the colors by conjuring up memories and associations inherent in the colors' names. But as in the past we shall try to follow her lead just a little by quotation of descriptions, thus avoiding the constant repetition of the scientist's colorless color names. In this connection it is perhaps worth remembering that the new colors could be specified, if the occasion demanded it, by reference to the colors of the 9th Standard Edition of the TCCA colors, which were calibrated by thorough measurements at the National Bureau of Standards in the manner which delights the scientist. These measurements gave evidence, if evidence were needed, that romance and precision are not necessarily incompatible.

First to be considered are the TCCA's (confidential advance) 1949 Spring Woolen Colors, in which, following a now somewhat traditional policy of grouping into groups of similar character, so-called Metal Tones are featured. These include the following colors, with some description when the color names do not fully describe themselves: Tarnished Gold, Bronze Lacquer (a bronzed green), Metal Tan (tawny), Silver Lustre, Pink Copper (a "rosy rust"), Blue Ore (a "misty steel blue"). They are described as basic colors of light-medium tonality useful for costumes and millinery for town and casual wear.

Another group includes the Porcelain Pastels for resort and summer wear, knitted outerwear and children's wear derived from museum specimens of antique and modern ceramic art: Sevres Blue, Limoges Pink, Aqua Glaze, Majolica Yellow, Belleek Beige, Wedgwood Mauve, Faience Green and Ceramic Coral. New colors for sports, play and beach clothes are the Cruiseway Colors, including Marine Turquoise, Exotic Lemon, Boating Green, Sailing Red, Gay Cyclamen, Southern Mint, Tropic Tangerine and Windward Blue.

Greens are expected to enjoy strong favor, and are represented by medium deep Pine- wood Green and the lighter harmonizing color Hillside Green (of pistachio type). "Neutrals" include Beige Clay and Spring Brown (a "fudge or milk chocolate" nuance), while blues include Promenade Navy and the lighter Coolblu of violet tinge. Greensh blues are represented by Atlantic Sea and Pacific Surf, while in the violine range are Mauve Lily and the deeper Beauty Orange. Finally, there are the vibrant Rose Camellia and the lush Cabbage Red.

In the Confidential Advance Rayon Collection for Spring 1949 there are featured the "19th Century Pastels": Yellow Jasmine, Mauve Hello, Blue Forget-me-not, Romantic Turquoise, Angelic Pink and Minuet Green. These are the colors used by Meissonier, Renoir, Rossetti, Whistler and Sargent and represent a "flash back to pretty femininity and its fripperies." Definitely not turning backward are the "Sunlure Shades": Panama Lime, Southsea Violet, Cuba Red, Miami Sun, Carib Green and Laguna Blue, all in the vibrant tempo of 1949.

A third collection is a group of 12 colors comprising six sets of "tone-on-tones," each set consisting of a lighter and a medium color of the same hue. There are two spritely new bluish greens, Seaspray Green and Green Spruce, meritng high-fashion acceptance; Peppermint Rose and Magenta Ruby, reds with bluish undertone; Magic Gold, French Bronze, Grey Sky and Slatemist (a medium gray); Blue Larkspur and Morning Glory Blue, violet-tinged blues; Sangrè (a beige) and Summer Taupe (with slightly bronzy overtone). The six spring woolen "Metal Tones" are also embraced in the rayon collection.

The 1949 Spring Colors for Men's Felt Hat Bodies are three new colors: Silver Moss, a subdued willow green useful along with solid or patterned tan and light brown
suittings, with smoky grays or in pork pie, Tyrolean or other sports hats to go with casual or country clothes; Tree Tan, a "neutral bark" color harmonizing with light mocha tropicaIs and more subdued brownish tonalities in suitingS and giving a pleasing contrast with blues; and Blue Metal, a cool grayed blue. The pocket-sized booklet of the Association shows the three colors in large-size swatches of fur felt and contains merchandising notes for each color, indicating its proper relation to important colors in men's suits and topcoats.

Seventeen colors for women's shoes and twenty for men's shoes were recently adopted as 1949 Spring (and Summer) Shoe and Leather Colors at a meeting of the Joint Color Committees of the Tanner's Council of America, National Shoe Manufacturers Association and the National Shoe Retailers Association, in cooperation with The Textile Color Card Association. The women's colors have been grouped into two groups, the Town Colors and the Resort and Casual Colors. The Town colors included, besides the usual Bronze and Black, the repeated colors, Turftan, Brown Almond, Burnt Mocha, Gypsy Brown, Café Brown, Admiral Blue, Cherry Red and Continental Green. The resort and casual colors include, besides white, Exotic Lemon, Gay Cyclamen, Southsea Violet, Carib Green, Sailing Red, Laguna Blue (colors mostly mentioned already) and the featured Turftan, Misty Grey and the new color, Sun Copper.

The men's shoe and leather colors were grouped into three groups according to the type of leather having the color. One group, for grained leathers, comprises only the color Golden Harvest. For smooth leathers, the new and repeated colors include: Ranger Tan, British Tan, Brandy Tan, Manhattan Brown, Desert Sand, Tawny Tan, Cherrytone, American Burgundy, Burnished Tan, Cocoa Tan, Bermuda Brown, Heathermist, Country Smoke and black. The colors for reversed leathers are Commodore Blue, Midnight Blue, Vagabond Grey, Greyjark, Tobacco Tan, Mission Brown and white.

PALESTINE

Since Palestine, the ancient Canaan, is in the news frequently these days, it is perhaps worth mentioning the connections of the regions embraced in the name with the color purple. Palestine itself derives its name from the Philistines (Peleste), one of the "Sea Peoples" who settled on the southern coast in the twelfth century B.C.; from this country, Philistia, came the Greek name Palestine. But the older, native name was Canaan, by which name the land was known in Genesis and in Egyptian texts of the time of Seth I. According to notes found in the American Journal of Archaeology (1943), Canaan is a Hurrian (Biblical "Horite") expression meaning "belonging to (the land of) purple." After the twelfth century Canaan became known as Phoenicia, and the people as Phoenicians. The reason for the reference to purple in the name was that Palestine and Phoenicia were regarded as parts of Syria (even by the historian Herodotus), and Ugarit (Ras Shamrah) in Syria was the center of manufacture of purple dye from the murex shellfish found on the coast. The Greek name Phoenicia was connected with the color purple, although the purple they had in mind was probably closer to blood-red, that is, more like our crimson. The purple dye was first mentioned in documents unearthed in Muzu belonging to the 15th century B.C. Later it became known as Tyrian purple, from the city Tyre. Ugarit and Tyre were destroyed by the Sea Peoples, who also between 1225 and 1175 devastated the Hittite empire and swept over the eastern Mediterranean area. They were defeated by Ramesses III of Egypt in 1188/87; and his victory is commemorated in the temple to Amun at Medinet Habu, where are found representations of Philistine prisoners and the earliest known portrayal of a salt-water naval battle. The Canaanites were of different stock from the Philistines, being an amalgamation of Amorites, a Semitic people who entered the land in the fourth millennium B.C., with a bronze-smelting people from North Syria who invaded the land before 2500 B.C.
An item connected to these notes may be found on pages 424-5 of Rev. C. M. Cobern's "The Newer Archeological Discoveries" (1917). Discussing graves and buried cities of Phrygia, he remarks that Marcus Aurelius of Hierapolis about A.D. 200 put his will on his tombstone, leaving a large share of his property in the care of the officers of the "purple dippers," or "those bathed in purple," and a part to the "Guild of the Threematae" as well as money to be used on "the wondrous day." This enigmatical text scholars have regarded as either Jewish or Christian; for a second inscription mentions "the most reverent assembly of the purple-dippers" (porphyraphaphoi), where a certain further amount is left to be used "on the feast of Pentecost." It is believed that this "Ekklesia of Purple-Dippers" was a Christian burial club, the name being chosen because dyeing was one of the leading industries at Hierapolis and a "guild of dyers" was well known. Hogarth, in "Authority and Archaeology," p. 383, accepts the Christian reference and says that the passers-by would read it as "purple-dippers" or "dyers in purple" but the Christians would know that it meant "those who were washed in the blood of the Lamb."

The legend of the discovery of Tyrian Purple is also interesting. A second-century writer said that in the old days of Hercules a nymph of Tyre was one day walking along the shore of the sea with her lover Hercules and her dog. Suddenly the dog darted after a shellfish and bit it. The pet's lip was dyed a rich purple. The nymph immediately expressed a desire to possess a gown of that exact color. Hercules, who could accomplish anything, even the pleasing of women, brought her wish to fulfillment.

A million of the little shellfish were required for four ounces of the dye; and the Emperor Augustus paid 1000 denarii for a pound of purple-dyed wool. We still speak of some fortunate people as being "born to the purple." But the early dyers were in bad repute because of the bad smell of the purple mollusk, which secreted the precious drops of Tyrian purple. He left his odor on the dyer. But strangely enough, the small amount of odor in the dyed garment was considered a mark of distinction, luxury or even royalty. Plutarch wrote: "We often value a work and despise its creator, for example in the case of salves and purples. We derive pleasure from them, but we regard the dyers and makers of salves as vulgar and narrow-minded fellows." But later, in Persia, the dyer was held in great respect. An old Persian legend relates that Jesus was a dyer and He was the patron saint of the Persian dyers of the Middle Ages. Finally, to complete this set of notes, we should mention that according to Cobern, the purple cloth mentioned in Acts 16:40 as sold by Lydia was not dyed with Phoenician dyes but probably with the "Turkey red" made from the madder root, a product of Thyatira, where there were more trade guilds than in any other Asiatic city.

NEW ROCK-COLOR CHART


The colors used consist of a selection of 115 Munsell samples arranged by hue, in value and chroma order, each sample being identified by ISCC-NBS name and Munsell notation. The use of ISCC-NBS designations in this chart is another example of the value of this ISCC work. The explanation which accompanies the chart indicates the hope that the ISCC-NBS color names will eventually become familiar to all geologists. To those who prefer to use other names, the report suggests that in published
reports they follow each name with the Munsell notation so that other geologists can refer to the right color on the chart. The number and range of colors on the Rock-color Chart are based on studies made by the committee of more than 1300 selected rock specimens collected from the United States and Canada. The colors of the rocks were plotted on diagrams representing Munsell charts, and these diagrams served as a basis for selecting the color samples used on the published rock-color chart.

Mr. E. N. Goddard of the U. S. Geological Survey is chairman of the committee which prepared the chart. The charts and explanation were printed by the U. S. Government Printing Office; the Munsell samples were then attached, and those copies not purchased for direct use by the government are being distributed by the National Research Council, Washington, D. C. The price is tentatively set at $6.50.

HI-FASHION COLORS BY GLIDDEN

From our long-time member, C. R. Smedley, Director of Color Research for the Glidden Company (see News Letter Nos. 45 and 64), we have received a copy of a new color chart with an accompanying file of 3 x 5 cards of each color, which has been prepared recently by the Glidden Company for sale to their customers under the name "Hi-Fashion."

It is a chart illustrating the color of selected paint mixtures. It contains 144 samples, 1 x 1 3/16 inches in size, placed in eight horizontal rows, numbered 1 to 8, and 18 vertical rows, lettered A to R. The first 15 vertical rows, A to O, show steps in hue order in which seven basic colorants are used singly and in eight neighboring hue pairs. The maximum color series is shown in the horizontal row #4 and rows #3, #2 and #1 show the colors produced by mixtures of the basic colorants or their mixtures with increasing amounts of white paint. The white to chromatic colorant series varies in mixing ratios throughout the hue range to provide the desired color coverage of these light clear colors.

Four additional basic paints, burnt sienna, burnt umber, raw umber and black are also shown in white extension series.

The rest of the chart shows the colors which are produced by the mixture of each of four grays with the maximum color series in row #4. These neutralized colors are arranged in order of increasing darkness in rows #5, 6, 7 and 8. The amount of chromatic colorant mixed with a gray also varies throughout the hue range to give the desired coverage of these moderated colors.

Below each color sample are directions for the number of parts of each paint to be mixed to match the color sample. Also included is a table showing the approximate amount of these "Hi-Fashion" paints to paint a given size room with surfaces in good condition. The materials are so finely ground, Mr. Smedley states, that adding one part of varnish to two parts of this material provides an excellent semi-gloss enamel. Prices of the chart and of a deck of 3 x 5 samples in a box to fit are $1.70 and $4.00, respectively.

As has been said before by this and other reviewers, charts illustrating colorant mixtures are very useful, and many more may be expected in the future. They will range from expensive series providing a large selection of colors to the most simple and inexpensive type of illustrative chart. They will serve a variety of needs and fit many purses. Whether colors may be matched to a close enough tolerance by use of the paint formulas will depend upon the standardization of the basic paints involved in the mixtures, and the color tolerance acceptable to the customer. In most cases, however, the principal purpose is to show the versatility of a particular manufacturer's product and to serve as a guide in color matching and color selection.
The new Glidden chart seems aimed at the individual or decorator who wants a simple and inexpensive guide covering a useful range of colors. It presents a compact and inexpensive series of 144 color cards, with instructions for mixing paint to match them and should find a useful place among the number of paint-mixture charts now available or in process of development. Formulas for mixing the B.H.F. (Basic Home Furnishings) colors are included in a special folder with the sample cards.

D.N.

CALIFORNIA AGAIN

The Editor was so interested to hear an account of a school sight-saving project, narrated by Mrs. Glenola Behling Rose, wife of the late Dr. Robert E. Rose who was so well known and loved in color circles, that he asked her to prepare the following paragraph. Mrs. Rose still draws generously upon her tremendous vitality and broad background and inquisitive mind to continue the treks which earned her and her husband among many friends the sobriquet of "The Rambling Roses." Her account follows.

Of many interesting experiences in a long journey, one stands out in my memory, a visit to Mt. Vernon Junior High School in Los Angeles. This is a large public high school, not a school for favored youngsters. On an upper floor is a room given over to sight-saving. Those children, some colored, some white, whose sight is so poor or eyes so weak that everything possible should be done to preserve what they have, are in the hands of specially trained teachers and are given special equipment. Windows have adjustable curtains; desks are on casters so that they can be turned any way or be placed in any part of the room according to the light desired. The children write by touch system on typewriters having letters one-half inch tall. Pencils and crayons have full quarter-inch or broader "leads" according to what they will be used for. And they, like the special paper supplied, not glaring white but soft yellow, are dull, not glossy. Maps are not notebook size but possibly three times as large so that all countries or subdivisions are large enough to be outlined with the broad crayons. Instead of study and homework being done in the usual way, the teacher reads the assignments aloud to each pupil, for of course each boy or girl may be a representative of a different period in one of the four-year courses. The children were cheerful and industriously intent, the teachers keenly and enthusiastically interested in their specialized work and the results.

RAHR COLOR COUNT 1948-49

Mr. Frederic H. Rahr, President, Rahr Color Clinic, in a letter dated July 29, replied to some remarks of Mr. Spencer Stuart at a meeting of the California Color Society (News Letter No. 77, page 7) and the remark of Mr. Herbert B. Palmer, Executive Correspondent: "Our Society would like to know more about the (Rahr) survey and perhaps would cooperate to include the West"; since it had been indicated that the Rahr Color Count did not include the West Coast.

According to Mr. Rahr, who sent us a photograph of a four-volume report showing a typical chart, this study included the interviewing of over 115,000 women shoppers in the East, Middle East, Mid-west and West Coast areas. From them were learned the color classifications into which their home furnishings and housewares (as presently owned) may be categorized. At the same time, and from these same women, was learned what colors they would "like to have next" in the 37 parts of their homes. It is the Rahr clinic's belief that this is the most comprehensive, as well as the most accurate, sampling of public opinion on the color of home furnishings that has ever been made. As Mr. Rahr says, the proof of the pudding is in the eating; and a good pragmatic measure of the Survey's accuracy should be a comparison of what the people say they now own, in the stores past-sales records, and what they say they would like to have next, with current and future sales.
The current one is the second National study of the type described. The first one was made for House and Garden magazine in 1946, covering the same areas and 19 topics in home furnishings and housewares fields. This study was presented to House and Garden advertisers without obligation, and approximately 200 used the study in 1946 and 1947. Their experience with it clearly indicated the accuracy of the measurements made; and it was because of this satisfaction on their part that the program was expanded in 1947-48 to achieve the scope mentioned above. It was believed that, whereas each of the topics was covered in a coast-to-coast survey as a separate survey standing entirely on its own feet, the report results show that although entirely different groups of women were interviewed on each of the topics, the final result provides an amazingly good basis for the coordination and interpretation of color thinking by manufacturers and retailers for a new home-furnishings styling program.

Mr. Rahr has little doubt that the report should be of major importance to the producers of colorant materials which undoubtedly go into home furnishings. The changes in colors wanted away from colors now owned are said to be so sweeping that, as industry and retailers shift to meet these shopping appetites, it must be expected also to bring about some rather sweeping changes in the ratios of colors required from the dye and pigment industries. The combined production for the coming year of a partial list of subscribers to the current Rahr Color Count (attached to Mr. Rahr's letter) runs from over $700,000,000. Marked shifts in the colors they use in their merchandise will be required if they are to satisfy an increasingly selective consumer market in these competitive times.

BROADENING COLOR SCOPE

From Dr. N. J. Kreidl of the Chemical Research Laboratory of Bausch and Lomb Optical Company, whom we have had occasion to thank for many items of interest in the past, we have received the following item which he headed "Pemco Sees Appliances Making Wider Use of Color."

Dr. Kreidl states that Pemco Corporation, Baltimore, Md., has increased production capacity for porcelain-enamel colors, glass colors and glaze stains and colors. This information came from an announcement by Jake Engle, color sales manager. Manufacturing facilities for the colors and stains have been increased over 100 percent. One reason given for the expansion is the increased use of color in all phases of the ceramic industry. The company is also anticipating a shift away from the traditional white in major appliances and believes there will soon be a demand for household appliances in colors coordinated with home color schemes.

COLOR NAMES

So early as May 25 Walter C. Granville sent us a clipping passed on to him by Helen Taylor, both well known to our readers, for which we had previously not been able to find space. The clipping gives the names of the 1948 fall line of California Woolens called Gold Rush colors and featured for the season. These will make mix-match and plain combinations for which the sponsoring firm is well known, more easily adapted to wardrobes. Colors and patterns will be named from the California Centennial year: Sawmill Flat, Coffee Gulch, Dog Town, Lying Jim, Buena Vista, Shirt-tail, Gauge Eye, Black Bart and You Bet. Mr. Granville says: "The color names listed remind me of some that appeared in the late 1800's. Aren't they wonderful!"

DYER'S BRIGHTNESS

A committee of the Colour Group of the (British) Physical Society has done a great service in issuing its recent "Report on Colour Terminology." The Editor has no intention of inserting here a review of this report, as this job can be (and he hopes will soon be) done better by some one more closely connected with the somewhat similar report of an ISCC
committee now nearing completion. But the Editor was much interested in the sections on "Terms Used in Industry," particularly that on the dyeing industry, and here especially in the terms "Dullness" and "Brightness." These are discussed on pages 26-27 and 44, while "Dull" and "Bright" are discussed at many points; and the meanings are clarified by "brief definitions" as well as fuller ones and by reference to the Ostwald color triangle (Figures 3 and 4 of page 39). Even here we recognize that the terms are very closely related, as we are about to say, to the concept of saturation, or rather to the (plural) concepts of saturation, concerning which others have already projected discussions. The Editor will therefore stick as closely as possible to a discussion of experimental facts revealed in experiments of his own and by others.

In the May, 1945, issue of the ISCC News Letter, under the heading "Textile Color Solid and Dyeing Brightness," he called attention to very interesting work by Imperial Chemical Industries chemists and colorists (those of one of the two organizations known to color workers as "I.C.I."). One of this group is a member of the present Report committee. The papers by this I.C.I. group were cited there along with a paper by the Editor; and it is believed that the present report is largely influenced by the I.C.I. experiments. The Editor's experimental work on "dyeer's brightness" was done in a duPont laboratory and was reported to the Optical Society of America early in this decade just before making his present connection, so that results were published in abstract form only. But at the OSA meeting and in the 1945 editorial it was stated that a better measure of dyeer's brightness than Munsell chroma is obtained by multiplying chroma by some measure of the amount of light reflected. At that time the product of Munsell chroma and Munsell value was used. As second choice, multiplication by integral reflectance instead of Munsell value was applied; and recent experimental work shows this to be a better measure of dyeer's brightness. But either procedure would suffice in practice. For this "factor" is only applied to chroma when the samples differ relatively little in luminous reflectance, so that it is a small "correction," and almost any measure of amount of reflected light is a step in the right direction. In practice, the dyeer always adjusts the "strength" of his dyeings or solutions before comparing brightness or dullness. This means usually that the luminous reflectances are nearly constant, and the more so the less the dullness difference between compared samples.

This set of conditions, ideally at constant reflectance, may be called "Case A." In this case, which is the dyer's case but which the spectrophotometrist does not resort to, broader absorption curves mean both greater grayness and greater dullness, if the proposed measure of brightness or dullness be adopted. As a matter of experimental fact, a great body of experience supports the correlation of broader absorption bands and increased dullness or narrower bands and increased brightness. But there is a very different situation in what may be called "Case B," which is very commonly used by the chemist aided by the spectrophotometrist, for example in synthesizing and comparing new dyes for brightness. Here it is customary to adjust strengths of solutions (or dyeings) to give constant minimum transmittance (or reflectance) at some one wave-length. In this case we arrive at an apparently contradictory situation; for broader absorption bands may mean decreased grayness and increased dullness (or, Munsell chroma going up, while dyeer's brightness, in actual fact or when measured as indicated above, goes down). The Editor, in a recent paper (J. Opt. Soc. Amer. 1947, 37, 778) showed that wider absorption bands of the MacAdam "ideal" type mean increased Munsell chroma.

This apparent contradiction is at first casual thought very surprising; but the anomaly disappears on logical analysis based on all the experimental evidence of the
British group and the Editor. The clue to resolving the difficulty lies in noting that in Case B broadening the absorption may in practical cases actually increase the saturation slightly, but at the same time decrease very materially the light reaching the eye.

In a case in the Editor's experience, he and a dyer were able to distinguish five steps of dyer's brightness among samples of a given dye prepared by various procedures, although spectrophotometric measurements, 30-selected-ordinate I.C.I. (the other "I.C.I.") integrations and conversion to Munsell "re-notations" yielded practically identical hues and chromas for the extreme samples of the 5-step series, and a difference of only 0.05 Munsell value steps. Exaggerating the extreme differences by deliberately altering the spectral curves to get only much greater narrowing than is ever met in practice in such a series, led to a drop of 0.2 chroma step but increase of 0.30 step in Munsell value, which together were interpreted as large increase in "brightness."

All these facts may be shown to be consistent with those reported by the British chemists, that trained colorists estimate the strength of dulled dyeings (compared visually to undulled standards) on the basis of purity, while untrained non-colorists estimate strength mainly on the basis of the more obvious reflectance-difference. But both groups combine the two objective criteria in their subjective evaluations. The British were interested primarily in strength judgments, while the Editor has been examining experimentally methods of evaluating dyer's brightness or dullness from physical measurements; but the two sets of data and logical analyses are entirely consistent. In the Colour Terminology Report, it is recognized, at least by inference, that grayness and dullness are not equivalent in all cases, nor are their respective antonyms, saturation and dyer's brightness. If on the Ostwald color triangle we let the corners represent White, Black and Full Color and designate them by W, B, and C, we can picture what happens, as the British do, when increasing amounts of dye are put on white cloth, by drawing lines radiating from W. The lines of increasing strength for a bright dye lay near the line WC, while the lines of increasing strength for a duller dye lay nearer WB. Lines of constant strength lay roughly parallel to BC. Along these lines increased brightness lies toward WC, and increased dullness toward WB.

The British have recognized that, both in ordinary language and in the dyeing industry, "dull" is not a synonym of grayish, but means weakly colored (grayish) and dark. Bright, when used as an antonym of dull, means saturated and light. This is consistent with the artists' use of "brightness" which in a group of colors, as the Report says, refers to that one which "attracts the eye to the greatest degree"; a usage recognized by Munsell and Nickerson. In fact, the Editor many years ago asked many dyers and colorists to point to samples on Munsell charts which they regarded as "dull." They picked out samples both grayish and dark. This fact is recognized in ordinary speech and in the Report (page 33, Figure 4).

In writing this editorial the Editor has been conscious of inability to agree with the British that Munsell chroma and saturation have exactly the relation, in the language of most people (or even experts), that the British state; but he agrees to a need for a distinction between the two concepts they so name. But this is a subject which comes within the scope of the work of Dr. S. M. Newhall's committee on color terminology, and it would be superfluous and improper for the Editor to anticipate this report. The question is also touched on in the report of the Paris meetings of the I.C.I. given elsewhere in this issue by Dr. D. B. Judd.
According to the British, "if the saturation remains constant, an increase in lightness is accompanied by an increase in chroma" (page 20). This process of going from saturation to chroma, according to their definitions, seems to be similar to our procedure for going from chroma (synonym saturation) to dyer's brightness. But we have had dyer's point out, as brighter than standard, samples of lower chroma but greater lightness. This is consistent with our procedure, but not with the British. We think the quotation from their page 20 would be more correct if "saturation" were replaced by a term for the psychological correlate of "purity" as they define the latter. But these differences of opinion we shall leave to others to discuss; and we do not want to detract from our feelings of respect for a job well done by our British colleagues.

I. H. Godlove

WHO WAS THE FIRST KNOWN COLORIST?

Under this heading we put an item in News Letter No. 40 (March 1942) in response to an inquiry by Major Doane Eaton. There we went back to the sixth century B.C. Recent publications permit us now to go back rather farther. The painter who has figured most in recent archaeological literature is known as the Tell el-'Ajju l painter. He was a vase-painter of about the sixteenth century B.C. whose wares were found by Sir Flinders Petrie at Tell el-'Ajju l, the "Mound of the Little Calf," a few miles southwest of modern Gaza on the Philistine coast. Articles concerning his sensitive and beautiful animal painting were published by others in 1938 and 1939, but were then and in 1942 unknown to the Editor. In 1939, H. Goldman, in Bull. Amer. Schools Oriental Research 76, 2-4, states that she found a pottery sherd at Tarsus (Asia Minor) from a krater showing a bird in the painter's two-color style (in dull black and red). This was found under the floor of the earliest of two building levels contemporary with the New Hittite Empire, 1550-1479, those of the ninth level at Megiddo (Biblical Armageddon). In the work of J. D. Beazley, the noted authority on classical pottery, found in Amer. J. Archaeology for 1944, it is mentioned that the earliest painter whose personality is known is that of the "Nessos painter": but he would fall to be as early as the Ajju l painter by several centuries. Other painters named in a similar way, dating in the period between Kimon (6th century) and the Ajju l painter (16th), may be found listed in articles by Beazley and other authors. We nominate the Tell el-'Ajju l painter, sixteenth century B.C., as the first known colorist.

CALENDAR OF MEMBER BODY MEETINGS

September 7-11, 1948: American Psychological Association, Statler Hotel, Boston, Mass.


October 21-23, 1948: Optical Society of America, Port Shelby Hotel, Detroit, Mich.


October 25-29, 1948: Society of Motion Picture Engineers, Washington, D. C.
November 4-6, 1948: Federation of Paint and Varnish Production Clubs, Congress Hotel, Chicago, Ill.

November 15-17, 1948: American Oil Chemists' Society, Pennsylvania Hotel, New York, N.Y.

April 24-26, 1949: American Ceramic Society, Netherland Plaza Hotel, Cincinnati, Ohio.

BIBLIOGRAPHY

L. Demon; Ann. Physique 1, 101-41 (1946); methylene blue crystals: polarizing properties

A. J. Deutsch; Rev. Mod. Physics 20, 388-98 (April 1948); continuous spectrum of the sun


A. J. Dieu; French Pat. 933, 204 (1946); method of variegated painting applying an oil paint followed by a water paint

H. Dreyfus (to Celanese Corp. of Amer.); U. S. Pat. 2,440,330 (1948); process of improving the color fastness of textile material

K. Dunlap; Psychol. Bull. 43, 375 (1946); reply to Elder's note on Dunlap's remedy for (defective) color vision

J. F. Dunn; Brit. J. Photog. 95, 23-5 (Jan. 16, 1948); the exposure photometer


H. E. Edgerton; Electronics, June 1948, 78-81; light meter (of General Radio Co.) for electric flash lamps

G. S. Egerton; J. Soc. Dyers Col. 63, 161-7 (June 1947); Dyer 97, 459-60 (May 9, 1947); Amer. Dyestuff Rptr. 36, 561-70, 573 (1947); action of light on dyed and undyed cotton

J. Eggert; Sci. Indus. Photog. 19, 41-5 (Feb. 1948); some statistical experiments on the sensation of contrast of images with or without illumination of the surrounding field

J. H. Elder; Psychol. Bull. 43, 77-9 (1946); note on Dunlap's remedy for defective color vision

R. L. Evans; Brit. Pat. 593,514 (1947); coloring hair

R. M. Evans; Paper Trade J. 125, TAPPI Sect. 251-5 (1947); the description and specification of color
C. W. Ewing & T. Parsons, Jr.; Anal. Chem. 20, 423-5 (May 1948); intercomparison of Beckman spectrophotometers

R. M. Fanstone; Amat. Photographer 97, 66 (Mar. 19, 1947); looking back on color (photography)


T. Förster; Naturwiss. 33, 220-21 (1946); dyes: fluorescence power (in relation to hindered rotation of auxochrome-substituted groups)

T. Förster; Naturwiss. 33, 220-21 (1946); Chem. Abstr. 41, 7265 (1947); dyes: constitution and fluorescence

C. E. Foss; Paper Trade J. 125, TAPPI Sect. 281-4 (No. 23, 149-52); Dec. 4, 1947; color-order systems

G. A. Fry, C. S. Bridgman & V. J. Ellerbrook; J. Opt. Soc. Amer. 37, 635-41 (1947); effect of atmospheric scattering upon the appearance of a dark object against a sky background

Henry A. Gardner Laboratory, Inc.; Instruments 20, 840 (Sept. 1947); (R. S. Hunter). Night Visibility Meter

J. R. Geigy A.-G.; Brit. Pat. 595,065 (1947); fluorescent water-soluble condensation products

G. W. Geilhar; U. S. Pat. 2,248,148 (1948); apparatus (comparator) for comparing, matching or detecting colors (especially skin colors)

H. Geissler; Gebrauchsfot. 51, 68 (1944); correction of color transparencies

A. A. Gershun; Compt. rend. (Doklady) U.R.S.S. 51, 595-8 (1946; in English); telecentric method for measuring luminous intensity

A. A. Gershun; Compt. rend. (Doklady) U.R.S.S. 53, 425-8 (1946); (in English); brightness distribution in the interference picture in white light

H. L. Gibson; Camera 69, 64-103 (Dec. 1947); how to use polarizing filters

K. S. Gibson & M. M. Balcom; J. Opt. Soc. Amer. 37, 593-608 (1947); (addition to previous reference); transmission measurements with the Beckman quartz spectrophotometer