

# INTER-SOCIETY COLOR COUNCIL

## NEWS LETTER

NUMBER 184-185

September-December 1966

### NEW MEMBERS

The following applications for individual membership were accepted at the last meeting of the Board of Directors held in New York City on September 12-13, 1966.

#### Individual Members

Mr. A. D. Bates  
1668 Forman Avenue  
San Jose, California 95124

Mr. I. Bob Blumenthal  
Salisbury Industries, Inc.  
156 N. Franklin Street  
Hempstead, N. Y. 11550

Dr. C. W. Bobier  
69 Glenview Avenue  
Toronto, Ontario, Canada

Mr. John S. Booth  
American Hoechst Corporation  
Carbic Color Division  
270 Sheffield Street  
Mountainside, New Jersey 07092

Mr. Rolf G. Brown  
4050 N. Stanton  
El Paso, Texas 79902

Mr. Salvatore Carangelo  
1255 Broad Street  
Clifton, New Jersey 07015

Mr. David Chapman  
35 East Wacker Drive  
Chicago, Illinois 60601

#### Particular Interests

Functional relations among all variables.  
Physics of color stimulus materials.  
Psychophysics. Psychology. Physiology.  
The various systematic samplings of the color solid and their conversion to ICI or Munsell equivalents. Theories of color vision. Defects of color vision.  
Metamerism. Demonstration materials for education.

Establishing color standards.

Teaching the science of color.

Quality improvement of pigments.

Measurement, classification and study of small color differences.

Computer applications to color analysis.

Color

Individual Members (Cont)

Mr. F. M. Clydesdale  
University of Massachusetts  
Dept. of Food Science & Technology  
Amherst, Mass. 00103

Mr. Floyd C. Cole  
70 High Street  
Leominster, Mass. 01453

Dr. Aldo Colli  
ACNA - Centro Rico  
Cesano Maderno  
Milano, Italy

Mr. W. A. Coppock, Jr.  
Instrument Development Laboratories  
67 Mechanic Street  
Attleboro, Mass. 02703

Mr. Douglas Dailard  
504 E. Arbor Vitae #3  
Inglewood, California 90301

Mr. Alfred DiBernardo  
73 Moison Road  
Blauvelt, New York 10913

Mr. Samuel R. Evans  
736 East 3rd Street  
Bloomsburg, Pa. 17815

Miss Joan Fleming  
Crown Zellerbach Corp.  
Marketing Research Dept.  
1 Bush Street  
San Francisco, California 94119

Dr. Walter H. Foster, Jr.  
57 Enright Avenue  
Freehold, New Jersey 07728

Mr. Russell H. Gray  
E. I. du Pont de Nemours & Company  
Photo Products Dept., Research Div.  
Parlin, New Jersey 08859

Dr. Harry Helson  
Kansas State University  
Dept. of Psychology  
Manhattan, Kansas 66504

Particular Interests

Measurement of food materials. Measure-  
ment of natural and synthetic food colors.  
Stabilization of natural food colors.

Research and development, instrumentation  
and control.

Color measurement, color difference,  
calculation.

All aspects of color theory and color  
measurement.

I am presently working on methods of  
applying technical aspects of color to  
aesthetics.

Instrumental color matching, more ideal  
process colors, OCR colors, lasers,  
educational.

Color measurement, color control, control  
formulation.

Trends in home decorating, color schemes.

Color matching by instrumental-computer  
techniques. Correlation of reflectance  
with fundamental absorption and scattering  
coefficients. Color matching with  
fluorescent dyes.

Color photography, color reproduction and  
the associated colorimetric procedures and  
problems.

Well known to members of ISCC.

Individual Members (Cont)

Mrs. Marguerite Hight  
3 East 69th Street  
New York, New York 10021

Mr. Joseph E. Hoesl  
Amer. Textile Mfgs. Institute, Inc.  
1457 Broadway  
New York, N. Y. 10036

Mr. David W. Hudson  
9 Eden Grove  
Stobhill Grange Estate  
Morpeth, Northumberland, England

Mr. Charles S. Hutchins, Vice Pres.  
Pontiac Varnish Co.  
30 Brush Street  
P. O. Box 45  
Pontiac, Michigan 48056

Mr. Robert E. Karcher, Jr.  
K. J. Quinn & Co., Inc.  
195 Canal Street  
Malden, Mass. 02148

Mr. Luiz Carlos Lopes  
Praca Cel. Fernando Prestes, 152  
Caixa Postal 6233  
Sao Paulo, Brazil

Mr. Gerald C. McKenzie  
2446 Albany Avenue  
West Hartford, Conn. 06117

Mr. Robert P. Meyer  
35 East Wacker Drive  
Chicago, Illinois 60601

Dr. Frank H. Moser  
Holland-Suco Color Co.  
491 Columbia Avenue  
Holland, Michigan 49423

Mr. Edward R. Novota  
31 Hickory Drive  
Oak Brook, Illinois 60523

Particular Interests

To know much more! Our laboratory people see to it that I obtain the exact shades of any color desired. To know more of the psychological, therapeutic, adventurous application of color.

Color measuring instruments, definitions of and standardization of color names. Color aptitude testing.

Introduction of instrumental colour measurement and color match prediction to paint production at International Paints Ltd.

Laboratory control and formulation of colored paint products.

Control, matching and styling with color in coatings for leather and leather replacements.

To be informed of work done in conferences about color and its problems; measurements of amounts of color difference between pairs of spectrally similar samples; formulation techniques; instrumentation for colorant formulations; color tolerance.

Influence on photochemistry, printability.

Color and its effect on personal motivation and buying habits. The problems of color and visibility is also of interest to me.

Phthalocyanine colors and pigments in general.

General.

Individual Members (Cont)

Mr. W. Glenn Pracejus  
General Electric Company  
Nela Park  
Cleveland, Ohio 44112

Mr. Arthur Rous  
2001 Tonnelle Avenue  
North Bergen, New Jersey 07047

Mr. George Schauburger  
1892 Richmond Drive  
Louisville, Kentucky 40205

Mr. Howard W. Scott  
Laurel Lane  
Greenwich, Conn. 06832

Mr. George C. Smith  
95 Mohawk Avenue  
Ridgway, Pa. 15853

Mr. P. J. Sotorrio  
373 Collins Drive  
Pittsburgh, Pa. 15235

Mr. J. E. Thornton  
Bibb Manufacturing Company  
Res. & Dev. Dept.  
P. O. Box 37  
Macon, Georgia 31202

Mr. Robert H. Young  
Terrace Drive  
R. D. #1  
Bethel, Conn. 06801

Mr. Erhard A. Zwingert  
Tenneco Chemicals, Inc.  
12th & Bern Streets  
Reading, Pa. 19604

Particular Interests

Design and application of lamps.

Materials quality control for rotogravure inks and processes, also materials quality control for letter press R.O.P. color processes.

I am President of the Verilux Corp., a new patented daylight development directly related to color problems in industry, the retail level and the home.

Plastics, inks, coatings.

Instrumental color matching using spectrophotometers, analog computers and related equipment.

Theory, color matching, styling, and instrumentation.

Effective communication of data between vendor and user for description and control, establishing more universal means of measurement for these purposes, development of more accurate color reproduction for photographic uses.

Spectrophotometric color evaluation.

REPRINTS ENCLOSED  
WITH THIS ISSUE

Two papers from the Williamsburg conference: "Basic equations used in computer color matching", by Eugene Allen.

"Tolerances in the design of tristimulus colorimeters for use in colorant formulation", by W. D. Wright.

An article that appeared in the August 15, 1966 issue of Chemical and Engineering News, entitled "Color matching scores".

As a supplement to the C & E News article, the following letter to the editor of that journal is reprinted in its entirety.

#### COLOR MATCHING

Dear Sir:

We read with interest your article "Color matching scores" (C&EN, Aug. 14, page 50). You have prepared an excellent summary of recent progress in the mathematical formulation of color in materials.

We were glad to see the emphasis on page 55 that the total product appearance is much more than color. We have emphasized for some years in our technical papers that geometric aspects such as gloss and luster are important factors in the overall appearance of objects and materials. Our organization is well advanced toward the development of a Colorimetric Goniophotometer of the type mentioned by Miss Johnston as being a primary requirement for advancing the art of appearance evaluation.

Our major disappointment in reading the article was its failure to mention Hunterlab as a manufacturer of colorimetric instruments. You mention all of our competitors. We suspect also that the Institute of Paper Chemistry at Lawrence College, Appleton, Wis., may want to challenge your statement that Clemson and Rensselaer are the only two colleges offering graduate work in color and optical properties of materials.

RICHARD S. HUNTER

President, Hunter Associates Laboratory, Inc., Fairfax, Va.

KARL FINK ELECTED PRESIDENT  
OF PACKAGE DESIGNERS COUNCIL

The election of Karl Fink, a Director of the ISCC, as president of the Package Designers Council was announced

at the Council's 15th Annual Meeting and installation of new officers, held at Columbia University's Greyston Conference Center.

Mr. Fink, who heads his own industrial design firm, Karl Fink and Associates, is one of the thirteen founders of PDC. He previously served as PDC's president from 1958 to 1960, is an honorary lifetime member of its board of directors, and has also been its Chairman of Public Relations. He is a design member of The Packaging Institute's Advisory Council and a member of the American Institute of Graphic Arts. Mr. Fink is a graduate of Parsons School of Design. He succeeds Francis E. Blod, head of Francis Blod Design Associates, Inc.

BOOK ON PERCEPTION BY  
HURVICH AND JAMESON

Leo Hurvich and Dorothea Jameson Hurvich report the publication by Allyn and Bacon, Boston, of The Perception of Brightness and Darkness. The book is one in the paperback series of Contemporary Topics in Experimental Psychology and, Professor Hurvich reports, is priced at \$2.38 at the University of Pennsylvania bookstore. The price elsewhere, he thinks, is \$2.50, for the college store price includes a "whopping 5% discount to the student".

(The Hurvichs report a return to work on their color vision volume, which will no doubt be worth waiting for. Ed.)

BOOK ON COLOR TECHNOLOGY BY  
BILLMEYER AND SALTZMAN

Principles of Color Technology, by Fred. W. Billmeyer and Max Saltzman, President-Elect and Director, respectively, of the ISCC, was published in November by the Interscience Division of John Wiley and Sons.

The book was written to provide the industrial scientist working in the production or use of dyes and pigments with a simplified introduction to the basic principles of color science and their practical application. The book is said to be of interest also to stylists and designers whose duties include the specification of color effects to the industrial colorist. In addition, it is reported to be suitable as a textbook wherever color science is taught, and will be so used at The Rensselaer Color Measurement Laboratory.

Designed in large ( $8\frac{1}{2} \times 11$ ) format and profusely illustrated, Principles of Color Technology is arranged with a continuous text uninterrupted by tables or equations, for the benefit of those unfamiliar with or not requiring the mathematical background of color science. Yet all the pertinent equations and data for quantitative study are presented in an accompanying column for use by the more advanced reader.

It is reported that an outstanding feature of the book is an extensive bibliography listing, with explanatory comments, over one hundred of the most useful books and articles on color in existence.

SALTZMAN APPOINTED ADJUNCT  
PROFESSOR AT RPI

The Rensselaer Color Measurement Laboratory has announced the appointment of Max Saltzman as Adjunct Professor of Chemistry. A native of New York, Professor Saltzman has been active for twenty years in the field of colored organic pigments. His special interests include objective color measurement, colorant identification, pigment evaluation, and criteria for colorant selection. Presently a Senior Scientist at the Allied Chemical Corporation's Morristown, N. J., laboratories, Professor Saltzman set up for the Harmon Colors division of Allied a system of color matching by pigment identification which has been used at Allied for 15 years, and by major colorant-using laboratories throughout the world. His publications on this and other subjects are widely used.

Professor Saltzman will visit Rensselaer periodically to advise graduate students and to assist Professor Billmeyer in teaching courses in color science, both at the graduate level during the academic year and for participants from industry in the summer.

BALINKIN AND EVANS LECTURE  
AT FRANKLIN INSTITUTE

The Philadelphia area was especially favored in November to have two fine lectures on color--the first by Isay Balinkin and the second by Ralph Evans.

Professor Balinkin presented the James Mates Dodge lecture at the Franklin Institute on November 1 and 2. This annual lecture is presented for students in the 10th-12th grades. Professor Balinkin's subject was "The Wonderful World of Color".

Mr. Evans presented his new lecture on "The Perception of Color" on November 16. Using numerous slides, he discussed five fundamental ways in which two colors may be seen to differ from each other: hue, saturation, brightness, lightness, and gray content.

R. BUCKMINSTER FULLER  
RECEIVES IDSA AWARD

The Award of Excellence of the Industrial Designers Society of America was presented to R. Buckminster Fuller at a dinner in San Francisco on September 29. This special award was given to Mr. Fuller for "his concern for humanity, his constant search for truth and the initiation of new principles, and his immense and forceful contribution to design, both in this country and abroad."

Mr. Fuller is Professor at Southern Illinois University in Carbondale, Illinois, where he makes his home. He was born in Milton, Mass., and educated at Milton Academy, Harvard University, and the United States Naval Academy. He is a noted inventor (the Dymaxion House and his geodesic structures being among his best-known inventions), author, popular speaker, and the recipient of many honorary degrees and awards. His work has been exhibited at many of the most prominent museums and universities in the USA and in Europe.

ANNUAL MEETING  
FORMAT CHANGED

At the recent meeting of the Board of Directors of ISCC it was decided that the format for the Annual Meeting (June 12 & 13, 1966) would be changed this year. The reason for proposing the change is that we expect many representatives to the CIE meetings in Washington to attend the ISCC meeting. We feel that this gives us a special opportunity to welcome the CIE delegates from the U.S. and from Europe with the special program.

The Business Meeting will begin at 9:30 a.m. and last until 10:30. At 10:30 there will be a special invitational lecture by Ralph Evans.

The Problems Subcommittees will meet as usual on Monday, but on Tuesday morning the Business Meeting will be shortened by eliminating the usual reports of committees and reports from delegates. These reports will be submitted to the secretary; they will be reviewed and summarized by the Chairman of the Problems Committee and by a member of the Board. The full reports will be published in the Annual Meeting issue of the News Letter. The afternoon symposium will have the same format as previous years; the Chairman of the symposium is Gunter Wyszecki; the topic -- Metamerism. We know that Mr. Evans' lecture and the symposium on Metamerism will be of particular interest to many of the delegates to the CIE. We feel this is an excellent format for this special meeting.

W.L.R.

## EGMONT ARENS DIES

Egmont Arens, industrial designer and color consultant, died in New York on September 30, 1966, at the age of 78. Mr. Arens, although semi-retired, was chairman of Egmont Arens-De Raffeale, Inc., New York designers.

For 14 years, Mr. Arens was chairman of the ASID delegation to ISCC. His delegation's annual reports, compiled from information he developed through personal correspondence with many designers, enjoyed wide readership. Mr. Arens, a devotee of the Ostwald System, was a pioneer in the application of color to marketing needs. His designs (still in use) for Higgins Ink packaging, developed in 1934, are examples of his work in this area.

He was a founding member and officer of the Package Designers Council and a member of the Society of the Plastics Industry. In reporting Mr. Arens' death, the New York Times noted:

"Mr. Arens was born in Cleveland, a son of Franz Xavier Arens, founder of the People's Symphony Concerts. Sent to New Mexico as a teen-ager because of incipient tuberculosis, he worked for several years as a cowboy. Later, he studied at the Universities of New Mexico and Chicago.

"In 1916 he became sports editor of The Albuquerque (N.M.) Tribune-Citizen. The next year, he came here and bought the Washington Square Book Shop at 27 West 8th Street. In 1918, Mr. Arens founded the Flying Stag Press, which he ran from 1918 to 1927, publishing and printing magazines. He was art editor of Vanity Fair in 1922-23 and managing editor of Creative Arts magazine from 1925 to 1927.

"Mr. Arens was head of the industrial-styling division of the Calkins & Holden advertising agency from 1929 to 1935. He founded his own company in 1935. In 1949, he was elected to the presidency of the Society of Industrial Designers."

K. F.

BIOMETEOROLOGICAL APPLICATIONS  
OF COLOR TECHNOLOGY

A first conference on the "Biologic Effects of Ultraviolet Radiation" was held at the Temple University Sciences

Center and the Rutgers State University in late August under the joint sponsorship of the Temple University Skin and Cancer Hospital and the 4th International Congress of Biometeorology. The relevance of many of the activities of the ISCC to the planned program led to the inclusion of a "Color Panel" designed to orient the group to the technical program and progress of the Council and of some of its member bodies in parallel and intersecting areas of common interest.

While the principal program was scheduled for Rutgers, where an estimated 400 participants were expected, a smaller, less formal, preliminary three-day meeting was held at the Skin and Cancer Hospital at Philadelphia. This meeting, attended by most of the principals of the week-long Rutgers Congress, addressed itself to discussion of basic problems in physical measurement of bioactive ultraviolet radiation, measurement of absorption in the epidermal layers, and measurement of the erythema and pigmentation responses.

Many of the problems faced by this group are familiar to most Council members:



1. What are the normal variations in the solar energy spectrum in the ultraviolet and visible range?
2. What is the appropriate "standard" daylight spectrum and what are the preferred artificial sources for its duplication?
3. What is the preferred source for accelerated testing of the biological responses under controlled, reproducible conditions?
4. What are the preferred spectrophotometric devices and procedures for precisely measuring changes in absorption and transmission in the complex laminar epidermal layers?
5. To what extent can the different biological responses (e.g. erythema, pigmentation) be quantified by reflectance measurement?
6. What are the preferred viewing conditions and procedures for clinical observation of skin color, for purposes of diagnosis and of recording observations in absolute communicable terminology?
7. What are the chemical changes induced by solar radiation and how may they be controlled?

With textiles, paper, paint and plastic, resolution of the basic problems of physical measurement is a necessary prerequisite to the development of better commercial products. This same condition would appear to apply to the discovery of preventatives for sunburn and skin cancer.

Four ISCC members participated in a morning panel at the conference on "Optics of the Skin", which elicited considerable attention and stimulated a provocative discussion. The activities of the Inter-Society Color Council relative to radiation and color measurement were reviewed by Ralph Pike. A bibliography on measurement and description of skin color, including several reprints assembled with the assistance of Kenneth L. Kelly and W. N. Hale, were distributed to the participants. Gunter Wysecki discussed the status of the C.I.E. work on standard daylight, with emphasis on the UV component. Dr. Joseph T. Atkins presented a modification of his Williamsburg paper on "Optical Properties of Turbid Media", expanding the historical aspects. This paper served to introduce a potentially new approach to expanded use of reflectance measurements for quantification of the important physiological reactions to erythemal radiation. A paper and demonstration on photochromism prepared by Dr. I. A. Balinkin and Dr. Donald Baltzer was presented by Dr. Francis Jenkins, Jr. (Writer's note: Dr. Balinkin's engagement on the East European Satellite Color Circuit prevented his direct participation. A brief note from Isay indicates that he is drawing SRO audiences.) This paper which postulated a mechanism for carcinogenic UV reactions evoked considerable interest and support from the biochemists.

Participation in this meeting was particularly gratifying to the ISCC contributors because it disclosed new and unsuspected areas for expansion and application of color technology. While the disciplines of medical, biophysical, biochemical, and biometeorological research may differ from applied industrial, there do exist common needs for development, improvement, and application of better concepts and methods for standardization, measurement, and description of color in its broadest connotation. It is an enlightening and enriching experience to watch cross fertilization occur when these divergent disciplines meet face-

to-face on the basic issues. The potential for an ever-expanding degree of influence of the ISCC as a coordinator, initiator, and interpreter of color-related technology seems unlimited.

Any delegate or individual member who may have further information or ideas on the subject of the conference is urged to communicate with Dr. Fred Urbach, The Skin and Cancer Hospital, Philadelphia, Pa. 19140.

REP

GRAVURE TECHNICAL ASSOCIATION  
ADOPTS MAGAZINE STANDARD INKS

Oscar Smiel, Chairman of the G.T.A. delegation, reports that the Association has recently adopted Magazine Standard

Inks for the majority of magazines printed by the Rotogravure Process.

Mr. Smiel writes as follows:

"We have had a G.T.A. Standard Ink for Gravure Weekly Supplements for some time, but magazines - due to publishers' personal preferences, as well as nature of advertising products, were hesitant about adopting a standard due for each of their four colors.

"As of only a few weeks ago, the following magazines agreed to adopt the same Ink Standard: Dell Publications, Family Circle, Hairdo, MacFadden-Bartell Publications and Woman's Day Magazine. The Proofing Inks for engravers are to be supplied by Levey Ink Company. The G.T.A. is now able to announce four standards of ink for practically all Gravure publications as follows:

"(1) G.T.A. Supplement Inks:

These inks are used by Sunday Supplements, are proofed on 34 lb. newsprint, and are distinguished by the fact that the red is not a pure magenta, but more of a deep orangey red, and the blue is a Mallory or iron blue - quite warm in hue. These Proofing Inks are supplied to engravers by Intag Ink Company, Division of InterChemical.

"(2) Magazine Standard Inks:

These are used for magazines listed above, and are proofed on mostly coated stocks specified for each magazine. These inks are somewhat brighter and cleaner in hue - the yellow is less chrome in appearance than the G.T.A. Supplement Ink. The red is less orangey, though not magenta, and the blue is much cleaner, almost a pure cyan in hue.

"(3) 'Seventeen' Inks:

These inks used for Seventeen Magazine, T.V. Guide, and Ingenue, and consist of a brighter, more lemon-like shade of yellow, a pure magenta and cyan for the red and blue, respectively. These Proofing Inks are supplied to engravers by Intag Ink Company, Division of InterChemical.

"(4) Good Housekeeping and Popular Mechanics:

The inks used by these publications are still the inks previously used by Woman's Day, Dell and MacFadden-Bartell publications before the new Standards were adopted. Their red and blue inks are somewhat warmer in hue than the #2 group, especially the blue ink as compared to a cyan - though their blue is not quite as warm in hue as the blue ink of the #1 group. These Proofing Inks are supplied engravers by Levey Ink Company.

"Black or Key Inks vary from one publication to another, depending on publisher preference, since the ink used for editorials has to be used for ads as well. This is because in Gravure, all engravings for a magazine or supplement, whether editorial or advertising matter, are printed together and are inked up together from one bath of ink for each of four colors.

"Some day, we'll have a Standard Proofing Ink for all magazine publications as we have for all Sunday Supplements - but at the moment, the aforementioned four categories still exist and are a big step forward in our efforts to standardize the industry."

O.S.

CMG MEETING ON  
"COLOR AND LIGHT"

The next meeting of the Color Marketing Group will be held at the International Inn, Washington, D.C., on May 9 and 10, 1967, and should be of general interest to ISCC members for the general subject is "Color and Light". In charge of the meeting will be Kaye A. Leighton of G.E.

A.I.A. COMMITTEE PLANS  
SERIES ON USE OF COLOR

Milo Folley reports that the A.I.A. committee on color specifications plans to publish a series of articles in the A.I.A. journal on the use of color. The first is to be a rewrite of Ken Kelly's article entitled "A Universal Color Language" (Color Engng., Mar.-Apr. 1965), while the second is to be concerned with the use of this language by architects (and others) and with a method of filing colors. The third article is expected to be a "tie-in type summary showing Everett Call's trends and information on color preference and usage". The fourth, concerned with the use of color by architects, would be designed to serve as a basis for a workshop to be conducted by the task-force committee on color specifications at the spring (1967) A.I.A. meeting in New York City.

NEWS FROM RPI COLOR  
MEASUREMENT LABORATORY

Fred W. Billmeyer, director of Rensselaer's Color Measurement Laboratory, has announced donations and awards that will be of interest to N.L. readers.

Two early 20th century books on color by Joseph W. Lovibond were donated to the laboratory by G. J. Chamberlin, Managing Director of the Tintometer Ltd., Salisbury, England, the firm founded by Mr. Lovibond in 1885. In donating the volumes, Mr. Chamberlin wrote to Prof. Billmeyer as follows:

"As promised, I am sending you copies of two of Mr. Lovibond's books for your historical library. They are, of course, now out of print, but they represent a most interesting contribution to early colorimetry, and are worthy companions to the old instrument you so proudly display. [See Color Engineering 4, No. 3, 16 (May-June, 1966).] I'm holding you to your promise to emphasize that while we were pioneers, we are still in the forefront of new developments in the application of colorimetry. We are not today's museum pieces.

"Some of our friends in the I.S.C.C. may be interested to see how forward-looking Mr. Lovibond was all those years ago. The Measurement of Light and Colour Sensations was written between 1900 and 1910, but I do not know the exact date. Light and Colour Theories was written in 1914, ...."

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The Paint Research Institute has provided for two new Fellowships to support research at the laboratory in the fields of new turbid medium theory as applied to paint films, and color and appearance prediction in metallized paints.

A set of new turbid medium equations, developed by Professor Billmeyer and his colleagues for describing the scattering and absorption of light in translucent plastics, have not yet been reduced to practice for the paint industry. The equations are more nearly exact, but correspondingly more complex, than those derived in 1931 by P. Kubelka and F. Munk, currently in wide use in approximate form for color matching calculations. A part of the research planned in this area will be directed towards testing these equations, defining their areas of usefulness for paint formulation, and developing computational aids to implement their routine use in the paint industry.

Similar theoretical understanding is currently lacking when one or more of the colorants in a paint is a metallic reflecting film such as flake aluminum. Research is planned to develop the appropriate basic theory and to apply it in the practical solution of problems of color matching in paints containing metallic colorants.

The Paint Research Institute is a non-profit organization attached to the Federation of Societies for Paint Technology.

#### ACTIVITIES OF THE COOPER UNION MUSEUM

Christian Rolfing, Administrator for the Cooper Union Museum for the Arts of Decoration, has announced a number of exhibitions that should attract much attention.

Unfortunately, this issue will reach most (and perhaps all) readers too late for them to do anything about the first, "Threads of History", which was scheduled for the period Oct. 21, 1966 to Jan. 7, 1967 at the Museum. This is an exhibition organized and circulated by the American Federation of Arts for the purposes of explaining the properties of all types of fibers used in decorative textiles and of illustrating the educational story with textiles exemplifying not only good textile construction, but the very best in color and design. The exhibition contains 100 historic examples--from 2500 B.C. to the present--and 225 contemporary fabrics, arranged in "a dramatic setting of tall, tent-like structures with walls and ceilings of fabrics, some stretched, some in folds, and some in billowing swags. Colors are massed; reds and pinks in one area, blues and aquamarines in another, greens and golds in a third, so that when a silk velvet is placed next to a coarse linen the emphasis is on the difference in texture without any distraction from difference in color."

Other activities that will interest ISCC members are:

An exhibition "Light and Shade -- Illumination for the Home" -- planned for the period Feb. 27 through Apr. 29, 1967.

A benefit for the Museum, the "Decorative Arts Festival", sponsored by the American Institute of Interior Designers, to be held in Cooper Square on May 22, 1967. The occasion will include the opening of a two-week exhibition of interiors by members of the A.I.D.

A major exhibition of the Museums collections, called tentatively:

"Treasures from the Cooper Union Museum" -- scheduled for the period July 12 through Sept. 24, 1967. This exhibition will be sponsored by the

National Collection of Fine Arts and held in the Museum of Natural History Building of the Smithsonian Institution on Constitution Mall, Washington, D.C.

BRAZILIAN COLOR COUNCIL  
HOLDS CONGRESS ON PSYCHO-  
DYNAMICS OF COLORS

According to a charming letter and announcements received in the Secretary's office, the First Brazilian Congress on Psychodynamics of Colors was held in Porto Alegre on Oct. 6-9, 1966. The letter was signed by Epitacio Torres, Secretary for International Matters of Brazilian Color Council, and requested that information about the meeting be "published in your famous newspaper and send us clippings."

To provide N.L. readers with information about the interests of the Brazilian Council and the Congress participants, most of the material in the formal announcement is reproduced below (translated from the Portuguese, but not by your editor).

"The Conselho Brasileiro de Cores (Brazilian Color Council) is a public-utility association which deals with study, research, and dissemination of information concerning the appropriate and harmonious utilization of colors in education, industry, environmental sciences, sales promotion, packaging, apprenticeship motivation, decorating, billboards, and advertising in general.

"The Brazilian Color Council, similarly to the Inter-Society Color Council of the U.S.A., the British Colour Council, the Centre d'Information de la Couleur of France, the Japanese Color Council, and other associations in the most advanced countries such as Germany, Switzerland, Canada, etc., has as its principal objective the bringing together of professors in the most varied subject fields (architects, decorators, engineers, industrialists, and advertising people) for the purpose of facilitating the tasks of utilization of colors in all of the areas covering these activities.

"Color psychodynamics, which investigates conscious and unconscious human reactions to colors, is becoming of late a science which is indispensable to planning in any sector of activity, whether it be education, industry, commerce, or housing.

"The efficient use of basic knowledge of communication by means of color and its expression and esthetics leads to better understanding on the inter-professional levels.

"The psychodynamics of colors is at everyone's reach. This does not simply involve colors in art, but also the use of colors as a function of persons who live and work, of what is desired to be taught in a class, of what we wish to communicate.

"Colors stimulate, tranquilize and express feelings. Colors are associated with happiness, sadness, state of mind. An object changes in aspect when its color is changed. An environment changes completely simply when its colors are changed. Colors depict and define objects and give distinction to them. From the moment our memory begins to function and during all of our activities we are influenced by colors.

"In order to obtain an idea of the importance of the proper use of colors in the United States of America, we can point to the fact that the Inter-

Society Color Council brings together in a key unit thirty of the largest associations in the U.S., such as the American Institute of Architects, the American Institute of Interior Designers, the American Psychological Association, the Packaging Institute, the Research and Engineering Council of the Graphic Arts Industry, etc.

"The Brazilian Color Council maintains relations with large international institutions covering the same field.

"The universal aspects of colors make up a part of social psychology and the educational features of colors are of great value.

"For the above reasons, the Brazilian Color Council is pleased to host this first congress and is proud of its agenda and of the renowned professionals from the various sectors of activity who will present their reports."

#### Program of Topics

Color in designing interiors and exteriors, by Professor Ernani Correa of the School of Architecture of the URGS and visiting professor at the School of Fine Arts.

General remarks on waves, by Armand Brugière, Professor of Physics at Sao Pedro College.

Color as an educational means, by Epitacio Torres, Professor of Languages.

The need to promote colors, by agricultural engineer Antonio Tavares Quintas, Professor of Botany of the School of Agriculture of the URGS and the Pontifical Catholic University.

Colors in accident prevention, by Dr. Armino Beux, President of the Union of Engineers of the RGS and President of the National Federation of Engineers.

The importance of color in glass windows, by Graziela Preuss, Professor at the Institute of Fine Arts of Novo Hamburgo.

Colors in Brazilian literature, by Sister Elva Clemente, Professor of Language and Literature of the Pontifical Catholic University (PUC).

The development of colors through art schools, by Cleuber de Figueiredo Rosas, Decorator.

Commerce and colors, by Miss Eliete Siebel, from the Training Program for Commercial Art Teachers, FCE-URGS and Second Secretary of the COBRACOR (Brazilian Color Council).

The universal nature of color, by Paulo Paredes, Plastic Arts.

The role of color in architecture, by Miss Berenice Mumarski, student of architecture.

The paint industry in Brazil, by Mr. Homero Bellintani, President of the Paints and Varnishes Union and Vice-President of the Brazilian Color Council in the State of Sao Paulo.

Cinematographic expression through color, by Mr. Alvaro Guaspari, President of the Cinematographic Studies Center of the PUC and Director of the Movie Course of the Gaucho photography and movie club.

Color in industry, by Jorge Rugardo Bercht, Architectural Engineer, Associate at the School of Architecture and Urban Planning of the Faculty of Architecture of Sao Paulo.

The importance of color utilization for students, by Antonio Carlos Araujo Vianna Antunes, student of architecture.

The influence of color in civil engineering, by Dr. Felix Martins de Almeida, President of the Civil Engineering Industry Union of Guanahara State and Vice-President of the Brazilian Color Council in Rio de Janeiro.

Preferences and rejections of colors, a report based on research by Sister Albina Gandini, Professor at Sévigné College and First Secretary of the Brazilian Color Institute.

General discussion on the topics, Professor Simao Goldman, National President of the Brazilian Color Council and the initiator of the study of colors at the university level in Latin America.

[The Congress] is sponsored by the Brazilian Color Council in cooperation with the Pontifical Catholic University of Rio Grande do Sul, the National Federation of Engineers, the Paint and Varnish Industry Union of the State of Sao Paulo, and the Center of Productivity of the Federation of Industries of the State of Rio Grande do Sul.

THE COLOUR COUNCIL OF  
CANADA (TORONTO REGION)

New officers of the Canadian Council were  
listed in the August 1966 news letter:

President	Dr. A. G. S. Heathcote	Dept. of Public Health City of Toronto
1st Vice Pres.	Mr. Howard Dierlam	Art Dept. Board of Education Toronto
2nd Vice Pres.	Mr. Leonard A. Wheeler	Leonard Arthur Wheeler & Assoc., Inc.
Sec. - Treas.	Mr. Wilfred Skitch	Skitch Clothes Limited
Past Pres.	Mr. Ralph Conquergood	Canada Printing Ink Co., Ltd.

Subjects and speakers for the autumn 1966 meetings of the Council were reported as follows:

- Sept. -- Slides of the life and scenic wonders of seven African countries, by Mrs. Alice Payne Stark.
- Oct. -- Colour through the eyes of an enthusiastic amateur, by Mr. Frank M. Dowsett.
- Nov. -- The fine art of camouflage, by Mr. Cleeve Horne.
- Dec. -- Colour measurement instruments, by Mr. Gerald Traux and Mr. William Hayman.

THE COLOUR GROUP  
(GREAT BRITAIN)

A letter from I. T. Pitt to Ralph Evans announces a symposium that will interest ISCC members.

Dear Mr. Evans:

"The Colour Group of Great Britain is holding a Symposium on Thursday, 6th April and Friday, 7th April, 1967 at Imperial College, London, under the title 'Colour Measurement in Industry'. We are inviting contributions under the session headings of 'Instrumentation and Working Standards', 'Colour Difference Formulae and Tolerance Specification' and 'Illuminants for Instruments and for Visual Use'.

"It is intended that the emphasis shall be on discussion and short contributions, even where the work is unfinished, will be particularly welcomed.

"I would be extremely grateful if you could bring this Symposium to the notice of Inter Society Colour Council members, any of whom we would be delighted to have present. Incidentally, the Symposium arises from a Colour Group Working Party formed to study colour measurement in industry. I am Chairman of this Working Party and we are hoping that we can co-operate with I.S.C.C. sub-committees on any relevant topics. Our Secretary, Dorothy Morley, has written to the Chairman of sub-committees 22 and 24 with this in mind, and we would be glad to receive official I.S.C.C. backing for any collaboration."

Yours sincerely,

(signed) I. T. Pitt.

Topics and dates for the Autumn 1966 Science Meetings in England of The Colour Group are listed in their bulletins as follows:

- Oct. 5, 1966 -- "Conspicuous Fish and the Water They Swim In" --  
Dr. John Lythgoe.
- Nov. 9, 1966 -- "New Light Sources" -- E. H. Nelson, S. A. R. Rigden,  
R. A. Evans.  
"Colour in Artificial Lighting" -- W. A. Price.  
"Streetlighting" -- G. Mainwaring.

Autumn Meetings announced for Scotland:

- Oct. 27 -- "Fading of Colours" -- C. H. Giles.
- Early Dec. -- "Genetics of Colour Vision" -- H. Kalmus.



MISCELLANY

## RED

Any color, so long as it's red,  
 Is the color that suits me best,  
 Though I will allow there is much to be said  
 For yellow and green and the rest;  
 But the feeble tints which some affect  
 In the things they make or buy  
 Have never--I say it with all respect--  
 Appealed to my critical eye.

There's that in red that warmeth the blood,  
 And quickeneth a man within,  
 And bringeth to speedy and perfect bud  
 The germs of original sin;  
 So, though I'm properly born and bred,  
 I'll own, with a certain zest,  
 That any color, so long as it's red,  
 Is the color that suits me best.

---From Eugene Field (1850-1895)

YOU MIGHT TRY THIS GIMMICK  
 NEXT TIME YOU ARE CAUGHT

Do radar police unconsciously pick on a red car? An art professor, charged with speeding, claimed in a New York court that

they do. Stating that reds and oranges are known as advancing colors, while blues and greens are receding colors, and that his was the only red car in sight, the Professor claimed that the police "would instinctively call for the red car".

The judge reserved decision until a later date.

A STERLING ACCOUNT

"A Canadian tourist in London filmed a smash-and-grab raid on a New Bond Street jewellers yesterday and gave the film to police. But they cannot get it developed until tomorrow morning. A policeman said: 'It's a Kodak colour film and only Kodak laboratories can process it. They're closed for the weekend.' ..... Kutchinsky's (the victimized firm) said the raiders took brooches and other jewellery worth more than £10,000." (Sunday Times, London, 15 May 1966.)

LIST OF ARTICLES ON  
 COLOR RECEIVED BY  
 NEWS LETTER

"A Practical System of Instrumental Colour Measurement and Control," R. Smith, J. Oil & Colour Chemists Assn., pp. 767-775 (November 1962).

"The Precision of Spectrophotometry as Practiced in Industry," Fred W. Billmeyer, Color Engineering, 3, No. 4, pp. 16-20 (July-August 1965).

"Predicting Optical Properties of Coated Papers," H. B. Clark and H. L. Ramsay, TAPPI, 48, No. 11, pp. 609-612 (November 1965).

"Present Day Possibilities and Limitation of Colorimetry in the Study of Pigments," Y. LeGrand (Papers presented at the VII F.A.T.I.P.E.C. Congress, Vichy, 1964, 32-42 in French), Review, 38, No. 274, p. 308 (April 1965).

"The Problem of Illumination in Colour Matching," K. McLaren, J. Society of Dyers and Colourists, 78, pp. 261-274 (June 1962).

"The Problem of Visual Excitation," George Wald, Paul K. Brown, and Ian R. Gibbons, J. Opt. Soc. Amer., 53, No. 1, pp. 20-35 (January 1963).

"Problems and Techniques of Producing and Inserting 'In-Register' Preprinted Color Material into a Newspaper," Gerard Larocque, TAGA Proc., pp. 305-317 (1963).

"The Production of Crayons and School Art Materials," American Ink Maker, XLII, No. 1, pp. 22-28, 59-60 (January 1964).

"A Production Line Colorimeter," Paul J. Selgin, Color Engineering, 1, No. 3, pp. 23-28 (September 1963).

"Progress Committee Report for 1964, Section on Color Television," SMPTE, 74, No. 5, pp. 392-393 (May 1965).

"Proposal for a New Color-Difference Formula," Günter Wyszecki, J. Opt. Soc. Amer., 53, No. 11, pp. 1318-1319 (November 1963).

"A Proposed Engineering Approach to Color Reproduction," Irving Pobboravsky, TAGA Proc., pp. 127-165; discussion 265-267 (1962).

"The Psychological Dimensions of Color," F. L. Dimmick, Die Farbe, 11, Nr. 1/6, pp. 127-134 (1962).

"Psychophysical Methods for Evaluating the Quality of Color Transparencies." Part 1: "Comparison of Categorical- and Comparative-Judgment Data," W. W. Woodbury and C. J. Bartleson, J. Photo. Sci. & Eng., 6, No. 1, pp. 10-14 (January-February 1962); Part 2: "Control of Observer Adaptation in Categorical Judgments," pp. 15-18; Part 3: "Effect of Number of Categories, Anchors, and Types of Instructions on Quality Ratings," 9, No. 5, pp. 323-330 (September-October 1965).

"Psychophysics of Vision," R. M. Boynton, Proc. of International Congress on Technology and Blindness, Vol. II, pp. 5-30 (1963).

"Quantitative Estimates of Saturation," J. W. Onley et. al., J. Opt. Soc. Amer., 53, No. 4, pp. 487-493 (April 1963).

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News Letter Committee:

Randall M. Hanes, Chairman  
Katherine Chandler  
Waldron Faulkner  
Calvin S. Hathaway

William J. Kiernan  
Dorothy Nickerson  
Helen D. Taylor

Send News Letter Items to Editor,  
Randall M. Hanes  
Applied Physics Laboratory  
The Johns Hopkins University  
8621 Georgia Avenue  
Silver Spring, Maryland 20910

Other Correspondence to Secretary,  
Ralph M. Evans  
Color Technology Division  
Eastman Kodak Company  
Rochester, New York 14650

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Interaction of Color by Josef Albers, Yale University Press, 1963  
 Human Needs Demand Effective Color Palette on Switzerland  
Couleurs, Journal of CIC  
 Natural Selection and Color Blindness Was "Mauve" Discovered Before Perkins?  
Internationale Bibliographie der Farbenlehre und ihrer Grenzgebiete, Vol. 2, 1950-1954  
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University  
Egbert Jacobson Dies  
"The Painting" by Helen E. Buckley  
Swiss Color Association  
British Colour Group  
ISCC-SPE Joint Session at Montreal  
ANTEC  
Problem 30 Subcommittee Reports  
Progress  
New A.I.A. Committee on Color  
Specifications  
Color Preferences Reported Changing in  
Decor, Fabrics, Appliances  
Lecture Kit from Tintometer  
New Book on Teaching Color  
Color-Vision Defects Noted in  
Cirrhotic Alcoholics  
Miscellany  
List of Articles on Color Received by  
News Letter