INTER-SOCIETY COLOR COUNCIL
NEWS LETTER

NUMBER 156 November-December 1961

NEW MEMBERS The following applications for individual membership were accepted at the last Board of Directors' Meeting held in New York City on October 10, 1961.

Individual Members	Particular Interests:
Mr. Willard Allphin Sylvania Lighting Products 60 Boston Street Salem, Massachusetts	Making color recommendations in connection with lighting installations: teaching about color in lighting courses: special problems in color photography.
Mr. Howard L. Amberson 205 Gannon Avenue Madison 4, Wisconsin	Color in home furnishings; color combinations in textile design; teaching color (all aspects) to adults; life and still-life painting in oils; making a study of color when I vacation in Mexico and Central America and next spring in Peru of Peruvian textiles; to write articles on color and in a few years to write a book on use and teaching of color.
Mr. Ralph W. Brocklebank Orland, Clent Stourbridge, Worcs., England	A study of color perception, including its historical and philosophical aspects; the possibility of applying facts of perception to problems of coloring in design, etc.
Mr. Raymond M. Cohen 187 Winstanley Street Carina S. E. 7, Brisbane Queensland, Australia	Application of color in industry and commerce; color psychology; color vision.
Mr. Gerald Cooper 16 Arlington Road Chestnut Hill 67, Massachusetts	Instrumentation for measurement and control of color.
Mr. Donald Victor Drury 1080 Moffett Circle Palo Alto, California	The use of colored glass as an art medium, and the use of color in general in its aesthetic and social aspects.

(Cont'd.)

Individual Members	Particular Interests:
Mr. M. Steven Fineberg 431 South Camden Drive Beverly Hills, California	Research and application of the psychological effects of color on the buying trends of the consumer. The effects of illumination on color vision. Color matching.
Mr. Paul M. Fisher 1028 Cornell Avenue Drexel Hill, Pennsylvania	Development of instrumental methods of color matching; improvement of methods of color control in plastic production; investigation of appearance attributes related to color.
Mr. Frederick J. Francis Dept. of Food Technology University of Massachusetts Amherst, Massachusetts	Studies in color and pigment biochemistry in foods (teaching and research).
Miss Velma Smith Gaston 809 N. Hammond Ferry Road Linthicum, Maryland	Its effect on the emotions of students. How it affects the mentally retarded as compared with the well adjusted fully developed or normal child. I would like to know more about color therapy.
Mr. Lynwood I. Gibson Metal & Thermit Corporation Building #4 Carteret, New Jersey	Formulation, production control, color matching, and specification.
Mr. Henry W. Godshalk 131 East 31st Street Holland, Michigan	Measurement of color; determination of small color differences.
Mr. Maurice Green 11 Kirklee Quadrant Glasgow W. 2, Scotland	The testing of color vision and diagnosis of particular color defect, if any. The testing of color aptitude and color matching ability.
Miss Rhoda J. Hakim 513 Urban Avenue Glenolden, Pennsylvania	Colored fabric application in home furnishings, apparel and automotive.
Mr. Philip H. Harris 3107 Eoff Street Wheeling, West Virginia	Minimization of color difference caused by manufacturing process variables.
Mr. V. Robert Hendrickson 610 South Armenia Avenue Tampa 9, Florida	The reproduction of original art and transparencies for the trade and the proper lighting conditions for viewing same.

(Cont'd.)

Individual Members	Particular Interests:
Mr. Robert F. Hoban c/o Sandoz, Inc. 61-63 Van Dam Street New York 13, New York	Spectrophotometry, color measurement, specification, and color differences, and elementary color education.
Mr. Ira R. Kohlman LogEtronics, Inc. 500 East Monroe Avenue Alexandria, Virginia	Electronic instruments to produce photographic color prints, with automatic unsharp masking, and automatic means for color analysis.
Mr. Romuald Lakowski Dept. of Psychology The University, Old College Edinburgh, Scotland	Color perception in all its ramifications (e.g. the physiology of vision, esp. acquired achromatopsias of any kind); C. V. testing, photometry and colorimetry. Teaching of the previously mentioned phenomena to students.
Dr. Lucy Mary Maltby Corning Glass Works Corning, New York	The relationships of color to the development and use of Pyrexware and Corningware in the home and in institutional applications.
Miss Mary C. Miller 60 Washington Street South Rochester 8, New York	Interiors, art, weaving.
Mr. Shizuo Murakami Murakami Color Research Lab. 10-7 Nishi-Nakadori Tsukishima Chuo-Ku, Tokyo	(1) Measurement of color and gloss (2) Color conditioning (3) Color material
Mr. Jack E. Pinney Research Laboratories Building 59 Eastman Kodak Company Rochester 4, New York	Color reproduction problems: (1) Studies of dye systems (2) Color masking (photographic) (3) Viewing conditions (4) Preferred reproduction of object colors (5) Color specification
Mr. Calvin W. Shaw Western Printing & Litho. Co. North Road Poughkeepsie, New York	Photo mechanical color reproduction systems.
Mr. Robert E. Sherman Model Interiors, Inc. 775 Lonita Street Baton Rouge 6, Louisiana	Home furnishings industry - building industry-display.

(Cont'd.)

Individual Members	Particular Interests:
Dr. Michael H. Siegel 45 Plymouth Avenue West Groton, Connecticut	Psychological research, psychophysics - methodology.
Miss Evalyn A. Simms Bausch & Lomb, Inc. Rochester 2, New York	Color measurements and specifications; instrument variations.
Mr. Hanns P. Struck Rua Cel. Vicente 421 - 5° Andar - S/503 P. Alegre - R. GS., Brazil	As stimulus on human behavior. Human reaction in relation to color in reference to publicity and environment.

SYMPOSIUM ON VISION

A two-day symposium on vision will be held at the Mayflower Hotel, Washington, D. C., Wednesday and Thursday, March 14 and 15. The symposium is jointly sponsored by the Armed Forces Committee on Vision of the National Academy of Sciences, the Inter-Society Color Council, and the Optical Society of America. It will comprise some fifteen invited papers on five major areas of physiological optics, in addition to which there will be five reviewers who will summarize the papers within these categories, viz: microanatomy and biochemistry of the visual systems, electrophysiology of the visual system, retinal image formation, simple discriminatory functions, and contributions to color discrimination areas as well as look toward future developments. Following the Symposium on Vision, the OSA plans a two-day session on Optical Masers.

Newsletter readers interested in information should write to: Mary Warga, Executive Secretary, Optical Society of America, 1155 Sixteenth Street, N. W., Washington 6, D. C.

ISCC ELECTIONS

In January, 81 voting delegates of the ISCC will elect four officers and four directors. Three of the voting delegates from each of the 27 member bodies are eligible to vote. Candidates for the offices were selected by the Nominating Committee; Dorothy Nickerson, Waldron Faulkner, and Deane Judd; all past presidents of the council.

On the following five pages are photographs and brief biographical information on each of the candidates. This information was sent to voting delegates to aid them in making their choice.

According to the Bylaws, the vice-president is the president elect and succeeds to the presidency. Consequently, the vice-presidency is an important office, and two candidates are on the ballot for this office. Seven candidates appear on the ballot for director. Each voting delegate will vote for four. The term of office is two years. Results of the election will be published in the March-April issue of the Newsletter.

For President

W. J. KIERNAN
Supervisor - Paper, Textiles and Color Control
Bell Telephone Laboratories
Murray Hill, New Jersey

Member

American Association of Textile Chemists
and Colorists
American Chemical Society
American Society for Testing and Materials
American Standards Association
Electronic Industries Association
Optical Society of America
Technical Association of the Pulp and
Paper Industry

Council Status

Vice-President, Inter-Society Color Council
Voting Delegate from American Society for
Testing and Materials

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For Vice-President
(one to be elected)

RALPH E. PIKE
Senior Supervisor - Flint
Sales Development Laboratory
E. I. du Pont de Nemours & Co.
Flint, Michigan

Member

American Chemical Society
Detroit Society for Paint Technology
Federation of Societies for Paint Technology
Optical Society of America

Council Status

Chairman of the Problems Committee of the
Inter-Society Color Council
Voting Delegate from the Federation of
Societies for Paint Technology

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For Vice-President (Cont'd.)

WARREN L. RHODES
Head, Graphic Arts Research Department
Rochester Institute of Technology
Rochester, New York

Member

Association of Printing Technologists (England)
International Club of Printing House Craftsmen
Litho Club of Rochester
Society of Photographic Scientists and Engineers
Technical Association of the Graphic Arts (President)
Technical Association of the Pulp and Paper Industry

Council Status

Director, Inter-Society Color Council
Editor, Inter-Society Color Council Newsletter
Chairman of Delegation from the Technical
Association of the Graphic Arts

***

For Secretary

RALPH M. EVANS, Director
Color Technology Division
Eastman Kodak Company
Rochester, New York

Member

Illuminating Engineering Society
Optical Society of America
Photographic Society of America
Society of Motion Picture and Television Engineers
Society of Photographic Scientists and Engineers

Council Status

Secretary, Inter-Society Color Council
Chairman of the Delegation from the Society of
Motion Picture and Television Engineers

***

For Treasurer

NORMAN MACBETH, President
Macbeth Corporation
Newburgh, New York

Member

Illuminating Engineering Society
Optical Society of America
Society of Motion Picture and Television Engineers

Council Status

Treasurer, Inter-Society Color Council
Chairman of the Delegation from the Illuminating Engineering Society

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For Directors
(four to be elected)

MRS. BLANCHE R. BELLAMY, Manager, Secretary-Treasurer
Munsell Color Company, Inc.
Baltimore, Maryland

Member

Optical Society of America

Council Status

Delegate from the Optical Society of America

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HUGH R. DAVIDSON
Partner
Davidson and Hemmendinger
Easton, Pennsylvania

Member

American Association of Textile Chemists and Colorists
Optical Society of America

Council Status

Delegate from the American Association of Textile Chemists and Colorists

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For Directors (Cont'd.)

RANDALL M. HANES
Senior Staff, Applied Physics Laboratory
The Johns Hopkins University
Silver Spring, Maryland

Member

American Association for the Advancement of Science
American Psychological Association
Eastern Psychological Association
Optical Society of America

Council Status

Chairman of Subcommittee for Problem 20: Basic Elements of Color Education
Delegate from the American Psychological Association

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RICHARD S. HUNTER, President
Hunter Associates Laboratory
McLean, Virginia

Member

American Association for the Advancement of Science
American Association of Textile Chemists and Colorists
American Ceramic Society
American Society for Testing and Materials
Institute of Food Technologists
Optical Society of America
Technical Association of the Pulp and Paper Industry
Washington Academy of Science

Council Status

Delegate from the Optical Society of America
Voting Delegate from the Technical Association of the Pulp and Paper Industry

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For Directors (Cont'd.)

HOWARD KETCHAM, President
Howard Ketcham, Inc.
New York, New York

Member

Industrial Designers Institute

Council Status

Chairman of the Delegation from the Industrial Designers Institute

***

WARREN B. REESE, Vice-President
Macbeth Corporation
Newburgh, New York

Member

American Society for Testing and Materials
American Standards Association
Illuminating Engineering Society
Master Photo Dealers' and Finishers' Association
National Microfilm Association
Optical Society of America
Research and Engineering Council of the Graphic Arts Industry, Inc.
Society of Motion Picture and Television Engineers
Society of Photographic Instrumentation Engineers
Society of Photographic Scientists and Engineers
Society of Plastics Engineers
Society of Reproduction Engineers
Technical Association of the Graphic Arts

Council Status

Voting Delegate from the Research and Engineering Council of the Graphic Arts Industry, Inc.

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MISS MIDGE WILSON, Executive Director
The Color Association of the United States, Inc.
New York, New York

Member

National Home Fashions League
The Color Association of the United States, Inc.
The Fashion Group, Inc.

Council Status

Chairman of the Delegation from the Color Association of the United States, Inc.

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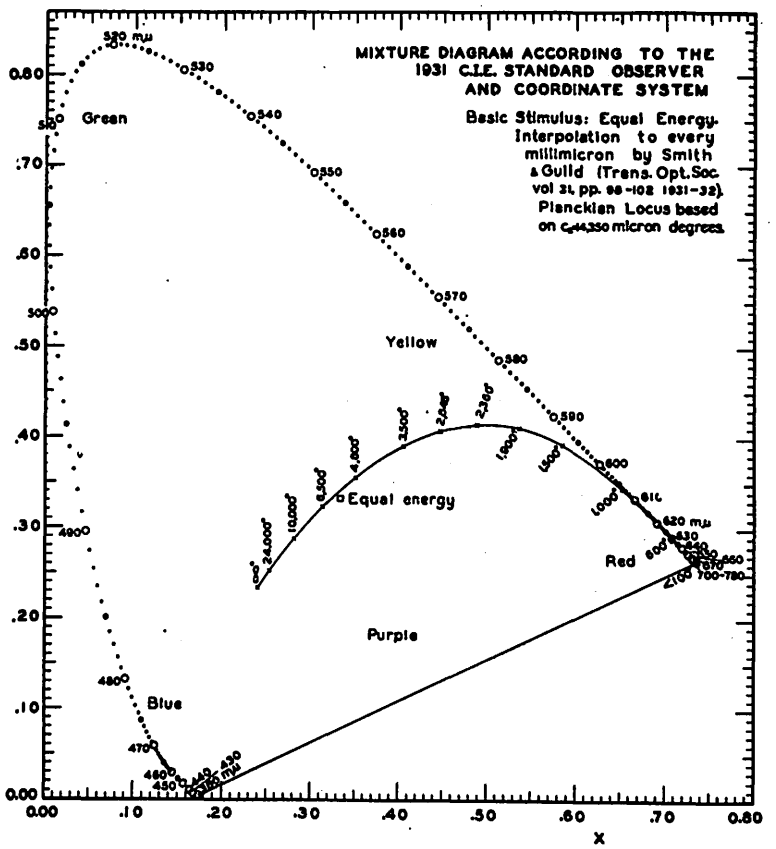
COLOR SYSTEMS DEFINED

The Newsletter received the following information from Dorothy Nickerson:

Dear Editor: Some years ago the diagrams that accompany this article were prepared for use in an article on color systems that I have not yet found time to prepare. Some of the diagrams have been loaned for use by others. Meanwhile, Deane Judd and I jointly prepared the following brief definitions for each of several color systems. Since together the definitions and diagrams provide reference material that may be useful to many colorists, I have put it together for use in the Newsletter.

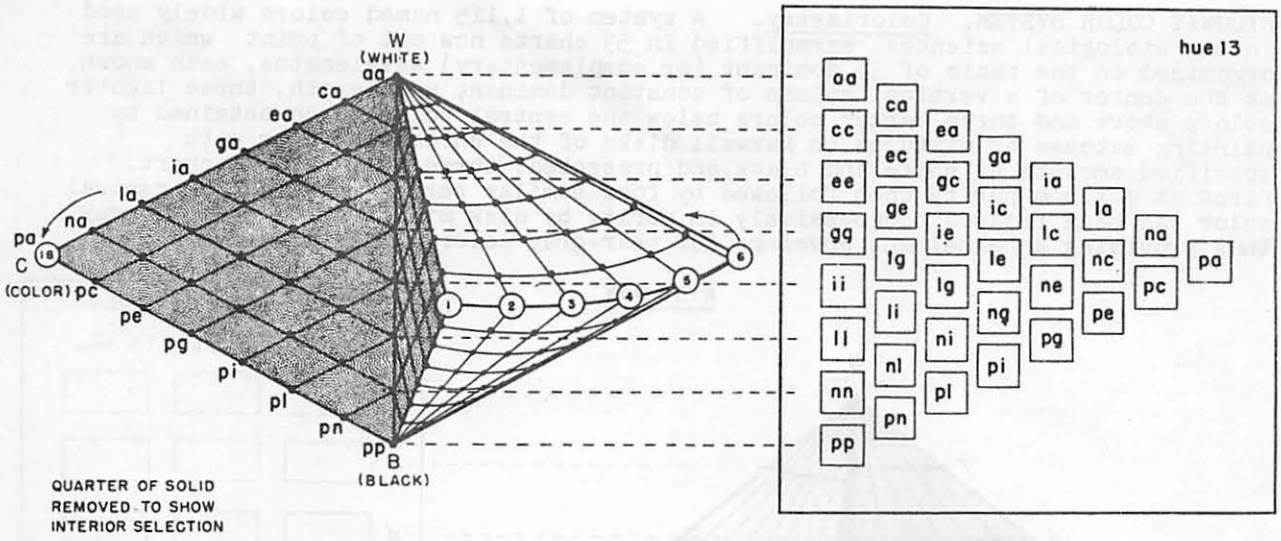
Dorothy Nickerson

C. I. E. COLOR SYSTEM. Colorimetry. A system of specifying any color, recommended in 1931 by the International Commission on Illumination (Commission Internationale de l'Eclairage, C. I. E.), by giving the amounts, X, Y, Z, of three primary colors required by a standard observer to match it, these amounts, or tristimulus values, being calculable from the spectral composition of the radiant energy leaving the color specimen, or alternatively by giving one of the tristimulus values, Y, expressing the luminous value of the color, combined with two of the fractions: X/ (X+Y+Z), Y/ (X+Y+Z), Z/ (X+Y+Z), known as chromaticity coordinates, x, y, z, respectively. See diagram.



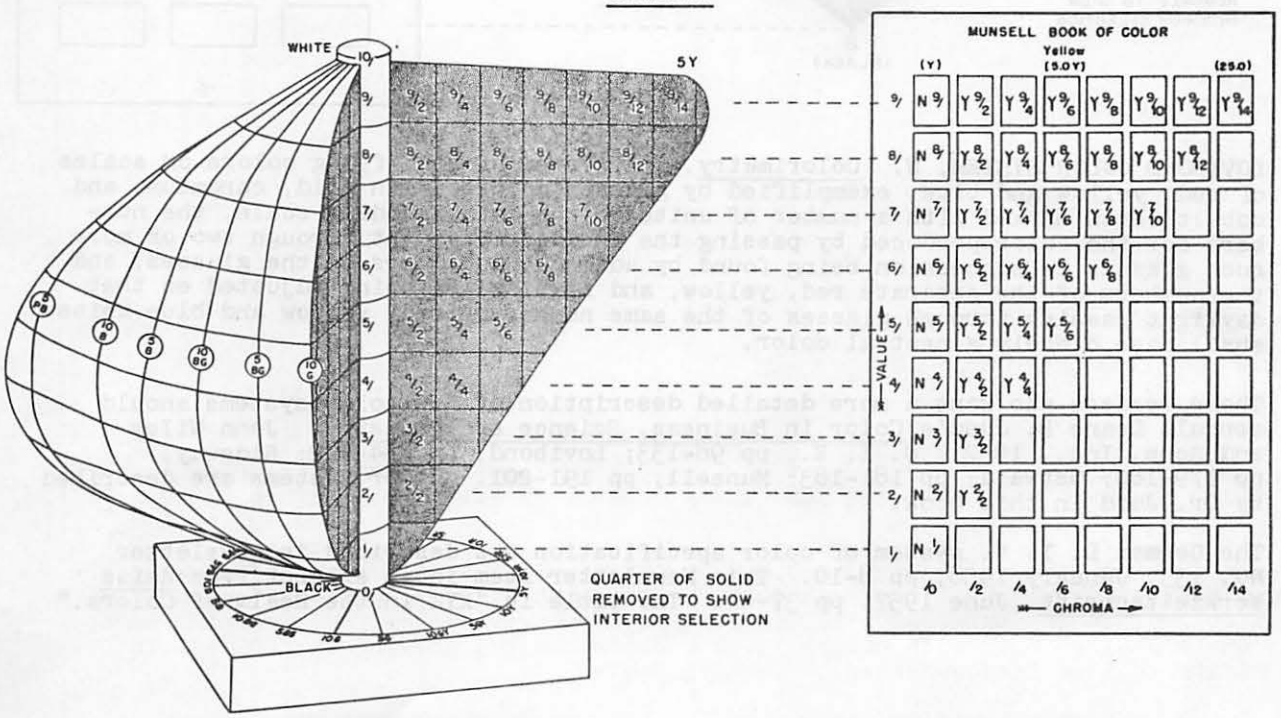
OSTWALD COLOR SYSTEM. Colorimetry. A system describing colors in terms of Color Content, White Content, and Black Content, usually exemplified by color charts in triangular form with Full Color, White and Black at the apices providing a gray scale of White and Black mixtures, and parallel scales of constant White Content and constant Black Content as these grays are mixed with varying proportions of the Full Color for each of 24 or more triangles to form a collection of charts with colors on each illustrating constant dominant wavelength (called hue) with colors lying parallel to the gray scale constant in purity (called Shadow Series). See diagram.

OSTWALD

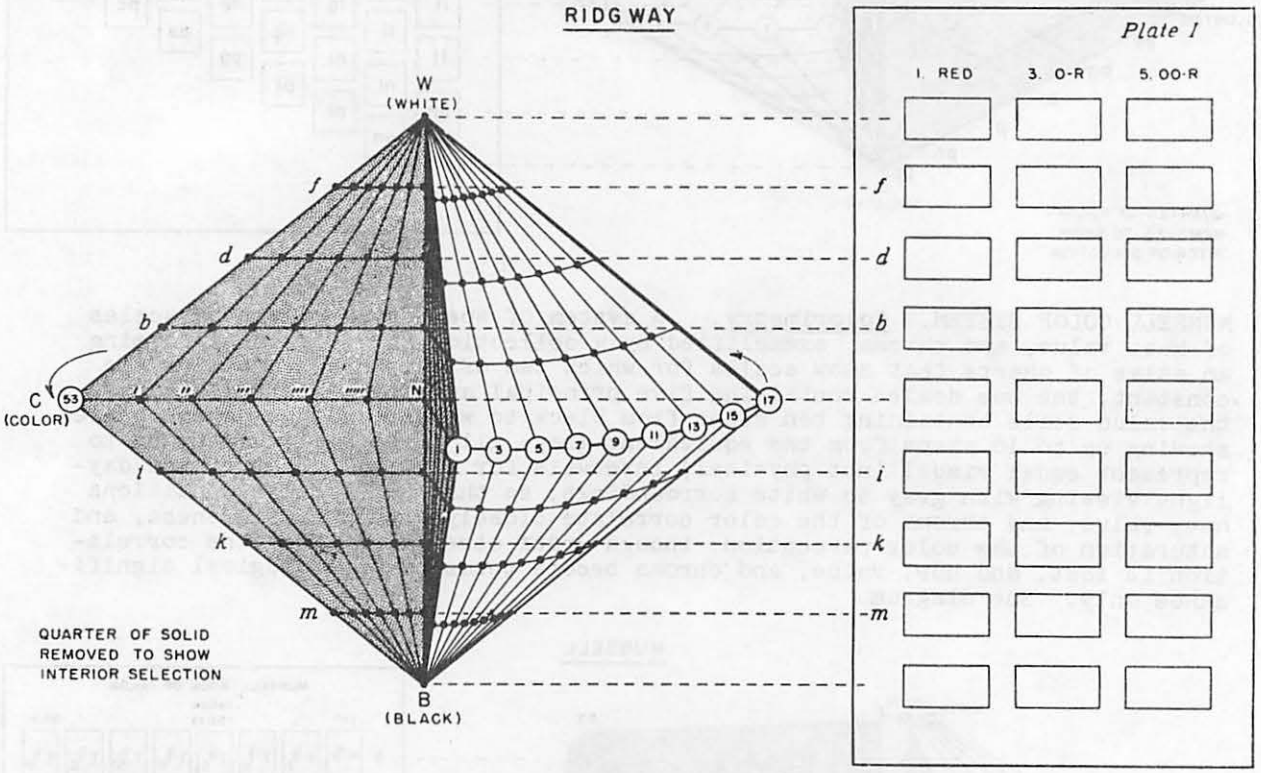


MUNSELL COLOR SYSTEM. Colorimetry. A system of specifying colors on scales of hue, value, and chroma, exemplified by a collection of color chips forming an atlas of charts that show scales for which two of the three variables are constant, the hue scales containing five principal and five intermediate hues, the value scale containing ten steps from black to white, and the chroma scales showing up to 16 steps from the equivalent gray, all three scales intended to represent equal visual (not physical) intervals for a normal observer and daylight viewing with gray to white surroundings, so that under these conditions hue, value, and chroma of the color correlate closely with hue, lightness, and saturation of the color perception, though under other conditions the correlation is lost, and hue, value, and chroma become terms of psychological significance only. See diagram.

MUNSELL



RIDGWAY COLOR SYSTEM. Colorimetry. A system of 1,115 named colors widely used in the biological sciences, exemplified in 53 charts now out of print, which are organized on the basis of 35 dominant (or complementary) wavelengths, each shown at the center of a vertical column of constant dominant wavelength, three lighter colors above and three darker colors below the central color, each obtained by painting matches of mixtures on Maxwell disks of the chromatic color with specified amounts of white and black,and presented, three columns to a chart, first at maximum purity then followed by four similar series in which the central color has been reduced progressively in purity by disk mixture with neutral gray, thus providing an excellent coverage for near-gray colors. See diagram.



LOVIBOND COLOR SYSTEM, N. Colorimetry. A system of specifying colors on scales of red, yellow and blue, exemplified by glasses colored with gold, chromium, and cobalt, each marked with a number of units on the corresponding scale, the numbers for the color produced by passing the incident daylight through two or more such glasses in succession being found by adding the numbers on the glasses, and the numbers of the separate red, yellow, and blue scales being adjusted so that daylight passing through glasses of the same number of red, yellow and blue units, shall have closely a neutral color.

Those readers who want a more detailed description of the color systems should consult Deane B. Judd's Color in Business, Science and Industry. John Wiley and Sons, Inc., 1952. C. I. E., pp 98-133; Lovibond, pp 134-142; Ridgway, pp 179-180; Ostwald, pp 181-183; Munsell, pp 191-201. Other systems are described by Dr. Judd in this book.

The German D. I. N. system of color specification was described in Newsletter No. 133, January 1958, pp 8-10. This Newsletter item is an excerpt from Zeiss Werkzeitschrift, June 1957, pp 37-44. The title is "XYZ in the Realm of Colors."

JAPAN'S STUDIES OF COLOR

The latest edition of Studies of Color published by the Japan Color Research Institute has just been received. The four articles are of interest to the ISCC members. The titles and abstracts are given in English and are reproduced here. A few remarks by Kenneth L. Kelly, National Bureau of Standards, based on the contents of the articles are appended.

Paper 1 (no English abstract) "An Aspect of Color Usage in U. S. A." (Contracted from Mr. Walter C. Granville's Lecture), Hidemitsu Seki.

Paper 2 "A Study of the Receptor with Luther's Condition Improved," Genro Kawakami and Yasuo Kuriyama. Luther's condition must be fulfilled in a receptor of a photoelectric colorimeter. In most colorimeters on the market, the condition is roughly fulfilled from the macroscopic viewpoint, but never from the microscopic one. In practice, the authors are troubled with the inconsistency between the result obtained by a spectrophotometer and that obtained by a photoelectric colorimeter. In order to reduce the difference between the two, was this study pursued, in the process of which a sub-receptor was made to connect in parallel circuit with a main receptor of the same type as one on the market. The sub-receptor consists of a photocell, and eight special blinds, which are capable of opening and shutting and hold different narrow band-pass filters respectively. The spectral sensitivity of the receptor can be controlled by means of opening and shutting each blind manually.

In the result, the errors were reduced as follows: with regard to X receptor, within 1/2; Y receptor, within 1/4; Z receptor, 1/10.

"This is a most important problem and one faced by everyone using a photoelectric colorimeter. The authors have suggested a solution by incorporating an auxiliary sensing device equipped with filters and hand-operated shutters. The designations of the eight filters with their thicknesses and spectral transmittances are given. Drawings of this auxiliary device as well as its electrical diagram are also given along with a picture of the complete assembly.

"An example is given in which tristimulus values (X, Y, and Z) measured on a spectrophotometer for ten selected colors throughout the spectrum are compared with similar values from a colorimeter both without and with this auxiliary device. Graphs illustrate the improvement in accuracy. It could not be ascertained how a selection of these filters was made for each example. A discussion is given of the possible substitution of Wyzecki's 14 filters described in his paper, 'Multifilter Method for Determining Relative Spectral Sensitivity Functions of Photoelectric Detectors,' JOSA 50, 992 - 998 (Oct. 1960)."

K. L. K.

Paper 3 "On the Relationship between Music and Coloration in the TV Program," Minami Ihara. With the regular broadcasting of Color TV near at hand, serious attention is now being focussed on how to coordinate the content of the program to coloration. The authors have recently conducted a preliminary research into the relationship between music and color.

Seven Theme Musics were chosen and examined by means of the color chip test, with a view to elucidating the relationship of music to color, while the subjects were further asked to report on the impression they had had from the music by filling in the formulae based on the Semantic Differential Method devised by E. G. Osgood.

Since no difference was perceived between those who were already familiar with the programs and those who knew nothing about them, the total summing and evaluation were made concerning the percentage of the chosen colors to the whole, whereby only those colors showing a high rate of convergence of more than 65% were taken into consideration.

As a result of this investigation, it could be found out that those musics sharing the color association in common showed a parallel tendency in their "Profile" obtained by the SD Method above mentioned.

Among the musics dealt with, four types were to be distinguished.

(1) Home Drama Type
Colors having a warm feeling such as light red, light orange and light yellow were selected. The only exception was light blue.

(2) Variety Type
Pure colors such as red, orange, yellow, blue and purple were mostly chosen.

(3) Musical Type
There was no consistency among the hue and saturation selected, but the tendency was towards bright colors or light ones.

(4) Mystery Type
Achromatic grey or black together with dark, was preferred, dull ones giving a cold feeling. It can safely be said that most of the colors chosen for the musics contained in the categories (1), (2), and (3) are either primary or neutral ones, which shows where the public preference lies.

"Unfortunately this interesting paper is given so completely in Japanese that it is impossible to follow the discussions from the few English subtitles. It is interesting that the designations of the colors used in the discussions are given in terms of the color-order system proposed by the Japanese Color Research Institute in which hue is designated by the numerals 1 through 24 each associated with a hue name, lightness, similar to Munsell value, by the numerals 10 to 20, and saturation by the numerals o, 1, 2, 3, ... from achromatic out to the strongest color, similar to Munsell chroma. There is a fascinating set of graphs evaluating some aspect of various types of shows in terms of the opposite-word pairs strong-weak, gay-plain, easy-uneasy, warm-cold, light-dark, cheerful-lonely, soft-hard, realistic-visionary, impatient-slow, and dramatic-monotonous. I would like to see an English translation of this paper."

K. L. K.

Paper 4 "An Investigation into Car Color," Takashi Hosono, Ichirô Sôma, and Yoshiko Kodama. In succession to the first research in 1958 (Study of Color Vol. 6, No. 1), a color research was made into cars for the same purpose and by the same method. In addition to passenger cars, trucks were chosen objects for this time.

Researching Objects:

> Passenger cars and commercial cars: the number of the samples, 870; population 7339.
>
> Small trucks, light three-wheeled trucks and light four-wheeled trucks: the number of the samples, 224; population universe, 3346.

The result:

> The frequency of neutral tints is maximum in passenger cars, as in the case of the previous research. As compared with the result of the previous research, the outstanding difference is the decrease of the green group and the increase of the blue group. Value was found rather higher than previously and almost no change was observed in chroma.
>
> The blue group, yellow group, and green group appear much in small cars, light three-wheeled trucks and light four-wheeled trucks. The fact that chroma is comparatively high may become a key to indicate the relationship between color and size. This research is now proceeding and this is a temporary report.

"This report, although temporary, should be of interest to Detroit. The motor vehicles studied were divided into cars and trucks, and these were further divided into ordinary, small and light cars both private and public, and the trucks into small, light, 4-wheeled, 3-wheeled, private, and public. 1094 vehicles were studied for color out of a population of 10,685. A random sampling method was used and the colors were specified using the glossy chip form of the Munsell Book of Color. Graphs show the frequency in percent of the hues, values, and chromas found, for each of the categories listed above. Three tables list the percentage frequency of the hues, values and chromas of two-tone colored cars. A master table at the end of the paper lists the percentage frequencies for total use, private, public, ordinary, small, and light cars, and for total, small, and light trucks.

"This is another paper that should be translated into English. This reviewer selected an off white as the color of his car (ordinary). The two reasons for this decision were for visibility in poor light and comfort in the summer sun. It is not known whether these categories are included in the paper.

K. L. K.

THE COLOUR COUNCIL OF CANADA

The new officers of the council are: President, John Chorlton; 1st Vice-President, W. E. Carswell; 2nd Vice-President, Ralph L. Conquergood; Secretary-Treasurer, A. P. Hayward; Immediate Past President, Gene W. Butt; Honorary President, C. R. Conquergood.

The Colour Council presented its first award and medal "for distinguished services relating to colour" at the May 1961 meeting. The award was made to Charles R. Conquergood, "Founder Number 1 of the Colour Council."

Mr. R. C. Allison, T. Eaton Co., Illumination Engineers, was speaker at the October meeting. His topic was "What do you want to see? Why?". At the November meeting Dr. Gunter Wyszecki, National Research Council of Ottawa, discussed "Standard sources for Colorimetry." He reviewed the work of the C. I. E. concerning the development of a new light source with a higher ultraviolet content suitable for measuring fluorescent and phosphorescent materials.

THE COLOUR GROUP OF GREAT BRITAIN

The subject of the October Science Meeting of the Group was "Colour Xerography" by Dr. J. Hughes of Rank-Xerox Limited. He discussed the modification to extend the process from line copy to continuous tone applications, and the possibility of making colored continuous tone xerographic reproductions.

At the November meeting Mr. K. MacLaren, Dyestuffs Division, I. C. I., Blackley, Manchester, discussed "A Daylight Illuminant." According to the announcement "Daylight matching lamps differ widely in spectral energy distribution. The relevant British Standard, B.S.950:1941, is obsolete, as it does not specify the ultra violet content, a necessary provision today when fluorescent brightening agents are so widely used. It is suggested that the revised standard should be based on the Abbott-Gibson 7400 K curve rather than C. I. E. Illuminant C. The various daylight matching lamps which are available are critically reviewed."

Dr. B. H. Crawford, National Physical Laboratory, was speaker for the December meeting. His topic was "Colour Matching and Visual Adaptation."

COLOR TREND INFORMATION

The following letter was received from the California Ink Company. Newsletter readers will be interested in the way California Ink collects their data.

Dear Editor: Each year at this time, since 1955, we have made a color preference study. It is published each January as "COLORTREND REPORT." The survey just completed shows the following five colors are tops in the country today in the paint industry: No. 1 - lavender; No. 2 - off-white; No. 3 - medium beige; No. 4 - light gray beige; and No. 5 - pink.

The lavender (largely made with calbizol violet) has been rising fast for over a year. It shows no sign of letting up; its sales today in every part of the country except Texas and Oklahoma are of epidemic proportions. Other news is the growing importance of deeper blues and aquas and a continual lowering of values in the yellow family. Beiges are generally turning browner; pinks, rosier.

In previous years, Cal/Ink's color trend statistics were based on the changes in retailers' demands for our tubed colorants, sold through some 12,000 paint outlets all over the country. During the past two years, tubed colorants have been displaced almost completely by color machines. This necessitated a complete switch in our methods of gathering authoritative data to permit continuing our preference studies. We were not sure which of the three methods to choose; so we tried all three simultaneously.

Color Audit Method #1: we retained a color research firm which provided Cal/Ink with a list of the top 25 interior colors and the top 10 exterior colors based on its most recent surveys in the fields of building and decorating materials.

Color Audit Method #2: Several of the largest paint marketing firms furnished us with statistics on their sales history of ready-mixed colors.

Color Audit Method #3: 148 paint outlets cooperated in a nation-wide "Color Trend Survey" during the last 10 days of September. The store personnel recorded every color made in their color machines.

Each of the three audits provided contributed certain invaluable information. The retail store audit was by far the most rewarding because the results could be pinned to specific geographic areas and, to some extent, to scio-economic population groups. The color research organization's data showed a high degree of correlation with the retail store audit and was particularly useful in separating interior trends from exterior. The sales statistics on ready-mixed paints followed the same path as the color machine data. A specific ready-mixed green, for example, accounted for 3.3% and a particular ready-mixed beige accounted for 6.5% of the total sales of a line of laytex paint. These same colors were also available in color machine albums in the same stores making the color trend survey.

We were amazed to find that out of scores of greens and beiges shown in the color albums, the same beige that accounted for 6.5% of the ready-mixed sales was selected by twice as many customers from color albums as the particular green duplicated in the ready-mixed line. Perhaps it is a coincidence but it indicates that people are buying the ready-mixed colors off of the shelves and are using the color machines only for the more unusual custom colors.

The 1962 Colortrend(R) Report showing color swatches of 48 colors (including the machine's top 20) will be available for $5.00 January 29th from The Colwell Color Card Co., 501 South Sixth Street, Minneapolis 15, Minnesota, Attn: Mr. Arnie Carlson, Colortrend Sales Manager.

Randell Cook
Advertising Manager

CORRECTION FOR BOOK LIST

A Newsletter reader has pointed out to me an error in the Book List published in Newsletter No. 155, September-October 1961. Since the Book List is such an important document, it is unfortunate that a mistake such as this should occur. The mistake is on Page 15. The seventh book should read:
1951 Pickford, R. W. INDIVIDUAL DIFFERENCES IN COLOUR VISION. Routledge
It now reads INDUSTRIAL DIFFERENCES ... Please make this correction in your Book List.

Ed.

LIST OF ARTICLES ON COLOR RECEIVED BY NEWSLETTER

"Durability of Ceramic Overglaze Colors," R. S. Hagerman, Dissertation Abstr., 18, pp. 979-981 (1958); abstracted in J. Appl. Chem. (London) 8, No. 11, pp. ii-476 (1958).

"Dye-Mixture Analysis with an Electronic Calculating Punch," J. L. F. De Kerf, J. Opt. Soc. Amer., 48, No. 12, pp. 972-975 (1958).

"Effect of Age on the Discriminative Learning of Color and Brightness by Children," L. T. Clifford and A. D. Calvin, Amer. J. Psychol., 71, p. 766 (1958).

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