Inter-Society Color Council *News*

Number 332 July/August 1991

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ISCC SPEAKERS BUREAU

The 1991 speakers list is currently available from Dr. Stephen Bergen, chair of the committee. If you are interested in receiving a copy please write for one at:

1 Colonial Woods Drive,
West Orange, NJ 07052-1614.

You may also request a copy by FAX at (212) 951-3378.

If you would like to be added to our list, a submission form is included with every listing. We will update our list in the Winter and issue an entirely new booklet next June at the annual session.

CALL FOR MACBETH AWARD NOMINATIONS

Every two years the Inter-Society Color Council is honored to be able to present the Macbeth Award. This award was established in 1970 by Mr. Norman Macbeth, Jr., in honor of the memory of his father, Norman Macbeth, a founding member of the ISCC and founder of Macbeth Daylighting Corporation, now a part of Kollmorgen. It is presented every second year for outstanding recent contributions to the field of color.

Nominations for the Macbeth Award are now being considered by the Macbeth Award Committee, Roy S. Berns, Chairman. Individuals or groups of individuals interested in having a specific nominee considered by the committee should submit nominations by October 1, 1991. Candidates will be judged for their recent significant contribution to any field of interest related to color whether or not it is represented by an Inter-Society Color Council Member Body. The candidate's contribution may be direct, it may be in the active practical stimulation to the application of color, or it may be an outstanding dissemination of knowledge of color by writing or lecturing, based on original contributions by the nominee. Candidates need not have been active in the affairs of the Inter-Society Color Council but the must be either a current or former member of the ISCC. Requests for nomination forms should be directed to:

Dr. Roy S. Berns
Macbeth Award Committee Chairman
RIT Center for Imaging Science
P.O. Box 9887
Rochester, NY 14623-0887
716-475-2230 FAX: 716-475-5988
INTERNET: rsbpph@ritvax.isc.rit.edu

REMINDER

If you haven't returned your ISCC Questionnaire, please fill it out and return it right away.

SPIE PHOTO CONTEST

Announcing the Second Annual SPIE Photo Contest

Photos are solicited on any subject related to the technologies we serve. The winning photo will be used on the Official 1992 SPIE Poster and other publications. Credit lines will bring recognition to you and your company as the photo is displayed and made available at symposia, conferences, and exhibits throughout 1992!

The winner will receive a framed copy of the poster and any five SPIE Proceedings. Second and third place winners will receive three Proceedings and one Proceeding, respectively. Second and third place photos will be displayed with the 1992 SPIE Poster. Submit slides or prints no larger than 8x10 inches (prize winners must provide originals for publishing) with: Submitter's name, position, company, company address, phone number, and a brief description of the photo. Photos previously published in advertising literature are not permitted.

All entries must be in by September 1, 1991

The winner will be announced in the November, 1991 issue of OE Reports.

Entries will be returned when accompanied by a self-addressed, stamped envelope. Send to:

SPIE P.O. Box 10 Bellingham WA 98227-0010 attn: Carley Dunn

HANDBOOK OF THE COLOUR AND APPEARANCE IN FOLKLORE CONFERENCE.

A conference on *Colour and Appearance in Folklore* was organised on April 13th 1991 jointly at the Institute of Archaeology, University of London. The papers presented covered the essential nature of colour and appearance in a wide spectrum of language, legend, culture and tradition. A handbook containing twelve papers from the Conference has been published. The papers included are:

Colours and the Names we Give Them by Dr. Arthur Tarrant

"Well, the Colour is Because... That's the Color it is!" by Doc Rowe

Colour in Heraldry by Ralph Brocklebank

Colour Themes in Mabinogion Tales by Dr. Julliette Wood

Red in the Bible of the Folk by Marion Bowman

Colour in Marriage by George Monger

Colour in Death by Ruth Richardson

Colour in Traditional Easter Egg Decoration by Dr. Venetia Newall

Not Quite Blue - Colour in the Mock Obscene Riddle by Georgina Boyes

Purple - a Tale of Blue Blood and Scarlet Raiment by Moira Tatem

The Green Man Revisited by Dr Roy Judge

Status of the Colour in Folklore Survey by John Hutchings

This publication represents a significant "first". Never before has such a group of authorities from separate academic fields been brought together in an attempt to explore the place, extent and significance of colour and appearance in folklore.

A copy of the handbook can be obtained for the sum of $22.00 U.S. dollars or £ 7.50 sterling. This includes packaging, airmail postage and bank currency handling charges. Please send a cheque or money order made payable to The Folklore Society to:

John Hutchings
The Folklore Society
University College London
Sever Street
London WC1E 6BT England.

COLOUR AND APPEARANCE IN FOLKLORE SURVEY

The colour and appearance in Folklore Survey is jointly organised by the Colour Group (GB) and the Folklore Society. The initial findings of the survey published in the Conference Handbook were restricted to the British Isles. An important part of the Survey however is the cross-cultural element and this comprises the next stage of the project. Ways are sought of extending the study to different races and regions of the world.

As well as encouraging contributions from individuals, the survey organiser would also greatly value the assistance of anyone anywhere in the world. Perhaps someone who has access to suitable groups or student classes? Individuals are the only source of oral tradition and I would like to enlist the help of anyone who would like to take part in giving or collecting data for the survey. This would be very much appreciated. The information needed deals with different aspects of culture and tradition and the specific questions are:

- What particular colours are associated with: Marriage—worn by brides? by bridegrooms? death? birth or babies?
- What special colours if any used at or associated with: new year, spring, midsummer, harvest, mid-winter or other season or festival?
- Is any colour "lucky" or "unlucky"?
- Are any particular colours associated with traditional foods? Please give details.
- Do you know any legend or story in which a specific colour is an essential element? Please tell me.

Please include details of your nationality and regional background. Your name and address are not essential but they will help me follow up queries arising from your contribution.

The address for communications is:
John Hutchings
6 Queens Road
Colmworth
Bedford MK44 2LA England

THE 1991 ISCC POSTER PAPERS SESSION WAS A SMASHING SUCCESS!!!

The Poster Papers Session held at the 1991 ISCC Annual meeting was a BIG HIT!! In spite of the fact that it was small with only four entries, the subject matter presented was technically fascinating.

Once again, The Munsell Color Science Laboratory at Rochester Institute of Technology was well represented with two technical papers, which both featured the highest quality professional presentation style I have yet to see at one of our Poster Papers Sessions. Dr. Mark Fairchild and Elizabeth Pirotta in their paper entitled, " Predicting the Lightness of Chromatic Object Colors Using CIELAB", presented a new L** metric using CIELAB parameters, which can predict the perceived lightness of object colors to within the experimentally measured inter-observer uncertainty. This paper consisted of a series of 14 small mounted color poster boards each containing the technical pieces leading to the new proposed L**. This new metric is based on a modification of the existing L* equation that involves use of CIELAB metric hue angle, h°, and metric chroma, C*, as follows:

$$L^{**}=l^{*}=f2(L^{*})f1(h^{\circ})C^{*}$$

These significant results are very exciting if one considers extending them for use in color difference formulae or color appearance models.

Amy North, also of the Munsell Color Science Laboratory (MCSL), presented a poster paper entitled "Investigation of Observer Variability Using a Novel Method for the Determination of Color-Matching Function". Amy's paper consisted of a series of professionally-styled laser-printed pages to demonstrate use of the Fairchild model (Color Res. Appl. 14, 122 (1989)) for Stiles' two-degree mean color-matching functions and those from a single observer. A description of the visual colorimeter designed to implement this model was also given. Finally, Amy's poster featured a comparison of results obtained from the National Research Council Trichromator and the MCSL visual colorimeter.

We were honored to have Louis Graham, an ISCC Past President, as our last ambitious author, who contributed the two final papers to complete this Poster Papers Session. The first, entitled "Color Vision Screening", featured a review and analysis of such common color vision screening tests as the ISCC-FSCT Color Matching Aptitude Test, the Farnsworth-Munsell 100 Hue Test, and the Japanese Color Center Color Aptitude Test. Particular attention was given to use of these tests for the assessment of individual visual color skill in the discrimination of small differences for color matching and shade sorting purposes. The effects of color training on these color vision screening test results were also presented. Lou's second paper entitled, "The Light Side of Who's Hue" , was of a more whimsical nature. It delighted onlookers with a series of cartoons collected over the years that feature "color" as their prime source of humor. Many were from nationally-known cartoonists and all have appeared in public media. Lou, in his uniquely colorful way, openly welcomed all attending the ISCC Annual Meeting to add to his cartoon poster collection.

In summary, I am proud to say that this 1991 ISCC Poster Papers Session, although small, set a quality standard higher than we have ever achieved in the past. Many thanks to the four authors who provided contributions.

Paula J. Alessi
Poster Papers Committee chair

IMAGING THE FUTURE

The Science Committee of the Royal Photographic Society presents "Imaging the Future", a Symposium to be held at the University of Cambridge on September 21-25, 1992. The overall theme of the Symposium is "Imaging the Future" and 'imaging' should be interpreted in its broadest sense to include both photographic and electronic, both analog and digital, both color and monochrome systems.

It is intended that each day of the Symposium be dedicated to a specific aspect of imaging: however, it is hoped that delegates will be able to attend the entire meeting to gain an overview of the state-of-the-art in the whole subject. Possible subjects for each day are: Chemical Processing, Electronic Imaging, Image Quality, Application of Imaging.

A title and short abstract (200 words) should be submitted as soon as possible. If accepted, authors will be asked to produce a short paper for the Conference Proceedings which will be published as a special issue of the Journal of Photographic Science. Manuscripts should be 2000-3000 words + figures and are to be available at by the end of the Conference. Abstracts of enquiries should be sent as soon as possible to: Dr. M. R. Pointer, Kodak Limited-Research Division, Headstone Drive, Harrow, Middlesex, HA1 4TY, England.

COLOR SCIENCE ASSOCIATION OF JAPAN

Officers of the Color Science Association of Japan (CSAJ) for 1990-1991 are as follows:

President Prof. Yoyoi Imai
(Tokyo Kasei Gakuin Junior College)
Vice-President Mr. Gorow Baba
(Murakami Color Research Laboratory)
Prof. Toko Nakano
(Gifu University for Education)
Mr. Toshio Yamanaka
(Life Electronics Research Center, Electrotechnical Laboratory)

The address of CSAJ has been changed to: c/o Tokyo College of Kasei-gakuin, 22 3-bancho, Chiyoda-ku, Tokyo 102 Japan

The CSAJ's technical committee for chromatic adaptations has met, and will present the results of that meeting at the CIE 22nd Session in Melbourne 1991. The subject will be "Field Trials on CIE chromatic adaptation formula.

Dr. Genro Kawakami, CSAJ

PROF. DR.-ING. JURGEN KROCHMANN 1919-1991

Prof. Krochmann was very much engaged in the field of light and color. Since 1962 he chaired the CIE Technical Committee (TC) on "Photometric Characteristics of Materials." Over the years he worked on 20 different CIE TCs. He was President of the German National Committee of the CIE since 1975. His influence on National and International Standards for Lighting has been considerable. Since 1981 he was a member of the governing body of the German National Physical Laboratory (PTB).

Krochmann spent 30 years teaching and doing research at the Technical University in Berlin. Even before he retired he founded the well-known Lichtmesstechnik (LMT-Berlin), and in 1983, after his retirement, he established a company to work in Photometry, Radiometry and Colorimetry, known as PRC Krochmann, where he was free to act as a consultant over this entire field.

Born in Zeven near Bremen on September 22, 1919, Krochmann completed his studies at the Grammar School in Osnabruck and was drafted into the army in 1938. He served for seven years, part of the time as a prisoner of war.

In 1946, in spite of severe war wounds, he began studying at the Technical University in Berlin, where he received his degree. In 1951 he began work as a Development Engineer for OSRAM in Berlin, and in 1954 was promoted to Research Manager. He was then appointed as a Scientific Assistant at the Institute for Lighting Technology. His work over the next four years on the lighting properties of building materials resulted in his promotion to Dr. Ing. in 1958. Working in this area led him to recognize the lack of precise data on daylight, and his thesis "About the calculation of lighting of interiors with daylight" resulted in his qualification as University Lecturer in 1964. Further development of his academic career led to his appointment to MIT in Cambridge, Massachusetts, in 1966, and to the Technical University of Berlin in 1968.

From Krochmann's leadership arose 35 Doctoral dissertations and 300 publications covering every aspect of lighting. These included new methods and measurement devices for the investigation of light and radiation sources, methods for the measurement of diffusion, measurement and evaluation of color, lighting design for street lighting and interiors, work place lighting with combined electric and daylighting, mine lighting, lighting of museum exhibits with regard to conservation of sensitive materials, and the determination of design parameters for the exploitation of solar energy in architectural spaces. Many of his students and colleagues recall Krochmann's charisma, his innovative approach to scientific experiments, his willingness of help others, and his understanding of people.

When CIE Division 2 met in Berlin in September 1990, Krochmann was hospitalized and unable to be present. However, the night the meetings ended, the German National Committee invited 30 of us to dinner at the Istanbul, the finest Turkish restaurant in Berlin. Krochmann had chosen the restaurant. His wife Zeynep was present together with other members of the Board and their wives, among them Michael Seidl, the Secretary, and Heinz Terstiege, the Treasurer, and his wife Joyce. The Photometric Community was indeed saddened a few months later when the news was received that Prof. Dr.-Ing. Jurgen Krochmann had died on January 27, 1991.

Harry K. Hammond III

Much of the material in the above obituary comes from a beautiful citation provided by Prof. H. Kasse of the Technical University of Berlin on the occasion of Krochmann's 70th birthday, 22 September 1989. An English translation of the citation was published in CIE News, Number 12, December 1989.

INDIVIDUAL MEMBER GROUP REPORT

A meeting of the individual member group was held at the ISCC Annual Meeting in New York City, May 6, 1991. The new voting delegate selected was Donald Campbell for the term 1991 to 1994. The delegates remain the same:

Lynn Bement (voting until 1994)
George C. Brainard
Jean Bourges
Donald Campbell (voting until 1993)
Ellen C. Carter
Jeanette Chaupak
Carol Mitchell Derov
Duane G. Wahl
Don Woefel (Chairman and voting until 1992)
Magenta Yglasias

Most of the meeting involved developing the questionnaire which is to be sent to the entire ISCC membership.

It has been suggested that the individual member group submit several small articles (one per issue) to the ISCC Newsletter to provide individual members with more information about various aspects of the ISCC. If you have questions or suggestions, please contact Don Woefel at Colwell/General P. O. Box 329 Fort Wayne, Indiana 46801 or telephone (800) 433-2394.

submitted by Ellen C. Carter

CORRECT ADDRESS FOR FSCT

Although the Federation for Coatings Technology (FSCT) moved September 7, 1990, from Philadelphia to the building they built in Blue Bell, Pennslvania, some correspondents still use the Philadelphia address as it appears in the 1990 ISCC Membership Directory. Please enter the new address and phone number in your directory and add FAX number if desired. FSCT

492 Norristown Road
Blue Bell, PA 19422-2350
(215)940-0777 FAX (215)940-0292

PROGRAM ANNOUNCED FOR IS&T'S SEVENTH INTERNATIONAL CONGRESS ON ADVANCES IN NON-IMPACT PRINTING TECHNOLOGIES

October 6 - 11, 1991, Hilton Hotel, Portland, Oregon

On October 6 -11, 1991 in Portland Oregon, the world's premiere conference on non-impact printing technologies will provide an exchange of information on the current status and developing trends in non-impact printing technologies and applications. according to General Chairman Keith Pennington of IBM, "the entire area of non-impact printing has seen rapid changes during the past de ate. The pace of evolution shows no signs of slackening; it merely changes character to meet the demands of new, primarily computer drive, business applications. Business and administration word processing, desk top publishing, computer integrated manufacturing, retail marketing and similar applications continue to result in increased demand for non-impact printers but also place increased emphasis upon reliability, print quality and total document production capabilities. With the continued evolution in the computing technologies we are witnessing the advent of cost effective support for complex color graphics and images and now are beginning to see the start of a "multi-media" revolution. Advances in non-impact printing will continue to be essential to the efficiency and effectiveness of these application areas."

This congress will once more provide a means for reporting and exploring the recent innovations in non-impact printing that are assisting in all of these areas of progress. In addition to extensive technical presentations, there will be tutorial sessions poster papers, and exhibits by manufacturers who either develop non-impact printers or produce equipment essential in the development of non-impact printing technologies. The meeting will continue to reflect the wide international flavor of non-impact printing with an excess of 100 papers being presented by attendees from all over the world. The very popular tutorial sessions have been broadened in scope to allow for inclusions of environmental impact and market planning topics both of which are of increasing importance to non-impact printing technologist and the understanding of potential markets and applications. Several Keynote papers will be presented on topics of wide interest and importance to the non-impact printing technologies community. This Congress will also include focal papers which are intended to give the authors an opportunity to present more in-depth information in areas of interest to specific non-impact technologies.

The conference location is in Portland, Oregon within easy driving distance to the famous Oregon coastline and within sight of beautiful Mt. Hood and Mt. St. Helens. For those with more time for sightseeing the beauty of the Cascades and High Desert areas are within a few hours drive.

Complete program information and registration details are available from IS&T, 7003 Kilworth Lane, Springfield, VA 22151. Telephone is (703) 642-9090. FAX: (703) 642-9094.

MUNSELL COLOR SCIENCE LABORATORY

The Munsell Color Science Laboratory is housed on the third floor of the Chester F. Carlson Center for imaging Science, at the Rochester Institute of Technology, Rochester, New York. This is a new facility, dedicated in October 1989 in memory of Chester Carlson, inventor of Xerography, and will serve as a comprehensive center for education and research in imaging science. Color science is a major research interest of The Center for Imaging Science, and the Munsell Color Science Laboratory is located within it.

The main laboratory contains many color measuring instruments, while small rooms of the main area are dedicated to specific tasks. These areas contain low and high resolution image processing and display systems with input and output devices, spectroradiometric and photometric measurement equipment and visual apparatus. One room was specially designed for high accuracy optical radiation measurements and houses several spectrophotometers used for research and calibration services, and goniospectrophotometric research. Two other laboratories within the center for imaging science are involved in color science research, Electric Imaging Laboratory founded by Xerox Corporation and the Electronic Printing Laboratory founded by Konica Corporation.

The Richard S. Hunter Professorship in Color Science, Appearance, and Technology was established in 1983 by a gift from Richard and Elizabeth Hunter. They recognized the need for education and research in these areas. The Munsell Color Science Laboratory was established in 1983 after the dissolution of the Munsell Color Foundation, Inc. The aims and purposes of the Foundation as stated in its bylaws were "...to further the scientific and practical advancement of color knowledge and, in particular, knowledge relating to standardization, nomenclature and specification of color, and to promote the practical application of these results to color problems arising in science, art, and industry.

Both endowed programs operate hand in hand on a daily basis. Four objectives guide the activities: 1) to provide under-graduate and graduate education in color science, 2) to carry on research and development in color and appearance, 3) to establish standardization programs in areas where standards are either non existent or difficult to obtain from other sources, and 4) to provide liaison with industry.

taken from 1990 Annual Report

USNC/CIE DIVISION 1: VISION AND COLOR

What are its Current Activities?

As a follow-up to Harry Hammond's informative article last issue (May/June 1991, Number 331) on the USNC/CIE, I have been asked to share USNC/CIE Division 1 activities with the ISCC membership. What follows is the contents of a report that I wrote as USNC/CIE Division 1 (Vision and Color) member.

Technical Committee (TC) Status

The following is a status report summarizing TC activities to date. TC members from the USA are listed, when appropriate.

Vision Section:

TC 1-01 Mesopic Photometry

Chairman: J. A. S. Kinney (USA)

Status: This Committee has completed its work and produced the following publication: CIE Publication No. 81 (1989) - Mesopic Photometry: History, Special Problems and Practical Solutions.

TC 1-02 Luminous Efficiency Functions

Chairman: M. Ikeda (JPN)

Status: This Committee has completed its work and produced the following publication: CIE Publication No. 75 (1988) - Spectral Luminous Efficiency Functions Based Upon Brightness Matching for Monochromatic *Point Sources, 2° and 10° Fields.*

TC 1-03 Models of Heterochromatic Brightness Matching

Chairman: P. K. Kaiser (CAN)

Status: This Committee has completed its work and produced the following journal publication: CIE Journal, Vol. 5, No. 2 (1986) - Models of Heterochromatic Brightness Matching.

TC 1-04 Physiologically Based System of Color Specification

Chairman: G.A. Fry (USA)

USA Members: D. I. A. MacLeod, A. L. Nagy, V. Smith, R. Boynton has resigned

Terms of Reference:

1. Establish a constant-luminance chromaticity diagram based on cone action spectra which is consistent with the best possible set of color-matching functions.

2. Evaluate available cone action spectra in the literature for use in establishing a constant luminance chromaticity diagram.

3. Basic data needed are: (I) Color-matching functions of normals, (II) Cone action spectra of normals, (III) Data for dichromats: spectral sensitivity without blue cone intrusion, confusion points, spectral sensitivity obtained by flicker photometry, ocular media data. These data will be selected from available literature and from these, if necessary, a new set of cone action spectra will be derived.

Status: A draft Technical Report entitled, "Physiologically Based System of Color Specification" has been submitted to Committee members for their review. This TC will meet in Melbourne at which time, Dr. Fry will present a set of proposals to Division 1 for further studies related to the work of TC 1-04.

TC 1-05 Brightness - Luminance Relation

Chairman: J. A. J. Roufs (NLD)

Status: This Committee has completed its work and produced the following publication: CIE Publication No. 78 (1988) - Brightness - Luminance Relations, a Classified Bibliography.

TC 1-20 Judd Modification

Chairman: P.K. Kaiser (CAN) as sole member

Terms of Reference: To propose a weighting function based on the Judd modification to the V(l) curve including name, symbol, operational definition, tabular definition, and areas of application.

Status: This Committee has completed its work and produced the following publication: CIE Publication No. 86 (1988) - 2° Spectral Luminous Efficiency Function for Phototopic Vision.

TC 1-21 Testing of Supplementary System of Photometry

Chairman: K. Sagawa (JPN)

USA member: J. A. S. Kinney

Terms of Reference: To test existing methods of photometry to evaluate lights for assessing comparative brightness relationships.

Status: New datasets have been recently collected and used to test the proposed systems. TC members have received interim results for review. An extensive workshop will be conducted at the Melbourne meeting, where the system proposers will describe their systems and discuss the results obtained using several neutral and chromatically colored test samples.

TC 1-23 Visual Acuity

Chairman: P. L. Walraven (NLD)

USA members: E. Sheedy

Terms of Reference: To write a technical report to investigate the possibilities to standardize a visual acuity function.

Status: The Chairman hopes to have a report available at the Melbourne meeting.

TC 1-26 Individual Variation of Heterochromatic Brightness Matching

Chairman: H. Yaguchi (JPN)

Terms of Reference:

1. To analyze existing data on heterochromatic brightness matching in terms of individual variation.

2. To develop a simple set of individual characteristics for brightness matching.

Status: TC members have been collecting data on heterochromatic brightness matching. This TC will conduct a meeting in Melbourne.

TC 1-30 Luminous Efficiency Functions

Chairman: M. Ikeda (JPN)

Terms of Reference: To prepare an ISO/CIE Standard on luminous efficiency functions which classifies and specifies the existing functions, Vp(l), Vb(l), Vm(l), and Vb,10 (l), and the color-matching function, y10 (l), if appropriate, in their photometric use.

Status: This is a new TC proposal that was approved at the Division 1 meeting in Berlin in September, 1990. The Chairman is seeking members.

Color Section:

TC 1-06 Chromatic Adaptation

Chairman: C. J. Bartleson (USA)

Status: This Committee has completed its work and produced the following journal publication: CIE Journal Vol. 5 No. 1 (1986) - Method for Predicting Corresponding Colors with a Change in Chromatic Adaptation to Illumination Proposed for Testing.

TC 1-07 Observer Metamerism

Chairman: N. Ohta (JPN)

Status: This Committee has completed its work and produced the following publication: CIE Publication No. 80 (1989) - Special Metamerism *Index: Change in Observer.*

TC 1-09 Standard Sources for Colorimetry

Chairman: D. Gundlach (DEU)

Terms of Reference: To prepare a technical report listing sources that usefully approximate to Standard Illuminant D65 with particular reference to their suitability for the visual assessment of samples and for the spectrophotometry of luminescent samples and giving their Publication 51 indices.

Status: This TC conducted a meeting in Berlin. They have been compiling spectral power distribution data for various light sources used in inspection booths and electronic flash lamps. This TC hopes to issue a report listing available information on suitable sources.

TC 1-10 Colorimetry of Self-Luminous Displays

Chairman: J. Rennilson (USA)

Status: This Committee has completed its work and produced the following publication: CIE Publication No. 87 (1990) - Colorimetry of Self-Luminous Displays - A Bibliography. It is 42 pages in length and is also available in electronic form.

TC 1-11 Illumination for Color Reproduction

Chairman: W. N. Sproson (GBR)

Status: This Committee has completed its work and produced the following journal publication: CIE Journal Vol. 8 No. 1 (1989) - A Consistency Index for Television Scene Lighting.

TC 1-12 Relative Color Rendering

Chairman: M. B. Halstead (GBR)

Status: This Committee has completed its work and produced the following publication: CIE Publication No. 13.2 (1974) - Corrected Reprint - Method of Measuring and Specifying Color Rendering Properties of Light Sources.

TC1-13 Color Appearance Analysis

Chairman: M. R. Pointer (GBR)

Terms of Reference: To derive methods of evaluating the color rendering properties of illuminants based on color appearance.

Status: This TC has found two models (i. e. Hunt and Nayatani) that fulfill the terms of reference. The Chairman is consulting with the Division 1 officers to determine the best way to present this work. The Chairman will try to bring this Committee to a close at the Melbourne meeting. If he is successful, then it will be necessary to form some application TCs to explore use of these appearance models. Dr. Wolfgang Walter has requested that a new TC should form on the computation of color-rendering indices, since the present method based on W*, U*, V* (CIE Publication No. 13.2) is outdated. He feels that CIE should recommend a new standard method for computing color rendering index based on state-of-the-art appearance models. He would be willing to serve on such a TC. As USNC/CIE Division 1 member, I am ready to formally propose formation of such a TC in Melbourne, if the need arises.

TC 1-24 Field Trials of Television Illumination Consistency Index

Chairman: R. White (GBR)

Terms of Reference: To carry out field trials of the television illuminant consistency index and to collect data from practical installations.

Status: The Chairman is currently seeking members. So far he has had little response.

TC 1-27 Specification of Color Appearance for Reflective Media and Self-Luminous Display Comparisons

Chairman: P. J. Alessi (USA)

USA members: M. Fairchild, D. Rich

Terms of Reference:

1. To study and make recommendations for the specification of a color appearance match between a reflective image and a self-luminous display image.

2. To act as official liaison to ISO/IEC JTC1 SC18 in the development of color standards for text and office systems.

Status: This TC conducted their first meeting in Caen, France in June, 1990 and their second meeting in Berlin, Germany in September, 1990. They are currently developing a set of guidelines for coordinated research on color fidelity evaluation between reflection prints and self-luminous displays. These guidelines will be published in Color Research and Application with the hope that interested researchers will conduct experiments following the guidelines to provide the TC with data which will be used to analyze various color spaces and color appearance models for hardcopy/softcopy applications. This TC also met with the ISO/IEC JTC1 SC18/WG5 in Caen to discuss joint development of the Text and Office Systems Color Architecture (TOSCA) Standard. The next meeting of this TC will be in Melbourne.

TC 1-28 Parameters Affecting Color Difference Evaluation

Chairman: K. Witt (DEU)
USA member: R. Berns
Terms of Reference: To study and report on the effect of viewing and sample parameters on the evaluation of color differences between object colors. Parameters to be studied include, but are not limited to, texture, sample size and separation, illumination level, color of surround and effect of specular reflectance.
Status: A first draft of a Technical Report concerning published work has been circulated to TC members for comment. The Chairman is hoping that further members will be able to make experimental investigations.

TC 1-29 Industrial Color Difference Evaluation

Chairman: D. H. Alman (USA)
USA members: R. Berns, T. Maier, C. Reilly
Terms of Reference: To study existing metrics used in industry to evaluate color differences between object colors in daylight illumination and to develop a recommendation on this subject.
Status: This TC is operating in accordance with a working programme that features three steps:
1. Investigate datasets, methods of evaluating metrics, color difference vision models and existing metrics for industrial color difference evaluation of object colors.
2. Evaluate the performance of existing, modified and new metrics in relation to the available data on visual color difference perception.
3. Report recommendations on industrial color difference evaluation.

TC 1-?? Color Notations - Color Order Systems

Chairman: Vacant, but pursuing someone in USA
Suggested Terms of Reference: To study and report on color order systems in response to a request from ISO/TC 187 (Color Notations) for preparatory and background work which must be accomplished before an ISO standard in the field of color notation can be drafted. These terms of reference should be finalized by the Chairman.
Status: This TC must form to respond to a request from ISO/TC 187 (Color Notations) as set out in the ISO/TC 187/ N31 Document. A suggested working programme is to study the following seven items:
1. To consider further the terms and definitions which are based mainly on phenomenalogical concepts, and which are given in document TC187/WG1 N8 rev.
2. To consider and describe existing color order systems in relation to the basic principles given in document TC187/WG2 rev.
3. To make recommendations as to whether and how congruence can be achieved between different color order systems by appropriate adaptation to the terminology and principles given in documents TC187/WG1 N8 rev and TC187/WG2 N8 rev.
4. To consider whether any one color order system can be chosen as being better than the others from a theoretical point of view.
5. To consider available information concerning the extent to which different color order systems have been proven to be useful, helpful, and applicable to different use situations.
6. To consider the colorimetric conditions to be used for the comparison and measurement of samples illustrating color order systems, with reference to documents TC187 N19, N22, and N30.
7. To consider the technical questions associated with the use of self-luminous displays in association with color order systems.

ISO/TC 187 wishes a preliminary report by January 1992 indicating progress to date.

Visual Ergonomics Section:

Since Dr. Peter Boyce is no longer available to serve as Associate Director, Mr. Takeuchi of Japan will assume the responsiblilties of Associate Director at least until the Melbourne meeting.

TC 1-14 Lighting Effects on Vision

Chairman: P. R. Boyce (USA)
USA members: A. P. Ginsburg, M. S. Rea
Terms of Reference: To produce a report, useable by intelligent laymen, describing the effects of lighting conditions on visual capabilities and demonstrating how this knowledge can be used to determine appropriate lighting conditions for the performance of specific tasks.
Status: The report remains in draft form. It is hoped that the third draft will be ready for review by the Melbourne meeting.

TC 1-16 Lighting Needs for the Partially Sighted

Chairman: W. G. Julian (AUS)
USA members: L. Bailey, P. R. Boyce, E. E. Faye, G. E. Fonda, S. C. Miller
Terms of Reference: To try to determine lighting needs for the partially sighted not only at the individual level by causal or functional subdivision, but also as a group with the view to accommodating public buildings, nursing homes, schools, etc. As the individually needed or preferred (il)luminances are very variable among the partially sighted, emphasis will be put on quality, flexibility, and safety aspects of lighting rather than on quantitative ones.
Status: The Chairman is editing the final draft of a report, which should be ready for the Melbourne meeting. Since the report is very lengthy, consideration should be given to the suitability of the various methods of publishing this important work.

TC 1-17 Contrast Metric of Visibility

Chairman: A. Korn (DEU)
USA members: H. R. Blackwell, A. P. Ginsburg
Terms of Reference: To develop and prepare a technical report on analytical models of visual functions for the prediction of the effect of lighting on visual performance.
Status: The final report is now being reviewed by TC members after

submission to the Division for editing.

TC 1-18 Disability Glare

Chairman: J. J. Vos (NLD)

USA members: H. R. Blackwell, G. A. Fry

Terms of Reference:

1. To recommend a revised Stiles-Holliday formula which could be named the CIE Standard Disability Glare Formula.

2. To recommend a study on the relationship between disability glare and age.

Status: A draft report summarizing the literature concerning the fundamental mechanisms of discomfort glare is being reviewed by TC members. This draft report should be ready for Division 1 consideration at the Melbourne meeting.

TC 1-19 Specification of Visibility for Real Tasks

Chairman: M. S. Rea (USA)

USA members: H. R. Blackwell, P. R. Boyce

Terms of Reference: To prepare a review of all methodologies for evaluating the visibility (threshold or suprathreshold) of real tasks.

Status: The Chairman is unable to continue with this work and wishes to resign.

TC 1-25 Fundamentals of Discomfort Glare

Chairman: A. L. Lewis (USA)

USA members: S. M. Berman

Terms of Reference: To define discomfort glare, to identify the origins of discomfort glare, and to develop and assess methods of measuring discomfort glare.

Status: The annotated bibliography on the physiological basis of discomfort glare is nearly ready. Dr. Lewis is working on translating a few more articles for inclusion. He has set December 1st as a cut-off date for new inclusions at which time he will begin to produce the final (preliminary) version.

Reporter Status

Vision Section

Brightness Luminance Relation: J. A. J. Roufs (NLD), reporter

Status: This report will be given at the Melbourne meeting.

Engineering Applications of Brightness Scales

T. Takeuchi (JPN), reporter

Status: This report will be given at the Melbourne meeting.

Color Section:

Observer Metamerism: N. Ohta (JPN), reporter

Status: Dr. Ohta's work has been completed and issued as CIE Publication No. 80, Special Metamerism Index: Change in Observer.

Chromatic Adaptation

Y. Nayatani (JPN), reporter

Status: Dr. Nayatani notes two literature references that report on field trials testing the CIE recommended chromatic adaptation formula. The first is by Ronnie Luo, which will be published in Color Research and Application. The second is by Leo Mori, which will be presented at the Melbourne CIE meeting. Dr. Nayatani will also be presenting a report on this subject at the CIE meeting in Melbourne.

Color Difference Evaluation:

T. O. Maier (USA), reporter

Status: Dr. Maier will present his report on recent activity in the area of Color Difference at the Melbourne meeting.

Visual Ergonomics Section:

Visual Environment for Elders: Fundamental and Practical: S. Kanaya (JPN), reporter

Status: No report was made in Berlin.

Liaison Status

P. J. Alessi (USA) has been asked to serve as liaison officer of Division One to ISO/IEC/JTC1. This appointment was appropriate since the TC which she chairs will be developing a joint standard with JTC1 for text and office publishing applications.

As CIE Division 1 liaison to ISO/IEC JTC1/SC18, Paula J. Alessi prepared the CIE response to ISO 8613:1989/DAD2, Information Processing - Text and Office Systems - Office Document Architecture (ODA) and Interchange Format - Addendum 2: Color. This response was written based on input received from CIE Division 1 members.

Other CIE Division One Color Section Matters

1. ISO/TC38/SC1 Draft Proposal for Standard on Calculation of Small Color Differences

ISO/TC38/SC1 is a committee within ISO on Textiles/Color Fastness and Color Measurement. It has issued a Draft Proposal for a Standard on the Calculation of Small Color Differences. This Draft Proposal recommends the use of the CMC (L:C) formula for these textile applications. Much of this work was done in conjunction with the American Association of Textile Chemists and Colorists. Since ISO has accepted CIE as the forum for light and color standardization, this development within the textile community makes it urgent that CIE Division One adopt an official position on the use of CIELAB, CIELUV, and CMC. This information has been forwarded on to Dave Alman (USA) with hopes that his TC 1-29 on Industrial Color Difference Evaluation can address these issues.

2. ISO/CIE Standard Status

Progress has been made on elevating CIE standards S001 (Colorimetric Illuminants, 1st edition, 1986) and S002 (Colorimetric Observers, 1st edition, 1986) to the new ISO/CIE Standards status. ISO officials have reviewed these Standards and find them to be very sound and worthy of the ISO/CIE Standard status. Consequently they will become official ISO/CIE standards very soon. Data from these new ISO/CIE Standards will be available on disk.

The CIE Council adopted a resolution with regard to establishment and progression of joint ISO/CIE Standards. The key points of this resolution which relate directly to Division One are as follows:

1. When the established working programme of ISO and CIE overlap, CIE can offer its cooperation to harmonize

activities and standardization. The Text and Office Systems Color Architecture (TOSCA) Standard of ISO/IEC JTC1 SC18/WG5 is an example of overlapping needs which resulted in CIE TC 1-27 adopting terms of reference stating assistance in the development of TOSCA with this ISO Working Group.

2. All CIE Divisions will examine existing and upcoming publications as candidates for joint ISO/CIE Standard status. Dr. Ikeda requested members to review the Division One publications and forward recommendations to him as soon as possible.

3. Existing publications will not be transferred as a whole into a joint ISO/CIE Standard. It is more likely that parts of one or more CIE publication will be extracted and edited by the Divisions to become ISO Draft International Standards. CIE Standards S001 and S002 were exceptions to this rule because it was desired to submit them immediately to ISO in order to start and test out the new agreement with ISO as soon as possible.

4. In special cases, a CIE Technical Committee shall be established to work directly towards an ISO Draft International Standard including final voting by CIE. CIE TC 1-27 is such a special case, which will work on developing the TOSCA Standard as a joint ISO/CIE Standard.

Division One Representation at the 22nd CIE Session in Melbourne

The following Division One papers were selected for 20 minute oral presentations on the morning of Thursday, July 4th:

1. Bodmann H.W., Greule R., and Kokoschka S., Contrast thresholds at transient adaptation

2. Yaguchi H., Yamada M., Kawada A., Miyake Y., Individual variations of contribution of opponent color channels to brightness

The following Division One papers were selected for 8 minute presented poster presentations on the afternoon of Thursday, July 4th:

1. Seim Th., Valberg A., Chromatic colors improve visibility for the elderly visually disabled

2. Yang C. and Xue J., The effects of luminance patterns on visual capabilities

3. Sivak M., Flannagan M, and Weintraub D. J. (USA) Discomfort glare is task dependent

4. Luo M. R., Xin J. H., Rhodes P. A., Gao X. W., Macdonald L. W., Studying the calibration methods and reproducibility of color displays

5. Dehoff P. and Zembrot D., Computer graphics - How close can a computer screen come to displaying what we actually see in reality?

The following Division One papers were selected for 8 minute presented poster presentations on the afternoon of Friday, July 5th:

1. Adrian W., Transient adaptation process: A model to predict its effects on vision

2. Mori L., Sobagaki H., and Komatsubara H., Field trials on CIE chromatic adaptation formula

3. Berns R. (USA), Visual determination of color-difference vectors using probit analysis : Phase II

4. Roufs J. A. J., Blommaert F. J. J., and Ridder de H., Recent developments in the measurement and prediction of brightness-luminance relations

5. Takeuchi T., Miyamae A., and Narisada K., Brightness adaptation and its scale

The topic of the Division One workshop to be held at the end of the day on Friday, July 5th is New photometric system based on heterochromatic brightness matching at photopic, mesopic and scotopic vision. This workshop will be chaired by Dr. Mitsuo Ikeda.

Meeting Schedule

The next Division One meeting will be held during the 22nd session of the CIE in Melbourne. The specific dates and times are Monday, July 8th in the morning and all day Wednesday, July 10th.

Paula J. Alessi

NEWS FROM MEMBER BODIES

ASID - MEMBER BODY SINCE 1949

The American Society of Interior Designers (ASID) is dedicated to be the leading Interior design organization and the official source of information on all matters regarding the profession and its practice. The Society aims to: serve its members, protect and inform the public, advance the profession, strengthen interaction with industry and allied professions, and promote design excellence.

ASID was founded in 1931. It has more than 33,000 members and 49 chapters in the United States that include 2000 design practitioners, 4000 industry leaders and 8000 students. ASID design professionals work at a higher percentage of contract rather than residential projects. ASID members are well educated with 79 percent of members holding undergraduate degrees in Interior Design and 11 percent hold graduate degrees. ASID designers provide their skills for design projects such as restaurants, hotels, offices, health care facilities, home, and retail stores.

ASID holds an annual interior design national conference each summer, (Denver Colorado in 1991, Anaheim, California in 1992). Over 80 certified professional development courses are taught at the chapter level to members and non-members to meet the technical, professional, and business needs of designers. The ASID educational Foundation provides annual scholarships, fellowships, and awards. ASID has spent 1.5 million dollars is support of licensing efforts at the state level. The Society publishes a bi-monthly, four-color magazine, "The ASID Report."

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ISCC & ASTM: A 60-Year Partnership in Color and Appearance Perception and Measurement

In 1931, The U.S. Pharmacopoeia and National Formulary had a color standardization problem. They wished to standardize color terms and color names used to describe the colors of pharmaceuticals. ASTM was called on to help, but at the time, it did not have a interest in the colors of pharmaceuticals. Nor did the American Association of Textile Chemists and Colorists, the American Pharmaceutical Association, the American Psychological Association, the Illuminating Engineering Society, the Optical Society of America, the Textile Color Card Association of the United States, or the U.S. Pharmacopoeia Convention. However, if these organizations pooled their color expertise, they might be able to solve this standardization problem. What was needed was an inter-society council of colorists.

So, in 1931, the ISCC was formed, with delegates from the eight societies listed above. Other societies soon appointed delegates to the ISCC and became member-bodies. Individuals applied for membership as well. The pharmaceutical color problem was addressed and solved. The Council initiated a program of meetings, symposia, and project committees for problem solving that flourishes today.

ASTM took a leadership role in ISCC soon after it was formed. The second chairman of the ISCC (1936-1938) was M. Rea Paul, chairman of the ASTM delegates to the council. Paul divided his energy between ISCC and ASTM. When ASTM Committee E-12 on Appearance of Materials was founded in 1948, he became its first chairman. He is said to be the individual who contributed most to the formation of E-12; this committee has been the primary link between ASTM and ISCC ever since.

Two decades later, William J. Kiernan followed Paul's footsteps in bringing the ISCC and ASTM closer together by serving as ISCC president (1962-1964) while vice-chairman of E-12. It is interesting to note that every chairman of E-12 since its formation has been an active member of ISCC. Likewise, many ISCC officers over the years have been active in ASTM.

From its beginning, the ISCC decided that it would not enter into standards-writing activities. Therefore, it logically turned to ASTM when new documentary standards were needed, often as the result of ISCC project committee activities. Project Committees numbered 18, 25, 27, 34, 37 and 44 (Colorimetry of Fluorescent Materials, Determination of the Strength of Colorants, Indices of Metamerism, Color Difference Problems, Artist's Materials and Uniform Color Space, respectively) have all contributed to ASTM standards. ASTM has initiated two projects in the ISCC, No. 21 on Standard Practice for Visual Examination of Small Color Differences and No. 22 on Materials for Instrument Calibration.

Two societies as closely related as ISCC and ASTM should meet together occasionally. The first such joint meeting, held in 1941, was a symposium titled "Color—Its Specification and Use in Evaluating the Appearance of Materials." In 1952, ISCC and ASTM jointly presented a symposium on "Color Difference Specification" at a meeting of ASTM E-12. Plans are being prepared for a joint meeting of ISCC and ASTM in 1992. ASTM and ISCC look forward to the continuation of a fruitful 60-year collaboration.

Condensed from ASTM Standardization News, March 1991.
Fred W. Billmeyer, Jr.

COLOR MARKETING GROUP (CMG)

The CMG held their fourth bi-annual Fall/Winter Fashion Forecast Workshop on February 14, 1991 in New York City. Fifty-two color decision makers in the world of fashion came together to explore color trends and forecast a color palette for Fall/Winter 1992.

Out of the four workshops came 12 Ascending and 7 Forecast colors. The Ascending colors are: Flamingo, a pink coral; Chestnut, a warm red brown; Spanish Tile, a rich warm clay; Amber, a red cast gold; Reuben Red, a blue cast red; Breen, a brown green; Ryby, a new magenta; Split Pea, a yellow green; Garnet, a new wine; Blue Corn, a bluer teal; Ultraviolet, a purple violet; and Sapphire, a brighter cobalt. The new Forecast colors are: Lombard, the color of cornsilk; Adrian, a dusty aqua: Gable, a blue gray with red cast; Hepburn, a metallic bronze; Oscar, a metallic copper; Ginger, a softer clay, and Bogey, a deep mauve.

The CMG Fashion Committee agrees that colors will mix in new relationships of contrast and tonality. Expect to see combinations of warm with cool, dusty with clean, dark with bright, or pastel with bright color, providing the customer with more options, more reasons to buy. For more information, please call: (703) 528-7666 or write: Color Marketing Group, 4001 N. Ninth Street, Suite 102, Arlington, VA 22203.

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA)

Please note the correct the correct dates for the annual conference.

The 85th Annual Conference of the IESNA is scheduled for August 11-15, 1991, at the Sheraton Centre Hotel in Montreal, Canada.

GEMOLOGICAL INSTITUTE OF AMERICA (GIA)

Diamonds Colored by Hydrogen

GIA's Research Department has discovered two new types of natural-color diamonds. "We have found that unusually high amounts of the element hydrogen are responsible for color in some fancy colored diamonds," said GIA research scientist Dr. Emmanuel Fritsch. "Previously, color in diamonds has been assumed to result from the presence of nitrogen or boron or from structural defects. This is the first recorded instance of hydrogen involved in a color- causing mechanism." One type of "hydrogen-rich" diamond is gray-violet, and the other is a bluish gray diamond that does not conduct electricity. Prior to this discovery, "violet" was generally not used to describe the color of a diamond, and non-conductive blue diamonds were believed to be produced only by artificial irradiation.

"The discovery of hydrogen-rich colored diamonds is important for both academic and practical reasons," said Dr. Fritsch. "The criterion often used in the trade to separate Natural from treated blue diamonds — the presence or absence of electrical conductivity — is no longer always valid. Furthermore, some hydrogen-rich diamonds exhibit a yellow color with a grayish or brownish cast. Because such color are deemed unattractive, they are often treated. As expected, irradiation induces a green color, and when followed by annealing, a yellow color is produced. We have seen a number of such treated stones."

GIA's colored diamond project is one of the Institute's major ongoing research efforts to understand better the differences between natural, treated, and synthetic colored diamonds.

International Gemological Symposium

The International Gemological Symposium was held in Los Angeles, California, June 20-24, 1991. It included panels and presentations on colored stones and gem identification. the sessions covered such areas as colored stone sources, synthetics and stimulants, treatments, research, distribution and marketing.

Participating in discussion panels were a number of international speakers, including Vladimir Balitsky of the Academy of Sciences of the USSR, Adi Peretti of the Gubelin Gemological Laboratory, Switzerland; Peter Read of P. G. Read Consultancy Services, U. K.; William Sersen of the Asian Institute of Gemological Sciences, Thailand; Karl Schmetzer, research gemologist, Germany; and Henry Hanni of the Swiss Foundation for the Research of Gemstones, Switzerland.

Presentations on colored stone sources and gem identification were made by experts such as Eckehard Tetsch of the International Colored Stone Association, Germany; Campbell Bridges of Bridges Exploration, Kenya; Daniel Sauer of Amsterdam Sauer, Brazil; Kenneth Scarratt of the Gem Testing Laboratory of Great Britain; and John Koivula, Chief Gemologist of GIA.

The Symposium was held concurrently with the American Gem Society's 1991 Conclave. The International Colored Stone Association Congress was held in Hawaii the week of June 12-17 to enable delegates to travel on to Los Angeles and attend the Symposium. Further information may be obtained from the GIA, P. O. Box 2110, Santa Monica, California, 90407-2110 or by calling (213) 829-2991 or FAX (213) 828-0247.

OPTICAL SOCIETY OF AMERICA (OSA)

The OSA will sponsor its first topical meeting Advances in Color Vision in honor of Robert M. Boynton January 31 - February 1, 1992 at the University of California, Irvine, California. The topical meeting will highlight important new results which have accrued in research on color vision. sponsored by the Optical Society of America in cooperation with the newly formed Optical Society of Japan, the meeting this year will be held in honor of Robert M. Boynton to recognize his contributions to research in color vision, to the Optical Society of America, and to the training of American and Japanese color vision researchers. The meeting will consist of invited, contributed oral, and contributed poster papers. The topics will include the role of color in perception, color constancy, adaptation, the physiological bases of color vision, and applications of color vision. For more information contact the Optical Society of America 2010 Massachusetts Avenue, NW, Washington, DC, 20036 or phone (202) 223-0920.

SOCIETY OF PLASTIC ENGINEERS (SPE)

Two years and two weeks have past since SPE announced the arrival of its 30,000th member. On March 22, 1991, the 35,000th member was entered into the membership records at SPE headquarters in Brookfield, Connecticut.

Betsy P. Kuo, Development Engineer, Composites Development, RD&E at Cryovac Division, W. R. Grace & Co. in Duncan, South Carolina, became the 35,00th member. A graduate of Johns Hopkins and Georgia Tech (BS and MS in chemical engineering), Ms Kuo joined SPE when she attended two of the PE Extrusion Seminars. Julian H. Schoenberg, also of Cryovac, was her sponsor. For their part in making SPE history, both were presented with an SPE watch.

It took the Society 20 years to reach the 10,000 mark, and another 20 years

for the second 10,000. Only six years and five months later the 30,000 member was welcomed. In the record-breaking time of two years and two weeks, international membership soared to 35000, and is still growing. The Membership Committee estimates that SPE will end the fiscal year (June 30) with more than 36,000 members. Due to the efforts of members throughout the world and the membership development firm of Marketing General, Inc., the Society's membership has grown by 62% in the past three years.

COLOR RESEARCH & APPLICATION

IN THIS ISSUE, AUGUST 1991

In an industrial situation, developing color tolerances with physical samples is an exhausting process. It involves formulating and making enough of samples to produce a gamut, numerous measurements followed by extensive evaluation by trained observers, and a great deal of data handling. The flexibility resulting from a computer- controlled stimulus generator alleviates many of the problems encountered with making a gamut of surface colors. In "A Color Tolerance Feasibility Study Comparing CRT Generated Stimuli with an Acrylic-Lacquer Coating," Roy S. Berns discusses the feasibility of substituting computer- generated specimens for physical samples in developing a color tolerance data base.

Coming inside from outdoors, as we enter a room illuminated by tungsten lamps we notice immediately a difference in the appearance of the lighting conditions. Because of chromatic adaptation, gradually we become accustomed to the light, then we are no longer aware of this difference, and the objects in the room are perceived to have approximately the same color as they would have had under the daylight illumination. To study chromatic adaptation it is necessary to find sets of corresponding colors. If the tristimulus values describing a stimuli under one illuminant evokes the same color appearance as that of a second stimulus under different illumination, the two stimuli are said to be corresponding colors. Since it is not possible to measure sets of corresponding colors for all combinations of chromaticities and illumination conditions, Mark D. Fairchild has developed a mathematical model that predicts corresponding colors for a wide variety of conditions. In "Formulation and Testing of an Incomplete-Chromatic- Adaptation Model," he compares various other model to his new model and describes tests of the models across changes in illumination.

As we look at a color, its appearance is affected by not only what surrounds the color, but also by what we have been looking at just before turning to the color. This process of change is chromatic induction. In "Chromatic Induction and the Locus of Unique Yellow as a Function of Stimulus Illuminance," Laura Sewall, Brooke E. Schefrin, and John S. Werner look at chromatic induction using the range of stimulus illuminance varied from 0.5 to 4.0 log trolands, a substantially larger range of intensities than that previously studied.

Cesar Jannello, at the School of Architecture of Buenos Aires University, developed the basis for a general theory of design composed of theories of spatial delimitation, visual texture, color, and cesia. "Cesia: A System of Visual Signs Complementing Color" is described by Jose Luis Caivano, but what is cesia? Cesia deals with the transformation in quality of spatial distribution of the luminous flux that reaches the eye after being modified by hitting an object. The dimensions of cesia are absorption, permeability, and diffusivity. With these three dimensions, cesia accounts for the phenomena of glossiness, luster, brilliance, transparency, opacity, translucence, specular reflection, which are not explained by classical color theory. Thus cesia is a three-dimensional model to describe spatial aspects of appearance that is meant to be used with a three-dimensional model describing color to characterize the appearance of an object more completely.

In another article dealing with the goniophotometric measurements of materials, James L. Garner, John E. Shaw, and James S. Bonham estimate the color errors introduced by the partial sampling of the reflectance hemisphere for a range of colored papers. The influence of different angular distributions of reflected light on apparent reflectance values is well recognized in the paper industry. Properties calculated or measured by reflectance, such as paper brightness and color vary with angle. Different measurement geometries are specified in various standards and may differ from country to country for one quantity. Reproducible results are obtained only if consistent geometry is maintained, or if full diffuse irradiation or full hemispheric viewing employed. In "Angular Reflectance Distributions for Coloured Newsprint," the angular distributions of light reflected from colored paper have been used to model color differences that would be generated artificially by instrumentation sampling only a portion of the total hemispherical reflectance.

Harmony is the pleasing effect that results from combinations of certain colors, sounds, or spatial relationships. Designers and architects, as well as artists are concerned with color harmony. In the note "Color Harmony Attributes," Kenneth E. Burchett analyzes books on color to find the range of meanings for color harmony. He includes in his analysis books selected from the fields of color science, art and design, color theory and organization, and psychology in art.

This issue's Color Forum is devoted to the questions of how and why human color vision came to be the way it is. In "On the Evolution of the Color Vision System," Rolf Kuehni traces visual mechanisms from the Pre-Cambrian era to the present time. He concludes the forum with a discussion debating whether colors are images or symbols.

CALENDAR

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

Harry K. Hammond, III
BYK-Gardner, Inc.
2435 Linden Lane
Silver Spring, MD 20910
(301) 495-7150 FAX (301) 585-4067

1991

IESNA ANNUAL CONFERENCE, Aug. 11-15
85th Annual Conference of the Illuminating Engineering Society of North America, Sheraton Centre Hotel, Montreal, Canada. Information: Valerie Landers, (212) 705-7269.

EUROPEAN CONFERENCE ON VISUAL PERCEPTION, Aug. 26-30
14th European Conference on Visual Perception, Vilnius, Lithuania. Information: Dr. Tom Troscianko, Dept of Psychology, University of Bristol, 8-10 Berkeley Square, Bristol BS8 1HH, Great Britain.

IS&T SYMPOSIUM, Sep. 11-14
Society for Imaging Science and Technology 2nd Symposium on Electronic Prepress Technology and Color Proofing, immediately following PRINT '91 at the McCormick Center Hotel, Chicago, Illinois. Information: Joanne M. Weber, (716) 477-4198.

EUROPEAN CONFERENCE ON EYE MOVEMENTS, Sep. 15-18
6th European Conference on Eye Movements, Leuven, Belgium. Information: Johan Van Rensbergen, Laboratorium voor Experimentele Psychologie, Katholicke Universiteit, Leuven, Belgium.

USNC/CIE ANNUAL MEETING, Sep. 22-24
U.S. National Committee of the CIE, Marquette Hotel, Minneapolis, Minnesota. Information: Norbert Johnson, (612) 733-5939.

PRINCIPLES OF COLOR REPRODUCTION, Sep. 25-27
Rochester Institute of Technology, Munsell Color Science Laboratory, Principles of Color Reproduction: An Intensive Short Course, Chester F. Carlson Center for Imaging Science, Rochester, New York. Information: Colleen McCabe, (716) 475-7189, FAX (716) 475-5988.

IS&T, Oct. 6-11
The Society for Imaging Science & Technology (formerly SPSE) 7th International Congress on Advances in Non-Impact Printing Technologies w/Exhibit, The Portland Hilton, Portland, Oregon. Information: (703) 642-9090.

PRAKESH 1991, Oct. 7-13
Indian Society of Lighting Engineers, International Trade Fairgrounds, New Delhi, India. Information: H. S. Mamak, Indian Society of Lighting Engineers, c/o Philips India, 7th Floor, Hindustan Times, Kasturba Gandhi Marg, New Delhi, India 110 001, Tel. 3314328, 3318370, Fax. 3316839.

AATCC - CONFERENCE AND EXHIBITION, Oct. 8-11
American Association of Textile Chemists and Colorists, Convention Center, Charlotte, North Carolina. Information: Jerry Tew, (919) 549-8141.

COLOR & APPEARANCE OF THERMOPLASTIC FILMS, Oct. 16-17
Society of Plastic Engineers, Conference, Marriott Hotel, New Orleans, Louisiana. Information: (812) 466-9828, FAX (812) 466-6796.

TAPPI SYMPOSIUM AND TRADE FAIR, Oct. 28-31
Technical Association of the Pulp and Paper Industry, Holiday Inn, Genesee Plaza, Rochester, New York. Information: Jerry Popson, (812) 948-2884.

CMG - FALL MEETING, Nov. 3-5
Color Marketing Group Fall Meeting, Hyatt Regency, New Orleans, Louisiana. Information: Nancy Burns, (701) 528-7666.

OSA - ANNUAL MEETING, Nov. 3-8
Optical Society of America Annual Meeting including OPTICON '91, San Jose Convention Center, San Jose, California. Information: Optical Society, (202) 223-0920.

FSCT ANNUAL MEETING AND PAINT SHOW, Nov. 4-6
Federation of Societies for Coatings Technology, 69th Annual Meeting and 6th Paint Industries Show, Metro Convention Center, Toronto, Ontario, Canada. Information: (215) 545-1506.

ASTM COMMITTEE D-20 ON PLASTICS, Nov. 4-7
San Diego, California. Information: Katharine Schaff, (215) 299-5529.

AATCC FALL MEETING, Nov. 19-21
American Association of Textile Chemists and Colorists, The Doral Inn, Hew York City, New York. Information: Jerry Tew, (919) 549-8141.

1992

ASTM COMMITTEE D-1 ON PAINT, Jan. 20-23
Embassy Suites Hotel, Ft. Lauderdale South, Florida. Information: Scott Orthey, (215) 299-5507.

(continued page 17)

INTER-SOCIETY COLOR COUNCIL Application for Individual Membership

Name _____ Date _____

❒ Dr. ❒ Mr. ❒ Ms.

Company/Affiliation _____

Street _____

City, State, Zip _____

Telephone (____) _____ ❒ Home

Fax (____) _____ ❒ Business

_____

Signature

My chief interests in color are:

❒ education ❒ art

❒ industry ❒ science

_____

Name other interests

My work relates to the following products and services:

_____

_____

_____

My present and past business, professional or educational connections with color are: _____

_____

_____

_____

My particular interests in color are: _____

_____

_____

_____

I belong to the following national organizations or associations: _____

_____

_____

_____

I learned about ISCC from: ❒ ISCC Newsletter ❒ Other source: _____

Please tell us the individual or organization that interested you in ISCC

ISCC dues are shown on the reverse side. Applications for membership dated prior to July 1 should be accompanied by full annual dues; those dated July 1 and later should be accompanied by 50% of annual dues. You have the option of subscribing to Color Research & Application at special membership rates. If you wish to do so, please add $60.00 (US) or $90.00 (overseas) to the amount of your check.

This application and remittance should be sent to

Ms. Ann C. Laidlaw, Membership Committee, c/o SheLyn, Inc., 1108 Grecade Street, Greensboro, NC 27408

Telephone: (919) 274-1963

EXCERPT FROM THE BY-LAWS OF THE INTER-SOCIETY COLOR COUNCIL, INC.

Constitution, Article II — Aims and Purposes

The Council shall operate solely and exclusively as a non-profit organization with the aims and purposes:

A. To stimulate and coordinate the work being done by the various members leading to the description and specification of color by these members.
B. To promote the practical application of this work to the color problems arising in science, art, and industry, for the benefit of the public at large.
C. To promote communications between technically oriented specialists in color and creative workers in art, design, and education, so as to facilitate more effective use of color by the public through dissemination of information about color in both scientific and artistic applications.
D. To promote educational activities and the interchange of ideas on the subject of color and appearance among its members and the public generally.
E. To cooperate with other organizations, both public and private, to accomplish these objectives for the direct and indirect enjoyment and benefit of the public at large.

Council Activities

The ISCC is the principal professional society on the field of color in the United States, encompassing the arts, sciences and industry, pursuant to the Aims and Purposes described above. Other national organizations with an interest in color are Member-Bodies of the Council and appoint delegations to participate in the Council's work. Individual members are the largest single group. The Annual Meeting, usually held in April, includes meetings of the Project Committees and sessions of four Interest Group: Measurement & Colorimetry; Vision & Color Appearance: Art, Design & Psychology; and Color Education. There is also a main program devoted to a specific aspect of color plus a Poster Paper session. Joint programs with one of the Council's Member-Bodies are interesting and educational.

In most years there is a separate topical Williamsburg Conference, often in February, where a single color subject is explored in depth with participants from all over the world providing state-of-the art information. Attendance at these conferences is usually smaller than at Annual Meetings, reflecting their topical nature and permitting interaction between speakers and participants.

The ISCC is the U.S. Member of the Association Internationale de la Coulour (AIC), which holds general meetings quadrennially and topical meetings annually. Color Research & Application, published bimonthly in English, is the principal international journal in this field; it is endorsed by ISCC. It reports recent research and opinions of colorists, review books and reports on national and international color meetings. Membership in ISCC permits subscription at more than a 50% discount.
The ISCC News, a bimonthly newsletter, reports the color activities of the Council, its members, Member-Bodies and international color organizations. Members receive the ISCC News at no cost. Member-Bodies and Sustaining Members receive 10 copies of the ISCC News.

Categories of Membership	Annual Dues
Individual Member. Any person interested in color and desirous of participating in the activities of the Council.	$25.00
Student Member. Full time students.	$10.00
Member-Body. Any non-profit national organization interested in color and desirous of participating in the activities of the Council.	$100.00
Sustaining Member. Any organization not eligible as a Member-Body, or any individual, interested in color and wishing to support the work of the Council. Receives 10 copies of ISCC News.	$250.00
Retired. Treasurer must be notified, in writing, of retirement before dues have been billed.	$10.00
Library Subscriptions. Receives all ISCC mailings, including ISCC News.	$40.00
Overseas Member. A surcharge of $15 is added to $25 dues to cover additional mailing costs.	$40.00

Calendar, continued from page 14

ASTM COMMITTEE E-12 ON APPEARANCE, Jan. 20-23
Embassy Suites Hotel, Ft. Lauderdale South, Florida. Information: Bode Buckley, (215) 299-5599.

ADVANCES IN COLOR VISION, Jan. 30-Feb. 1
Optical Society of America Topical Meeting on Advances in Color Vision, Irvine, California. Information: (202) 462-6272.

SPSE/SPIE SYMPOSIUM, Feb. 9-14
Electronic Imaging: Science and Technology, The San Jose Convention Center, San Jose, California. Information: Khe Nguyen, (408) 954-5486.

AATCC WINTER MEETING, Feb. 11-13
American Association of Textile Chemists and Colorists, Hilton at University Place, Charlotte, North Carolina. Information: Jerry Tew, (919) 549-8141.

ISCC - WILLIAMSBURG CONFERENCE, Feb. 23-26
"Comparison of Color Images Presented in Different Media" cosponsored with TAGA, Colonial Williamsburg, Virginia. Information: Milton Pearson, (716) 475-5290.

ASTM COMMITTEE D-20 ON PLASTICS, Mar. 8-12
Asheville, North Carolina. Information: Katharine Schaff, (215) 299-5529.

IS&T ANNUAL CONFERENCE, May 10-15
The Society for Imaging Science & Technology 45th Annual Conference, The Meadowlands Sheraton, East Rutherford, New Jersey. Information: (703) 642-9090.

AATCC SPRING MEETING, May 12-14
American Association of Textile Chemists and Colorists, AATCC Technical Center, Research Triangle Park, North Carolina. Information: Jerry Tew, (919) 549-8141.

CORM ANNUAL MEETING, May 19-20
NIST, Gaithersburg, Maryland. Information: Albert Parr, (301)-975-3739.

ASTM COMMITTEE D-1 ON PAINT, Jun. 19-22
Marriott, Minneapolis, Minnesota. Information: Scott Orthey, (215) 299-5507.

INTERNATIONAL GEMOLOGICAL SYMPOSIUM, Jun. 20-24
Century Plaza Hotel, Los Angeles, California. Information: (800) 421-7250, ext. 211.

ISCC - ANNUAL MEETING, Jun. 21-24
Nassau Inn, Princeton, New Jersey. Information: Dr. Allan B. J. Rodrigues, (313) 583-8245.

AIC INTERIM SYMPOSIUM, Jun. 23-24
Computer Colorant Formulation, Nassau Inn, Princeton, New Jersey. Information: Dr. Allan B. J. Rodrigues, (313) 583-8245.

ASTM COMMITTEE E-12 ON APPEARANCE, Jun. 24-26
Nassau Inn, Princeton, New Jersey. Information: Bode Buckley (215) 299-5599.

IESNA ANNUAL CONFERENCE, Aug. 2-6
Illuminating Engineering Society of North America, 86th Annual Conference, San Diego, California. Information: Valerie Landers, (212) 705-7269.

IMAGING THE FUTURE, Sep. 21-25
The Royal Photographic Society Science Committee Symposium on Imaging the Future, University of Cambridge, England Information: Dr. M. R. Pointer, Kodak Ltd., Research Div. W-93, Harrow, Middlesex, HA1 4TY, England, tel. 44-81-427-4380 or FAX 44-81-863-4798.

AATCC - CONFERENCE AND EXHIBITION, Oct. 4-7
American Association of Textile Chemists and Colorists, Hyatt Regency, Atlanta, Georgia. Information: AATCC, (919) 549-8141.

FSCT, Oct. 21-23
Federation of Societies for Coatings Technology, 70th Annual Meeting and 57th Paint Industries Show, McCormick Place, Chicago, Illinois. Information: (215) 545-1507.

IS&T E/W SYMPOSIUM III, Nov. 8-13
The Society for Imaging Science & Technology, Maui Westin Hotel, Maui, Hawaii. Information: (703) 642-9090.

ASTM COMMITTEE D-20 ON PLASTICS, Nov. 15-19
Miami, Florida. Information: Katharine Schaff, (215) 299-5529.

OSA - ANNUAL MEETING, Nov. 15-20
Optical Society of America Annual Meeting including OPTICON '92, Boston, Massachusetts. Information: Optical Society, (202) 223-0920.

AATCC FALL MEETING, Nov. 17-19
American Association of Textile Chemists and Colorists, The Doral Inn, Hew York City, New York. Information: Jerry Tew, (919) 549-8141.

1993

ASTM COMMITTEE D-20 ON PLASTICS, Mar. 1-4
Atlanta, Georgia. Information: Katharine Schaff, (215) 299-5529.

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NEWSLETTER EDITOR

Michael A. Hammel

Send material for publication (photos should be black and white if possible) to the editor at:

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☆ ☆ ☆ **Please note: the deadline for submission of material is the 1st of <u>even</u> numbered months.** ☆ ☆ ☆

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