



Inter-Society Color Council News

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AIC WITHDRAWAL FROM OSLO MEETING ON "COLOUR BETWEEN ART AND SCIENCE"

The following is a letter from the AIC Secretary/Treasurer explaining why the AIC found it necessary to withdraw its 1998 AIC Interim Meeting from the Oslo Meeting on Colour Between Art and Science:

AIC Member Countries,

Since the Kyoto AIC Conference, the AIC was looking forward to having the 1998 AIC Interim Meeting in October in close connection with the Colour Between Art and Science Meeting in Oslo. Unfortunately, some misunderstandings led to the fact that Norsk Farveforum, the Norwegian national colour AIC member organization, could not arrange the AIC Interim Meeting as requested in the AIC Guidelines for AIC Interim Meetings.

The President and the Executive Committee of the AIC therefore had to decide to withdraw from the Oslo meeting and to cancel the 1998 AIC Interim Meeting. We assume that many of our AIC colour-related colleagues around the world might have responded to the Call for Papers for the Colour Between Art and Science Meeting on the basis that it was supposed to be an AIC Interim Meeting. Please forward the information on AIC withdrawal from Oslo to all members in your national colour organization as soon as possible to avoid confusion and to allow your members time to change their travel plans, if they so choose.

We sincerely hope that you understand and support the decision of the AIC President and Executive Committee. We apologize for any inconvenience this withdrawal may have caused.

Sincerely yours,

Frank Rochow
(AIC Secretary/Treasurer)

(Continued→)

If any ISCC members have any questions about this AIC action, please contact:

Paula J. Alessi, AIC Vice President
Eastman Kodak Company
Rochester, NY 14650-1907
Tel: 716-477-7673
Fax: 716-722-1116
email: pjalessi@kodak.com

[Editor's note: AIC Interim Meeting was scheduled for October 10-11, 1998. Based on the above note, that meeting is now cancelled.]

ISCC ANNUAL MEETING

The Inter-Society Color Council (ISCC) will hold its 67th Annual Meeting in conjunction with the Optical Society of America's (OSA) Annual Meeting at the Marriott Inner Harbor Hotel in Baltimore, MD on Friday, October 2, 1998 through Sunday, October 4, 1998. Note that this is a change from the tradition of having the ISCC Annual Meeting on a Sunday through Tuesday. The ISCC Annual Meeting will consist of sessions organized by its three Interest Groups: (I) Basic and Applied Color Research; (II) Industrial Applications of Color; (III) Art, Design and Psychology), its Education Committee and Project Committee #51 (Guide to Material Standards). Meetings will be held for new ISCC members and the Individual Members Group. A joint ISCC/OSA Symposium on "Color Discrimination and Color Differences: Perception and Prediction" will take place on Sunday, October 4. Other events will include a wine and cheese reception together with a contributed poster session, a crab feast at the Baltimore Waterfront and a business and awards luncheon featuring the presentation of the Macbeth Award to Dr. David Alman.

Schedule of Meetings

Thursday, Oct. 1

8:00-4:00 ISCC Board of Directors Meeting

Friday, Oct. 2 (Marriott Inner Harbor)

9:00-12:00 Education Committee

Topic: "Color: Art & Science"

The Evolution of Human Color Vision, J. Jenness

Color Language and Culture, J. Schirillo

The History of Color in Art, speaker TBA

1:30-4:30 Interest group II; Industrial Application of Color

Topic: "Industrial Uses of Color and Appearance Models"

Color Image Parameters for Color Appearance Description, A. Tremeau, *et. al.*

Testing Color Appearance Models Including CIECAM97s Using SCID Images,

H Yaguchi, *et. al.*

Rod and Cone As Self-Filtering Opponent Color Receptors, V.V. Gavrik

Color Image Distances to Quantify Images Synthesized by Ray Tracing Algorithms,

S. Albin, *et. al.*

Abstract Mathematics Provides Fundamental Color Order Systems and Applications for Industry, A. S. Zoch

An Evaluation of the Instrumental and Visual Color Difference of Metameric Tiles, J. Taylor, *et. al.*

5:00-7:00 Wine and Cheese Reception / Newcomers / Contributed Posters Session

Saturday, Oct. 3 (Marriott Inner Harbor)

9:00-12:00 Interest Group I; Fundamental and Applied Color Research

Topic: "Color Difference and Color Appearance"

The CIECAM97s Color Appearance Model, M.D. Fairchild

Quantitative Testing of Color Appearance Models Using the Munsell Renotation Data, D. R. Wyble, *et. al.*

Towards an Improved Uniform Color Space, R. G. Kuehni, *et. al.*

New Color Effects Related to Retinal Organization, C. S. McCamy

Lightness, Whiteness, Blackness and Chromaticness in Chromatic and Achromatic Colors, O. da Pos, *et. al.*

Basic Color Terms and Basic Color Categories, C.L. Hardin

12:00-1:30 Awards Luncheon and Business Meeting

1:30 - 4:30 Interest Group III; Art, Design and Psychology

Topic: "Global Culture and Color"

6:00-??? Crab Feast on the Baltimore Waterfront

Sunday, Oct. 4 (Convention Center)

8:00-3:45 Joint ISCC / OSA Symposium

Topic: "Color Discrimination and Color Differences: Perception and Prediction"

Role of Higher Order Mechanisms in Color Discrimination, J. Krauskopf

Data and Prediction of Color Discrimination, V.C. Smith, *et. al.*

Testing CIELAB-Based Color-Difference Formulas, M. Melgosa

(Continued→)

Testing Colour Difference Formulae Using New Colour Difference Data Sets,
M. R. Luo, *et. al.*

Measurements of Surfaces Dividing Opponent-Colors, B. Wandell, *et. al.*

Is There a Perceptual Color Space?, Q. Zaidi

Some Recent Developments in the Evaluation of Small Colour-Differences, K. Witt

Industrial Color Difference Equations - Current Initiatives and Future Directions,

R. S. Berns

Monday, Oct. 5 (Convention Center)

2:30-5:00 Joint ISCC / OSA Color Vision and Measurement Poster Symposium (Plenary)

(Open to ISCC Participants)

For further information about the ISCC Annual Meeting please contact the ISCC Office, Suite 301, 11491 Sunset Hills Road, Reston, VA 20190, or visit the ISCC website at <<http://www.iscc.org>>.

The OSA Annual Meeting will follow the ISCC Annual Meeting. It is being held at the Baltimore Convention Center on Sunday, October 4 through Thursday, October 8. The Color and Vision sections of the OSA will be meeting on Monday and Tuesday, October 5 and 6. For further information on the OSA Annual Meeting please contact the Optical Society of America at 202-223-0920 (telephone), 202-416-6100 (fax), or visit the OSA website at <<http://www.osa.org>>.

Prior to the ISCC Annual Meeting, from Monday, September 28 through Wednesday, September 30, the International Commission on Illumination (CIE) Division 1 (Vision and Color) will be meeting at the Marriott Inner Harbor Hotel. For further information on the CIE Division 1 Meeting please see article on CIE Division 1 elsewhere in this *Newsletter*.

THE 1999 ISCC GODLOVE AWARD NOMINATION

The Godlove Award is the most prestigious award bestowed by the Inter-Society Color Council (ISCC) to honor long-term contributions in the field of color. The Godlove Award was established in 1955 in memory of Dr. I. H. Godlove, and is presented biannually, in odd numbered years, with the next award scheduled for presentation at the 1999 ISCC Annual Meeting.

Candidates will be judged by their contribution to any field of interest related to color, whether or not it is represented by an ISCC Member-Body. The candidate's contribution may be direct, it may be in the active practical

stimulation of the application of color, or it may be an outstanding dissemination of knowledge of color by writing or lecturing, based on original contributions of the nominee. Candidates need not have been active in the affairs of the ISCC, but they must be either current or former members of the ISCC. All candidates must have at least five (5) years of experience in their particular field of color.

The past and present membership of the ISCC boasts a number of individuals deserving of such recognition, but such an award requires your participation in the process. Please take the time to consider and to nominate a worthy candidate for this honor.

Nominations for the 1999 Godlove Award are now being solicited, through September 1, 1998.

Joel Pokorny

CIE DIVISION 1

Dear Colleagues,

Below is the final CIE Division 1 Meeting Agenda for our September meeting in Baltimore. The meeting will be held at the:

Marriott Inner Harbor
110 Eutaw Street
Baltimore, MD 21201
Tel: 410-962-0202
Fax: 410-962-0404

The room rate is \$142/night. This is the ISCC group rate, so when making reservation, please ask for the ISCC group rate.

Mon. Sept. 28

9:00 - 10:00	General Session
	CIE Division 1.
10:00 - 10:15	Break.
10:15 - 12:00	TC 1 - 19
12:00 - 13:30	Lunch.
13:30 - 15:15	TC 1 - 27.
15:15 - 15:30	Break.
15:30 - 17:00	TC 1 - 21 and 1 - 37.

Tues. Sept. 29

9:00 - 17:00 Image Technology
working meeting with Agenda set by
Alan Robertson.

Wed. Sept. 30

9:00 - 11:00	TC 1 - 36.
11:00 - 12:00	TC 1 - 48.
12:00 - 13:30	Lunch.
13:30 - 17:00	CIE Division 1 Closing Session.
13:30 - 14:15	Report from Associate Director for Vision including Pat Diamond's report on CIE 1964 10° observer.
4:15 - 15:00	Report from Associate Director for Colour including summary on Image Technology.
15:00 - 15:15	Break.

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15:15 - 15:45 Report from Associate Director for Visual Ergonomics including discussion on the future of this section.
15:45 - 16:00 Reports from Secretary and Editor.
16:00 - 16:55 Discussion on new work item proposal
16:55 - 17:00 Next meeting and other business.

17:00 Close
Furthermore, the TC 1 - 47 meeting will be held on Oct. 1 in the afternoon with an open presentation session from 14:00 to 17:00. All those interested are encouraged to attend.

Best Regards,
Paula J. Alessi, CIE Division 1 Editor

OBITUARY

DOROTHEA JAMESON (1920-1998)

Dorothea Jameson died unexpectedly on Easter Sunday, April 12, 1998 at the age of 77. Dorothea Jameson, sensory neuroscientist was born in Newton, Massachusetts on November 16, 1920. Educated at Wellesley College, 1942; MA (Hon) University of Pennsylvania, 1973, D.Sc. (Hon) SUNY, 1989. Married to Leo M. Hurvich, October 23, 1948. Dr. Jameson was a research assistant at Harvard U. (1941-47); research psychologist at Eastman Kodak Co., Rochester, NY, 1947-57; research scientist at NYU, 1957-62; visiting scientist at the Venezuelan Institute of Scientific Research 1965; research associate to professor of psychology at Inst. of Neurological Science, University of Pennsylvania, 1962-1974; university professor, University of Pennsylvania, 1975—; visiting professor, center for visual science, U. Rochester, 1974; Columbia University, 1974-1976; MIT (1977-83); Visiting Committee of board overseers, Harvard U., 1989—; member of National Advisory of Eye Council, National Institute of Health, 1985 - 89; corp. board member, Woods Hole Oceanographic Institute, 1978-1984, 1985-91, life member, 1991—; US National Committee member International U. Psychol. Scientists 1985-91. National Academy of Science, NCR, Committee on Human Resources, 1977-80, chairman, committee on vision, 1980-81; member of research and evaluation committee, The Lighthouse, 1993—; participant Keystone Scientist to Scientist Coll., 1995. Recipient of I.H. Godlove award Inter-Society Color Council, 1973; Alumnae Achievement award, Wellesley College, 1974; Deane B. Judd award, Assn. Internationale de Couleur, 1985; Hermann von Helmholtz award, Cognitive Neuroscience Institute, 1987; Fellow Center for Advanced Study in the Behavioral Science, 1981-82; Fellow American Association for the Advancement of Science, Soc. Experimental Psychologists (Howard Crosby Warren medal, 1971). American Psychological Association (Distinguished Sci. contribution award, 1972).. American Academy of Arts and Sciences, Optical Society of America (Tillyer medal, 1982); member of National Academy of Sciences (committee on human rights, 1994—). American Psychological Society (William James fellow), Assn. Research in Vision and Ophthalmology, International Brain Research Organization,; International Research Group Color Vision Deficiencies; New York Academy of Science, Psychonomic Society, Society of Neuroscience, Sigma Xi. Co-author, the Perception of Brightness and Darkness, 1966; co-author Introduction and English translation: Outlines of a Theory of the Light Sense, 1964 (E.Hering). co-editor, author chpt; Visual Psychophysics; Handbook of Sensory Physiology, Vol., VII/4, 1972; contributor to History of Psychology in Autobiography, 1989; contributed numerous articles to professional journals.

Gultekin Celikiz
Editor, ISCC News

PROGRESS REPORT ON AIC/ISCC 2001 CONGRESS

The current Committee members for AIC2001 are:

Paula Alessi
General Chair
Geffe Woolfe
Finance Chair
Roy Berns
Fundraising Chair
Bob Chung
Publications Chair
Dave Wyble
Publicity Chair
Cathy Daniels
Social Program Chair
Allan Rodrigues
Technical Program Chair

The proposed schedule for 2001 ISCC Annual Meeting in conjunction with AIC COLOR 01 in Rochester.

Normal AIC Schedule

Sunday Evening: Welcome Session
Monday: Technical Sessions
Tuesday: Technical Sessions
Wednesday: Outing
Thursday: Technical Sessions, AIC Banquet / Judd Award
Friday: Technical Sessions

Proposal for 2001 ISCC Annual Meeting

No separate meeting — too much effort, travel, expense

No adjacent meeting — unnecessary competition for speakers, resources, attendees

Combined Meeting Proposal

ISCC Board Meeting to be held Sunday prior to AIC welcome reception
ISCC Interest Groups I, II, III, and Education Committee, each one, to cosponsor a technical session within AIC on Monday or Tuesday to be chaired by the Interest Group / Committee chair and advertised as a joint session providing ISCC with some good publicity.

ISCC Awards and Business Lunch to be held on Monday and included in registration price for all AIC participants. Again good exposure and nice setting for the Godlove award.

Karen Braun, Colleen Desimone and Dave Wyble have done an excellent job of finalizing the logo/poster design to be used for publicity purposes. We have signed contracts with the Rochester Convention Center and the three closest hotels.

We are thankful for the support ISCC Board has already shown for AIC/ISCC 2001. With all of us working together on this major undertaking, this AIC Congress should be a success.

Paula J. Alessi, AIC 2001 Steering Committee Chair
Eastman Kodak Company
1700 Dewey Avenue
Rochester NY 14650-1907
Tel: 716-477-7673
Fax: 716-722-1116

COLOR RESEARCH AND APPLICATION

IN THIS ISSUE, AUG. 1998

We start off the August issue with an article on the colorimetry of cholesteric liquid crystal colors. Though some readers may not recognize the name, cholesteric liquid crystals (CLC) were discovered in 1888 and have many uses. In several forms, polymer-dispersed, gels, or encapsulated CLC molecules are used in color displays. The ability to selectively reflect specific wavelength bands can be controlled electrooptically. Voltage or frequency are used to control the orientation, i.e., to twist and untwist, the CLC within the microdroplet or polymer support network. In the encapsulated form temperature changes twist or untwist the CLC helix thus controlling color. These are used in decorative art or thermally controlled displays. In

continuous films, CLC's are used for color filters, optical notch filters, polarization isolators, and decorative arts. CLC colors have been noted for their vividness and luminosity. Since they exhibit angular dependence and polarization selectivity, one might expect that their colorimetry can be difficult. However, Eileen M. Korenic, Stephen D. Jacobs, Sadeg M. Faris and Le Li describe how CLC films and flakes can be measured by standard colorimetry in "Color Gamut of Cholesteric Liquid Crystal Films and Flakes by Standard Colorimetry."

In our next article Hiroko Uchida describes "A New Whiteness Formula." In 1969, the International Commission on Illumination (CIE) set up a committee to study the evaluation of whiteness. Then in 1986 the CIE adopted a recommended method for the assessment of white materials. Since then it has become apparent that while the CIE formula works well on white materials which have similar tint, it does not succeed as well when comparing materials that differ in tint. The new formula developed by Uchida and described in this article considers both the tint and the purity of the materials. In doing so, it achieves good agreement with visual estimations of whiteness. Uchida concludes his article by challenging others to new research to investigate the appearance of whiteness under different levels of illumination.

In an article of this journal last year, H. Hemmendinger, H. Fairman and M. Brill examined how the 1931 CIE Standard Observer was derived from the Wright and Guild data¹. However, as most readers are aware, the CIE has defined two colorimetric standard observers. The original (1931) observer was applied to observations using a small field, 2°, i.e., about the size of a dime held at arms length. The second observer is for a larger fields of view, 10°. In this issue P. W. Trezano and R.

¹In this issue, Michael H. Brill has an erratum for that article. Please make a note on the original article indicating where you can find the correction.

(Continued→)

P. Parkins examine the "Derivation of the 1964 Colorimetric Standard." The authors look at the differences between the two observers.

Our next article is also derived from the study of the CIE system of colorimetry. Since the publication of the first three parts of his series "Toward a More Accurate and Extensible Colorimetry" in 1992, William A. Thornton, in part, has been documenting large errors in the computed tristimulus values (using the 1964 Supplementary Standard Observer) for lights judged to be visual matches. In the article in this issue, "Part VI. Improved Weighting Functions. Preliminary Results" Dr. Thornton reports on a new phase of the research. This phase involves demonstrating how it is possible to reduce the tristimulus errors in an array of often disparate visually-matching pairs of white lights. Another goal of this article is to excite others thus encouraging them to join in this work.

The last article of this issue reports on research about two psychological techniques...simultaneous and successive color matching. While simultaneous comparison of color samples in juxtaposed fields forms the basis of differential colorimetry and is the method most commonly used in laboratories, it is not always possible to use this technique. In certain situations, particularly when comparing colors produced in different media, such as displays and hard copies, one can compare the colored fields simultaneously. Joaquín Pérez-Carpinell, Rosa Baldoví, and M. Dolores de Fez, and José Castro undertook a research project to compare these two techniques in controlled situations with the same population of observers. In "Color Memory Matching Time Effect and Other Factors," these authors quantify the differences in the matches resulting from these two techniques, and the differences related to the sex of the observers in using these two techniques.

This issue includes reviews of the books *Color Appearance Models*, by Mark Fairchild; *Visual Explanations* by

Tufte, and *Michel-Eugène Chevreul. Un savant des couleurs!* coordinated by Georges Roque, Bernard Bodo, and Françoise Viénot. Also there is a media review of the CD & slide set with Lecture Notes - *Colour in Computer Graphics* by Lindsay MacDonald.

Ellen C. Carter
Editor

Color, Research and Application

ASTM MEETING REPORT

ASTM Committee E-12 on Appearance met for three days (June 17-19, 1998) in Atlanta, GA. A report on the two-hour workshop on Wednesday evening is not available at this time.

However, for the meeting of Committee E-12.02 on Colorimetry and Spectrophotometry, Calvin McCamy reviewed material in 28 textbooks with the idea of compiling published material relating to measurement geometry considerations. He found that most of the published material, in his view, is inadequate — too general; so he wrote his own thoughts on specification of measurement geometries together with abbreviations for designating them. Concise and universally acceptable designations are desired for inclusion in a revision of ASTM E 1767-95, Standard Practice for Specifying the Geometry of Observations and Measurements to Characterize the Appearance of Materials. McCamy found that only a few textbooks made useful suggestions, and so he decided to write out his own recommendations and nomenclature which he set forth in a typed manuscript dated March 13, 1998, and transmitted it to E12.02 Chairman Jack Ladson, who sent copies to E12.02 members with a transmitting letter dated May 21, 1998, indicating that Ladson (unfortunately) would not be at the meeting.

To achieve consensus in the

Committee may take considerable time, but in the view of this reporter, McCamy's proposals should be disseminated now, beyond the bounds of the ASTM Subcommittee. Authors of test reports should have the opportunity to utilize or revise the proposals for abbreviated notation to identify precisely different geometries of measurement.

McCamy points out that simple, easily understood and remembered notations for various geometries would be very useful; so he discusses possibilities and then makes some recommendations for concise abbreviations.

Hammond was unable to attend the June 1998 meeting, but it seemed expedient to review and comment now on what McCamy had written for the meeting and then to report later on the discussion that took place at the meeting. The fundamental problem is to recommend concise notations that will identify the specific type of geometry to which a given measurement applies.

For example, the ASTM method of specifying geometry distinguishes directional 45, annular 45, and circumferential 45, (degree) illumination. Associated symbols are needed to differentiate them. McCamy proposes "x45" to indicate perpendicular reflection from 45° illumination in the x direction only. Similarly, "a45" could designate annular 45°, while "c45" could represent circumferential. He points out that placing the letter before the angle makes for better reading.

This item in the *NEWS* is intended to provide a brief introduction to what has needed attention for sometime. Any reader with ideas on the subject is invited to communicate them to McCamy as well as to send them to the Editor of *ISCC News* for possible publication. In addition, Jack Ladson, Chairman of ASTM Subcommittee E 12.02 would be pleased to have you communicate with him.

Harry K. Hammond III

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Recommendations of Calvin McCamy

Some Needed Symbols

The current ASTM method of describing geometric conditions for colorimetry (E1767) can describe a specular port precisely, and clearly indicate how it is used, but there are no convenient symbols for the cumbersome expressions: "the specular component of reflected flux is included" and "the specular component of reflected flux is excluded." The need for such symbols is made evident by the fact that various authors coin their own. Perhaps the most common adjective forms are "specular included" and "specular excluded". Various abbreviations include "spec in" and "spec out", "SPINC" and "SPEX" (Hunt), and "SIN" and "SEX" (Hemmendinger).

These shorthand expressions only tacitly imply that hemispheric geometry is employed, but specifically state how the specular component is treated. Just saying "specular excluded" could refer to annular 45° illumination and normal collection. I encountered that usage in an industrial laboratory, while trying to account for inter-instrument disagreement.

The International Lighting Vocabulary uses the subscript "d" for diffuse and CIE Publication 15 uses "d" as a symbol for diffuse geometry. It would be useful to use a subscript or second letter to indicate inclusion or exclusion of the specular component. We might use "d_i" or "di" for "diffuse with specular component included" and "d_e" or "de" for "diffuse with specular component excluded." Many authors have found subscripts unavailable or inconvenient in some word processors and other computer printing routines and uses "D65" instead of "D₆₅". At a meeting of the CIE Committee on Colorimetry, it was agreed that we should adopt that symbol. Following that example, a two-letter symbol is preferable to the use of a subscript. Logically, differentiation of two classes requires

only one symbol, to be used, but the long-standing usage of the "d" without a specular modifier would be ambiguous; the reader would not know whether the absent modifier was left off deliberately or by neglect. For these reasons, I propose that we use "Di" and "De".

The ASTM method of specifying geometry distinguishes directional 45°, annular 45°, and circumferential 45° geometry, but we have no convenient symbols. I propose "x45", as a symbol for "45° to the normal, in the x-direction only", "a45" for "annular 45°", and "c45" for "circumferential 45°". Putting the letter before the "45" follows the placement of the adjective in the phrase it symbolizes, so it "reads" better.

With these symbols, we easily identify eight geometries (not just the four loosely specified by the CIE): di : 8, de : 8, 8 : di, 8 : de, a45 : 0, 0 : a45, x45 : 0, 0 : x45. Of these, di : 8, de : 8, and a45 : 0 are in daily use in laboratories around the world, but examples of the others are also known. ASTM E1767 provides a ready means of precisely standardizing these geometries.

Choice of Geometric Conditions

If measured values are to correlate with visual observations, the geometric and spectral conditions of measurement must simulate the geometric and spectral conditions of viewing. I call this "the principle of simulation." It is the guiding principle in the selection of conditions for color measurement, as is said one way or another, in many texts. Analytical and computational method can be employed in spectral simulation, as in the use of spectrophotometry, instead of filter colorimetry. Different geometric modes of observation that reveal different aspects of appearance must be simulated by different modes of measurement, as is done in measuring the colors of metallic materials.

The di:8 mode simulates observation of a horizontal plane in daylight under an overcast sky. It avoids inter-

instrument disagreement caused by differences in angles of incidence, because, in principle, it is uniform at all angles. It suffers from emission by fluorescent specimens. The uniformity of sphere illumination has not yet been standardized for color measurement.

The de:8 mode simulates observation of a horizontal plane in daylight under an overcast sky, while avoiding specularly reflected light. This mode may be recommended for computer colorant formulation on two grounds: (1) Light specularly reflected from planar glossy dielectric, such as paints, plastics, and ceramics, contains no information about the subsurface colorants. (2) Colorant formulation is based on the Kubelka-Munk theory, in which it is assumed that the flux is diffuse as it enters each infinitesimal layer, including the initial one. However, various geometries are used. In "Measuring Colour" (1987) R.W.G. Hunt says, "It has been found that for computer match prediction the SPINC mode is to be preferred, because it gives more accurate results." This may be attributable to the lack of standardization of gloss traps. The exclusion of the specular component has not yet been standardized for color measurement.

The a45:0 mode samples the median of the gonireflection curve in the plane of incidence and averages the azimuthal gonireflection curve, so it approximates de:8 measurements. It simulates a viewer avoiding specular and near-specular reflections. It suffers very little from fluorescence emission. To achieve inter-instrument agreement, the angular influx and efflux distributions must be very well specified and controlled, but they have not yet been standardized for color measurement.

The x45:0 mode is highly susceptible to variance due to specimen directionality, but can be used to characterize directionality. There is an additional critical angular distribution and the orientation of the specimen
(Continued→)

must be specified, but these conditions have not been standardized for color measurement.

The di and de modes are the extreme ends of a continuous range of specular inclusion encountered in viewing objects. Observations in an average room are at neither extreme, but somewhere between them. In 1938, Falta proposed use of 1/4 diffuse illumination with 3/4 directional illumination. Following his lead, in 1955, Carnahan described what he called "average room" measurements, that had been in use at Eastman Kodak Company since 1950. He used a partial gloss trap in the form of a neutral gray patch in a sphere, instead of a specular port. The gray patch had a diffuse reflectance factor, $R(d_e:8)$, of about 6.4% and occupied about 4.3% of the sphere area. This method was used to measure the reflectance factors of photographic paper prints having twelve different kinds of surfaces ranging from highly glossy to matte and including various textures. In 1971, Ruth Johnston described to me experiments with glossy, eggshell, and flat paints that led to the use of the average of di and de to match such paints. Totally unaware of the work of Falta and Carnahan, she had reached this conclusion independently. I suggest the symbol "dp" for diffuse geometry with the specular component partly excluded in this way.

Being a weighted compromise between di and de, this method would not be as sensitive to variations in dimensions as a black specular trap, but the gray trap would have to be nonselective, with specified tolerances, and its dimensions would have to be precisely specified. As is the case with all sphere instruments, this mode would suffer from the emission of fluorescent specimens. I recommended the standardization of "average room conditions" for densitometry to ANSI in 1964 and for color measurements at the meeting of the Council on Optical Radiation Measurement (CORM) in Gaithersburg, MD on May 24, 1983.

To the best of my knowledge, this geometry has not been used in colorimetry and has not been standardized.

Lack of adequate standardization of geometry is the largest known contributor to inter-instrument disagreement in the field of colorimetry. This presents a clear challenge to the ASTM Committee on Color and Appearance and to Division 1 of the CIE. If both organizations devoted the meticulous care geometric standardization that they have to the nuances of terminology, colorimetry would make a quantum leap in reproducibility. We should cultivate more modern attitudes toward SIN and SEX.

Harry K. Hammond III

COLOR MARKETING GROUP TO FORECAST CONTRACT PRODUCT COLORS FOR THE YEAR 2001

Over 650 Color Designers from around the world will meet in Montreal, Canada from October 4-6, 1998, as Color Marketing Group (CMG) members collectively forecast colors for manufactured products for Contract/Commercial markets in the year 2001. CMG is a not-for-profit, international association of 1,500 Color Designers, whose members develop palettes that reflect the Association's color forecasts for manufactured products in all industries.

In Montreal, members will develop short- and long-range color forecasts for a vast array of Contract products –

for everything from Hospitality to Retail, from Office to Health Care. Members will also participate in Design Workshops emphasizing the importance of design as well as color in both Consumer and Commercial products, and in sessions dedicated to developing marketing strategies and nurturing creativity.

During the Conference, 2001 Contract Color Directions® Workshops will focus on forecasting colors that will appear in the year 2001, while the 1998-99 Contract Colors Current® Workshops concentrate on color trends already appearing in Contract markets or committed to appear in the next 12 to 18 months. CMG members not involved in Contract markets will attend 1999 Consumer Color+Design Workshops, where previous CMG Palettes are examined to discuss industry specific color and design applications.

The Conference will be held October 4-6, 1998, at Le Centre Sheraton in Montreal, Quebec, Canada, and is open to members only. General Session topics will include the marketing of color, Brand equity, a preview of Premiere Vision and international color trends.

The Board of Directors of Color Marketing Group has elected a new President for calendar years 1999-2000. The new President, Hall Dillon, CMG*, Dorn Color, Inc., Cleveland, OH, will begin his term of office on January 1, 1999. As President, he will be responsible for planning and implementing programs that deliver value, benefits and services to CMG's members.

A member since 1986, Hall Dillon is currently Executive Vice President and serves as a member of CMG's Executive Committee and the Board of Directors.

For CMG Conference and membership information, contact: Color Marketing Group, 5904 Richmond Hwy, Suite 408, Alexandria, VA 22303 USA. Tel: 703-329-0155

THE FOLLOWING IS A LIST OF NEW MEMBERS ACCEPTED BY THE BOARD OF DIRECTORS IN SEPT. 1997

Ms. Nancy Bobrowicz	Wm. Wrigley, Jr., Co. Chicago, IL 60609
Mr. Martin Brett	Sherwin-Williams, Cleveland Tech. Center, Cleveland, OH 44113
Mr. James Fusco	Paul N. Gardner Co. Pampano Beach, FL 33060
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(Continued→)

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Ms. Johnna Louise Sciukas	Fountainhead, Odenton, MD 21113-1397
Mr. Grant Wei	Visual Perception Lab., Purdue University, W. Lafayette IN 47906
Ms. Marjorie Whitfield-Harris	Marsh Designs, Williamsburg, VA 23185
Ms. Judith M. Vandewinckel	Xerox, Livonia, NY 14487

AATCC ACTIVITY

Color Measurement Test Method Committee of American Association of Textile Chemists and Colorists (Committee RA36) met in Baltimore, MD on May 20. Discussion at the meeting included reviewing the results of the committee letter ballot on a new, proposed evaluation procedure for *Shade Matching of Textile Materials: Visual Method*. A subcommittee was formed to review the ballots and prepare a revised draft of this procedure prior to the ISO meeting in July, 1998. A recent TCR (Technical Committee on Research) ballot affirmed Evaluation Procedure 8, a *9-Step Chromatic Transference Scale*. Test Method 173 CMC: *Calculation of Small Color Differences for Acceptability* received two negative votes in the same TCR ballot, which have since been resolved. Additionally, a set of samples is being circulated to several members of the committee for the purpose of collecting inter-lab data on CMC color difference assessment. Three of the fourteen participating labs have already measured the samples.

The Lighting Communications Subcommittee of RA36 met on May 20, also. Discussion at this meeting centered on reviewing the lighting survey results which have been received, and devising a plan for collecting radiometric measurements "in the field" of retail environments. The next meeting of the committee and the subcommittee will be scheduled November 10-12, 1998 in the Research Triangle park, NC.

Ann C. Laidlaw

AATCC WORKSHOP

The American Association of Textile Chemists and Colorists is sponsoring its annual, ever popular **Color Measurement Principles and the Textile Industry Workshop** on October 20-21, 1998 at their Technical Center in Research Triangle Park, NC. The workshop is aimed at operator level personnel, will cover basic color theory, visual and instrumental color measurement and practical applications. Registrants will be involved in hands-on participation, strength calculations, reflectance and transmittance measurements, shade sorting, shade formulation, and color difference measurements.

The speakers for this program are all recognized leaders in their field and will address the following topics:

- Basic Color Theory and Color Spaces - Richard W. Harold, Color & Appearance Consulting
- Instrumentation for Color Measurement - Kenneth R. Butts, Datacolor International
- Transmittance Measurement of Dyestuffs in Solution - Donna D. Faber, C.H. Patrick & Co. Inc.
- Reflectance Measurement and Procedures, Roland L. Connelly, SheLyn Inc.
- Dyestuff Strength Determination - Donna D. Faber, C. H. Patrick & Co., Inc.
- Whiteness - Richard W. Harold, Color and Appearance Consulting
- Color Difference Evaluation - Donna Faber, C. H. Patrick & Co., Inc.
- Color Sorting Methods - Robert F. Willis, SheLyn Inc.

- Application of Statistics to Color Measurements - Charles D. Sweeny, CDS Laboratories Inc.

Early registration is advised since program fills quickly. To register or for further information, please contact Peggy J. Pickett, AATCC, P.O.Box 12215, Research Triangle Park, NC 27709-2215; tel: 919-549-8141; Fax: 919-549-8933; email: pickettp@aatcc.org

Peggy J. Pickett

NEWS FROM MEMBERS

Mr. Rolf Kuehni, a long time member of ISCC has put together an educational traveling exhibit with DyStar, the dyestuff company of Bayer and Hoechst.

"As early as 2000BC the Egyptians understood the art of textile dyeing to provide colorful vestments for their kings and queens," said Rolf Kuehni, the exhibit's author and vice-president of staff services at DyStar. "Today, we express our individualism through myriad choices of color and style in clothing and home decoration."

DyStar hopes that its customers and universities and schools with textile programs will take advantage of this educational opportunity and host the exhibit in their facilities free of charge. The dyestuff manufacturer also encourages exhibitors to create

(Continued→)

educational events around the exhibit's showing. There is a 16-page full-color companion booklet available, an excellent source and keepsake.

The history of textile dyes and dyeing is traced through six time periods, revealed in full-color illustrations and explanations.

The first section, *The Classical World*, highlights the development of dyeing techniques and its impact on early cities and people. The pictures of the early Egyptian nobles clothed in yellow robes, to purple color produced from the sea snail *murex* to dyeing facility found in Pompeii and Caesar and his purple toga illustrates this. The next panel, *Renaissance*, illustrates the artistic uses of dyes and textiles during this cultural explosion. In the third panel, from *Rococo* to *Revolution*, the observer gains an understanding of the semi-industrialization of dyeing as well as science's influence on the art. Little new was being added in this period in the matter of dyes, by now all sources of natural dyes were well established, resulting in considerable international trade. The discovery of synthetic dyes, and the development of the pharmaceutical and chemical industry out of dye manufacturing are the subject of the fourth panel, the 19th Century. The 20th Century section and the final sixth panel, *The Future*, address technological innovation and automation in this industry so crucial to the world's economies.

DyStar L.P. is the dyestuff company formed in a joint business venture combining the former textile colorant businesses of Bayer Corp. and Hoechst Celanese Corp. headquartered in Charlotte, NC.

For further information about this exhibit, please contact Sharon Huss at 704-561-3002 or Rolf Kuehni at the above number.

A Color Science Tutorial will be taught by **Mr. Roland L. Connelly, Sr.**, former President of ISCC and President SheLyn Inc. Tuesday, September 22, before the 1998 AATCC

International Conference and Exhibition, in Philadelphia, PA, September 22-25, 1998. The tutorial

will cover the basics of how we see and describe color, with an emphasis on the industrial application of color science. The use of instrumentation, color spaces, color differences and their applications to design, laboratory formulation and QC, production control as well as final quality assurance will be discussed.

Gultekin Celikiz
Editor
ISCC News

CORM NEWS

The Council for Optical Radiation Measurement (CORM) together with the Ultra-Violet Spectrometry Group (UVSG) held a joint conference titled "Optical Spectrometry" in Oxford, United Kingdom. Applications and Instrumentation into the 21st Century was the subject of this Conference. There were 86 delegates and 16 exhibitors present. There were 30 papers and 15 posters. ISCC Director Jack Ladson attended the meeting and will give a comprehensive report on the conference in the upcoming ISCC News and Color Research and Application Journal.

Harry K. Hammond III

THE ART AND CREATIVE MATERIALS INSTITUTE ISSUES SAFETY ALERT FOR HEALTH CARE FACILITIES

The Art and Creative Materials Institute, Inc. (ACMI) recently issued the enclosed safety alert to health care associations and state health care Boards of Registration, warning of accidental ingestion of leaded glazes. We would appreciate mention of this infor-

mation in your publication.

"Leaded ceramic glazes continue to be inappropriately and dangerously used in some nursing homes and other art therapy programs," said Deborah Fanning, Executive Vice President of The Art and Creative Materials Institute, Inc. (ACMI). Recently, ACMI learned of several incidents where nursing home patients in North Carolina ingested ceramic glazes. According to ACMI's Toxicologist, Dr. Woodhall Stopford, Director of the Occupational Medicine Training Program at Duke University Medical Center, one of these incidents resulted in the death of a patient because the family refused treatment.

Past reports indicated that in some cases liquid leaded ceramic glazes were poured into medicine cups for use by individual patients. The latest cases appear to indicate glazes are being moved to other than their original containers, thus resulting in accidental ingestion. ACMI's Toxicologist, Dr. Stepford, strongly warns against this practice. "Medicine cups should be used for medications, not art materials or other liquids," said Dr. Stepford. "Patients are likely to confuse any liquid contained in a medicine cup with an intended medicine out of habit." In such situations involving seniors or children, materials should not be transferred out of their original containers because it increases the risk of accidental ingestion.

Dr. Stepford recommends that lead-containing hobby glazes be used only by individuals who are capable of following safe use instructions. If supervision is required, only lead-free, non-toxic hobby glazes should be used.

*The Arts And Creative Materials
Institute, Inc.*

!!!SPECIAL SALE!!!

Reprints of "Color and Light"
by Fred W. Billmeyer Jr., and Harry K. Hammond, III,
Chapter 40 of ASTM Paint Manual, 23 pages
\$5 each or 20 copies \$50 ...
available only while current supply lasts.

This is an authorized reprint from ASTM Manual 17, Copyright 1996.
American Society for Testing and Materials, 100 Bar Harbor Drive,
West Conshahocken, PA 19428-2959

Demystifying Color
Special Price - \$5 each or 20 copies for \$50.
11 pages color (\$15 each when current supply runs out)

This technical report, produced by Bob Chung of Rochester Institute of Technology when he was ISCC Education Committee Chair, discusses and explains ten myths about color.

Either of these publications can be obtained by contacting Cynthia Sturke at the ISCC Office, 11491 Sunset Hills Rd, Reston, VA 20190
tel: 703-318-0263, fax: 703-318-0514, email: iscc@compuserve.com

GENTLE REMINDER!

All appropriate information submitted to this *NEWS* publication is the full and complete responsibility of the sender.

This publication and the ISCC assumes no responsibility for information changes and inaccuracies.

Thanks,
The Editor

C A L E N D A R

Please send information on Member Body and other organization meetings involving color and appearance functions with dates, places, and information source to:

Cynthia Sturke
ISCC Office Manager
11491 Sunset Hills Rd.
Reston, VA 20190
tel: 703-318-0263
fax: 703-318-0514
email: iscc@compuserve.com

1998

Argencolor 1998 - The 4th Argentine Congress on Color, August 3-6, School of Fine Arts, Misiones University, Misiones, Argentina, info: Prof. Mirta Rossetti, email: <rossetti@obernet.com.ar> or <jcaivano@fadu.uba.ar>.

AATCC International Conference and Exhibition, Sept. 22-25, American Association of Textile Chemists and Colorists, Marriott, Philadelphia, PA info: Shirley Clifton, tel: 919-549-8141; fax: 919-549-8933.

CAD Annual Conference (RETEC), Color and Appearance Division, Society of Plastics Engineers, "Riding the Wavelengths of Color", Cleveland Downtown Marriott, Sept. 27-29, 1998.

ISCC ANNUAL MEETING (Oct. 2-4): Inter-Society Color Council, Marriott Inner Harbor Hotel, Baltimore, MD; info: ISCC office, tel: 703-318-0263 and OSA ANNUAL MEETING, Oct. 4-8; Optical Society of America; Baltimore Convention Center, Baltimore, MD info: OSA, tel: 202-223-0920; fax: 202-416-6100.

COLOR MARKETING GROUP (CMG), Fall International Conference, Oct. 4-6, Le Centre Sheraton Hotel, Montreal, Canada, Info: CMG, 5904 Richmond Hwy, Suite 408, Alexandria, VA 22303 tel: 703-329-0155

COLOUR BETWEEN ART AND SCIENCE; OSLO INTERNATIONAL COLOUR CONFERENCE 1998, Oslo, Norway, Oct. 10-11, National College of Art and Design, NCAD, Institute of Colour, Ullevålsveien 5, N-0165 Oslo, Norway, For further information please contact Conference Secretary Ms. Ane Forsmo or Adm. Leader Mr. Erik Wessel; Tel: (+47)22995680, Fax: (+47)22995681; email: colour@chaos.shks.no; <http://samson.shks.no/colour/>

TAPPI Conference, Oct 18-23, Technical Association of the Pulp and Paper Industry, Milwaukee Hilton, Milwaukee, WI

IS&T/SID, Sixth Color Imaging Conference, Nov 16-19, Society for Imaging Science and Technology/Society for Information Display, Sunburst Hotel, Scottsdale, AZ, info: IS&T Conference Manager, 7003 Kilworth Lane, Springfield, VA 22151, tel: 703-642-9090; fax: 703-642-9094; email: info@imaging.org; internet: <http://www.imaging.org>.

1999

ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications, Jan. 24-27, Fort Lauderdale, FL, info: Scott Orthey, tel: 610-832-9717; fax: 610-832-9666

ASTM COMMITTEE E-12 ON APPEARANCE, Jan 26-27, Fort Lauderdale, FL, info: Bode Buckley; tel: 610-832-9740; fax: 610-832-1547

ISCC & TAGA ANNUAL MEETINGS May 5-7, Inter-Society Color Council and May 2-5, Technical Association of the Graphic Arts Tech. Conf. Westin Bayshore Hotel, Vancouver, British Columbia, Canada; info Prof. Bob Chung; tel: 716-475-2722

SID 99, May 16-21, Society for Information Display info: SID tel: 714-545-1526, email: socinfodisplay@mcimail.com.

ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications, June 13-16, Omni Rosen Hotel, Orlando, FL; info: Scott Orthey, tel: 610-832-9717; fax: 610-832-9666.

TAPPI, Oct. 17-22, Technical Association of the Pulp and Paper Industry; Conference, Omni Durham Hotel, Durham, NC, info: Lisa Archer, tel: 800-332-8686, ext: 225

OSA ANNUAL MEETING, Optical Society of America, Santa Clara, CA, info: OSA, tel: 202-223-0920, fax: 202-416-6100

(Continued→)

AATCC, INTERNATIONAL CONFERENCE AND EXHIBITION, Oct. 12-15, American Association of Textile Chemists and Colorists, Convention Center, Charlotte, NC, info: Shirley Clifton, tel: 919-549-8141; fax: 919-549-8933

2000

ASTM COMMITTEE D-1, Paint, and Related Coatings, Materials and Applications, Jan 23-26, Hyatt Regency, New Orleans, LA info: Scott Orthey; tel: 610-832-9717; fax: 610-832-9666.

ASTM COMMITTEE E12 on APPEARANCE, Jan 25-28, Hyatt Regency, New Orleans, LA, info: Bode Buckley; tel: 610-832-9740; fax: 610-832-1547.

ISCC WILLIAMSBURG CONFERENCE, Feb 20, 2nd Panchromatic Conference, Color in Its Surround; info: Dr. Cynthia Brewer, tel: 814-865-5072

ISCC & CPMA ANNUAL MEETINGS; April, Inter-Society Color Council and Color Pigments Manufacturers Association, Charlotte, NC., info: Dr. Romesh Kumar, tel: 410-823-2161

SID 2000, May 14-19, Society for Information Display, Long Beach CA, Info: tel: 714-545-1526; fax: 714-545-1547; email: socforinfodisplay@mcimail.com home page: <http://www.sid.org>.

AATCC INTERNATIONAL CONFERENCE AND EXHIBITION, Oct. 15-18, American Association of Textile Chemists and Colorists, Benton Convention Center, Winston-Salem, SC, info: Shirley Clifton, tel: 919-549-8141; fax: 919-549-8141

2001

ISCC / AIC MEETING, June 24-29, Inter-Society Color Council and Association Internationale de la Couleur, Rochester Riverside Convention Center, Rochester, NY; info: Paula J. Alessi, tel: 716-477-7673; fax: 716-722-1116

J O B S W A N T E D !



This Section is intended to help ISCC members that are in need of, and are looking for employment. Here is an opportunity to use the resources at hand.

There is no charge for this service, however, the restrictions are as follows:

1. This service is for ISCC members' use only.
2. No more than 50 words may be used to describe yourself.
(Not including name address and/or telephone number).
3. If you are using a P.O. Box, you must supply a complete address.
4. No Agency representing member(s) is allowed.
5. Neither the ISCC News nor the editors are responsible for any errors.
6. You must advise us in writing when you have obtained employment.

We hope this new section will be of value to you, the ISCC member. If you have any suggestions/criticisms, please send them to the editor. Let's make this work!

SEEKING FULL-TIME EMPLOYMENT

regarding the application of Color Trends as well as the psychological use of color. Educational background: Studied color and design at Philadelphia College of Textiles & Science, Kutztown University; PA School of Art and Design; Eisemann Institute in Seattle, WA; North American Association of Color Consultants in San Diego, CA; Gale Laurence Studios in San Francisco; active member of Color Marketing Group and Inter-Society Color Council.

Resume and References upon Request:

Therese Rabel
38 Brandywine Court
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Bulgaria
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US Contact: Dr. F. W. Billmeyer, Jr.
Phone/Fax 01 518 377 9511

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Tel: 603-927-4266

Chromatics Color Sciences International, Inc.
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Human Factors & Ergonomics Society (HFES)
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National Association of Printing Ink Manufacturers (NAPIM)
Optical Society of America (OSA)
Society for Information Display (SID)
Society of Plastics Engineers, Color & Appearance Division (SPE)
Society for Imaging Science and Technology (IS&T)
Technical Association of the Graphic Arts (TAGA)
Technical Association of the Pulp and Paper Industry (TAPPI)

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All submissions must be in English.

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