

# Inter-Society Color Council *News*

## IN THIS ISSUE

FINAL CALL FOR POSTER PAPERS

INTEREST GROUP ANNOUNCEMENTS:

INTEREST GROUP II

INTEREST GROUP III

INTEREST GROUP IV

FROM USNC:

INTERNATIONAL RADIOMETRIC

FROM THE COLOUR GROUP (BRITAIN)

COLOR IN THE INDUSTRIAL ENVIRONMENT (CAUS)

HUNT RECEIVES 1987 JUDD-AIC AWARD

MOET-HENNESSY PRIZE

RECENTLY PUBLISHED ARTICLES

CALENDAR

Number 312

March-April 1988

designated solely for poster papers. Each paper will be given a floor to ceiling space that is 4 feet long into which the poster must fit (i.e., approximately 4' x 8'). There will be one foot separating poster papers. Masking tape will be available to tape the lighter weight posters to the wall. Heavier posters can either be leaned up against the wall or easels can be rented to support them. The deadline for informing us of easel requirements or other set-up needs is March 24th, 1988.

Please send your entries in the form of a title and abstract to:

Paula J. Alessi  
10 Bay Park  
Webster, NY 14580

Please feel free to call Paula at (716) 477-7673 with any questions you may have.

## INTEREST GROUP MEETINGS AT THE ANNUAL MEETING 1988

### INTEREST GROUP II: Appearance, Vision and Modeling

Paula Alessi and Norman Burningham, who presently co-chair this interest group are eager to gather participants from both the academic and industrial environments who are in the forefront of research in the areas of appearance, vision, and modeling. It is our intent that Interest Group II discuss and explore the state-of-the-art technology and concepts in these areas. We hope that this group may serve as a forum where new work going on may be shared through speaker presentations, demonstration and panel discussions.

As examples of questions which might have broad interest consider the following illustrations. In the area of appearance specification by measurement, extensive work has been done by Richard S. Hunter. However, are the techniques which have been developed, adequate to fully characterize the appearance of newer imaging systems such as video displays? Further, do we understand enough about the appearance translation which takes place in systems where electronic images are just one intermediate stage in the chain of steps leading to final output. Also, it is not difficult to cite examples where the 1976 CIELAB and CIELUV recommendations are not sufficient to fully characterize the appearance of an object. Some researchers such as Hunt and Nayatani have done work on developing better color appearance spaces. It is still an open question whether these spaces have been successfully used where others

## THIRD & FINAL CALL FOR POSTER PAPERS! !

Here is the third and final notice to remind you that the 1988 Annual ISCC meeting will feature a first in the history of the organization. A poster paper session acknowledging the work of you, the ISCC membership, will be held. In the past, we have used poster sessions with varying degrees of success to report on the ISCC project committee work only. In 1988, we plan to set a precedent for providing each ISCC member with an opportunity to share his or her work in the area of color by presenting a poster paper rather than an oral presentation. The topics for the poster papers are completely open. Whether you are an artist, educator, industrialist, researcher, scientist or student, we welcome your poster paper entries in any area of color that you feel may be of interest to the general membership. Here is your chance to familiarize us with the fascinating color work that you may be doing on a daily basis.

It is not too late to submit papers for this poster session. Here are some of the allocation details. One hotel room will be

have been inadequate.

In the area of vision, we would like to promote discussion of the most current color vision model and mechanisms used to explain the human visual system. The connection between this area and appearance is direct with opportunity to better explain what we see. Vision also relates to modeling because often the best way to express and prove visual mechanisms is through models that adequately describe those mechanisms.

Modeling is not restricted to color vision models. In our technological society new imaging systems are being created frequently. Modeling work is an integral part of understanding and developing those imaging systems. Modeling also becomes important in achieving successful communication between imaging systems. Since we know that many of our members are working in the areas of graphic arts, television, printing, photography, video display and electronic imaging we have many areas where the effective use of modeling concepts could be profitably discussed.

These examples illustrate potential topics of interest for a technically stimulating interest group. To get things started in our first session we have invited two qualified speakers to present their view on some basic topics. First, the topic of appearance will be addressed by our longtime friend and color expert Dr. Fred W. Billmeyer, Jr. He will describe some problems, pitfalls, and challenges associated with quantifying appearance in color reproduction systems.

Second, we have arranged for LeRoy DeMarsh, from Eastman Kodak Company, to share some modeling work with us on Color Gamuts of CRTs and Film. His abstract follows:

TV system color gamut is often shown as a triangle on a chromaticity diagram. However, color is three dimensional so color gamut must be looked at as a three dimensional problem. But how large a color gamut is large enough? We can use data published by Pointer to provide one answer to this question. Finally, the relationship between color appearance and a color stimulus is dependent on viewing conditions, thus, a physical specification of color gamut will fail to describe the perceived color gamut. Several examples will illustrate how all these factors can be taken account of to provide a comparison of color gamut between Motion Picture Film and a TV CRT display.

We hope this will be a good kickoff program for Interest Group II. We look forward to your sharing your thoughts with us on future programs in the areas of appearance, vision and modeling.

Paula Alessi and Norman Burningham

### **INTEREST GROUP III: Art, Design and Psychology**

The goals of Interest Group III are:

1) To provide an open forum for discussion, research and the presentation of new ideas and information dealing with

color as it relates to art, design and psychology.

2) To encourage new memberships in the ISCC in these areas (particularly in the fine arts) in order to bring new insights to current members and to make available the broad expertise of the Council to new members.

3) To advance knowledge of color within art, design and psychology and to promote an understanding of their inherent relationships and to bridge the gap between art and science.

4) To provide project committees related to this group a forum for presentation of current or completed research projects.

The program for the annual meeting in Baltimore will include presentation from professionals from the arts, design and psychology fields including Dr. George Brainard, Department of Neurology, Thomas Jefferson University, Philadelphia.

Wade Thompson and Magenta Yglesias

### **INTEREST GROUP IV: Color Education**

The purpose of interest group IV, is to disseminate current information about color; a major aim of the group will be to channel information to appropriate persons. This will be done by project committees which we expect to establish at the annual meeting May 8-10, 1988. Also planned for the annual meeting is a discussion/report of the various types of color courses given by ISCC members and their impact on the art, science and industry areas.

Evelyn Stephens & Nancy Jo Howard

### **EDUCATION IN COLOR SCIENCE, APPEARANCE AND TECHNOLOGY**

The Munsell Color Science Laboratory at Rochester Institute of Technology (RIT) was established in 1983 after dissolution of the Munsell Color Foundation and the transfer of its assets to RIT. The aims and purposes of the Foundation remain the underlying aims and purposes of the Munsell Color Science Laboratory (MCSL); they are "... 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."

One of the Laboratory's best vehicles for achieving its aim and purposes is through the offering of industrial-oriented short courses and seminars.

The MCSL currently offers the industrial short course, "COLORIMETRY: An Intensive Short Course for Scientists and Engineers." The course is designed to teach in an in-depth manner CIE colorimetry, its application to quality assurance, and the uncertainty associated with its use. This is accomplished through lectures, laboratory demonstrations, open lab-

oratory sessions, and informal discussions.

Colorimetry has become an important tool for areas historically unconcerned with describing color in a quantitative, universal manner. The emergence of computer graphics, electronic publishing, and desk-top color printers into the work place has placed different demands on color educators than the application of colorimetry to traditional fields such as textiles, coatings, and polymers. In order to accommodate the diverse needs of the participants, the instructors concentrate on providing a strong colorimetric framework. Considerable time is spent deriving trichromatic theory and the mathematics involved in the various transformations, the development of CIELAB and CIELUV as color appearance and quality assurance metrics, methods to diagnose spectrophotometric errors and the consequences of ignoring measurement error, and statistical quality control. The following topics are presented during the three and one half day course: physics of object and light sources, principles of spectrophotometry, recommended CIE measurement geometries, the visual system, observer metamerism, color order systems, the CIE colorimetric system, methods of calculating tristimulus values, color difference equations for quality control, illuminant metamerism, visual methods of color tolerancing, the effects of viewing and illuminating condition on color appearance, methods for determining spectrophotometric precision and accuracy, sampling statistics, instrumentation selection guidelines, additive color mixing, absorptive color mixing, complex absorptive color mixing, and principles of computer colorant formulation.

The textbook "Principles of Color Technology, 2nd Ed." by Billmeyer and Saltzman is sent to participants before the course for advanced preparation. A 171 page coursebook has been written containing copies of viewgraphs used by the instructors during the course. The coursebook has greatly enhanced teaching efficiency.

"COLORIMETRY: an Intensive Short Course for Scientists and Engineers" is directed and principally taught by Dr. Roy S. Berns. Dr. Berns is the R.S. Hunter Professor in color science, appearance, and technology and Director of the Munsell Color Science Laboratory. He serves on the board of Directors of the Inter-Society Color Council and the Council for Optical Radiation Measurements, the editorial board of *Color Research & Application*, and is active in ASTM and CIE. Mr. Mark Fairchild, an Instructor and scientist with the Laboratory co-teaches the course. In addition, graduate students participate in the laboratory sessions. Interaction between these graduate students and the participants is very beneficial to both. Participants learn about the current research programs in the Laboratory while students learn how colorimetry is applied in industry and gain important industrial contacts.

This year the course will be held twice: June 6-9 and June 13-16, 1988. For more information please contact the Munsell

Color Science Laboratory, RIT, P.O. Box 9887, Rochester, NY 14623-0887 or call (716)475-5842.

RIT Communications

### FROM THE USNC NEWSLETTER: INTERNATIONAL RADIOMETRIC INTERCOMPARISONS

The Radiometric Physics Division of the National Bureau of Standards (NBS) has been chosen as the reference laboratory for an international comparison of national scales of spectral irradiance involving 13 countries. The National Physical Laboratory (NPL) in England is overseeing the construction of special lamps for the intercomparison, three of which will be sent for measurement to each participating country. During the fall of 1988, all of the participants will send their lamps to NBS for comparison after which they will be returned. NBS will prepare a report on the results in time for the next meeting of the Consultative Committee on Photometry and Radiometry in September 1990.

The Division also carried out an intercomparison of spectral transmittance measurement at 548.5 nanometers with two other national laboratories, the NPL (United Kingdom) and the Physikalisch-Technische Bundesanstalt (Federal Republic of Germany). Two sets of optical filters developed for the NBS Measurement Assurance Program were used. The agreement between NBS data and that of the other two laboratories was within the combined measurement uncertainties.

### FROM: THE COLOUR GROUP (Great Britain)

*Excerpted from a Report of the 1987 November 4 meeting held jointly by The Colour Group and the London and South East Region of the Institution of Lighting Engineer to discuss the importance of colour in outdoor lighting.*

A general introduction to the subject was given by Miss Margaret Halstead of Thorn Lighting Limited. She commenced by discussing how colour in the outdoor environment comes from both natural and man-made objects. The visual tasks of drivers and pedestrians were briefly mentioned before the visual mechanism of the human eye was described. Reference was made to the change in the relative brightness of different lamps as illuminances fall from photopic to mesopic and scotopic levels. This could be of importance to the visual task of a driver. Street lighting is usually designed to produce a contrast between an object on a roadway and the road surface. Monochromatic sources such as low pressure sodium lamps produce only various shades of black and grey and Miss Halstead postulated that lamps with better colour rendering properties could improve the recognition of objects. The method of specifying the colour and colour rendering properties of lamps using the CIE chromaticity diagram and CIE colour rendering

indices was explained.

The importance of colour in the design of traffic signs was discussed by Colin Chadwick of the Department of Transport. He pointed out that the effectiveness of signs depends on easy identification and that hence colour is important. The shapes and colours of signs are different for different applications. Since 1963 in Britain, primary traffic route signs are green, motor-way direction signs are blue. Signs for the tourist industry are now dark brown and diversion signs are yellow. Lorry routes are black and these are difficult to follow at night. Shapes also contribute strongly to recognition. Triangles are used for warning, circles for orders, squares for information. Red in any shape indicates danger. The choice of color is limited and depends on the size of the sign. At a range of 250 yards, conspicuity is equal for a yellow sign of 14 square feet and a black of 36 square feet. There are therefore disadvantages in using a dark background on small signs. White signs can produce halation. Sometimes two dark colours must be combined but a white border can be inserted. Retro-reflective materials have helped at night since they depend on headlights and do not have to be lit. Dot matrix signs can tell the motorist everything but wrong choice of colour contrast, background and lighting can be disastrous. It has been estimated that many thousands of pounds are lost each year as a result of accidents caused by poor recognition of signs. The need to produce the best signs possible has strong economic motivation.

A third paper was presented by Peter Boyce of the Electricity Council, dealing with the relevance of colour to security lighting. He said that the objectives of security lighting were to deter miscreants and to reveal any nefarious activities that might be occurring. There is some controversy regarding the importance of the colour of the light source for this type of lighting and he described an experiment to investigate the point. This had recently been carried out on a moonless night when the illuminance was less than 0.1 lux. The test area was a field 100 m long and 50 m wide which was dark since there was no street lighting nearby. It could be lit by luminaries mounted on four towers. A group of 20 observers sat at one end of the field looking towards bushes at the far end of the field. In between there were a number of 2 m x 2 m obstacles located on three arcs of different radii from the viewing position. Four intruders wearing dark clothing, hats and gloves started one at a time from the far end walking along the centre line and the observers had to press a button when they first detected the intruder and again when they recognised who it was. In a second trial the intruders were masked and could move in any way to avoid detection. The times from the start to detection and recognition were noted. The trials were done in darkness and under low (LPS) and high (HPS) pressure sodium lighting. For detection of intruders, there was not

much difference between the results for the different lighting but recognition was slightly better under the HPS lamps. The intruder naturally thought that darkness was best but also considered that the HPS lamps were worse for them than the LPS ones. This might be due to the higher brightness of the HPS lamps. In conclusion, Dr. Boyce said that for the detection and recognition of intruders there was not much to be gained from HPS lamps unless colour was part of the identification as could be the case in checking passes or recognizing uniforms.

The following is copied directly from *The CAUS Newsletter*, February 15, 1988, published by the Color Association of the United States.

#### **"COLOR IN INDUSTRIAL ENVIRONMENTS"**

In March, at the 30th anniversary celebration of Int'l. Assn. of Colour Consultants, held in Geneva, V.P. Frank H. Mahnke will speak on Color to a European gathering of IACC presidents. Following is a digest of color studies in industrial environments which will be of interest to many Newsletter readers.

In view of the human organism's response to color both on a psychological and physiological basis, the color design of industrial plants must be approached from objective and functional viewpoints. Taking for granted that correct and adequate lighting exists, the objective must be to create environmental conditions — achieved through the use of color — that will counteract premature fatigue, reduce stress, improve visual perception (thereby safeguarding the eyes), minimize possible worker errors, and effectively aid orientation and safety.

Attempting to cover all types of industries with a standard set of color recommendations would be too simplistic. The nature of the work performed, character of material or products produced, equipment used, the type of lighting installed and the dimensions of the plant area are all involved. Nevertheless, there are common denominators for all industrial environments.

Man is subjected to many kinds of stimulation, including information from the visual field, ranging from sensory deprivation on one extreme to sensory overload on the other. Basically, the interior environment must not be overstimulated. Studies show that extreme understimulation (monotony) can lead to symptoms of restlessness, excessive emotional response, concentration difficulties, irritation, and other reactions. Surroundings devoid of a reasonable amount of color variety are objectionable. An unvarying single color such as beige, white, green, gray or tan — will lose impact or novelty after a short time and become monotonous.

On the other hand, exposure to over-stimulation can cause changes in pulse rate and blood pressure. Increase muscle tension, and may compound medical consequences such as coronary disease and ulcers.

# Inter-Society Color Council

57th Annual Meeting  
May 8-10, 1988  
Sheraton Inner Harbour Hotel, Baltimore, Maryland  
Chairman: W. Nick Hale

This year's meeting will include a symposium co-sponsored by the Society for Information Display (SID). Additionally, the newly established ISCC Interest Groups will present short programs of special interest in their respective fields. The Sheraton is located on the historic waterfront in downtown Baltimore with easy access to the restored area.

## Technical Program: Meetings and Poster Sessions

- Project Committees - Seven study groups developing new information on various color problems: Colorants, Art, Color Science and Technology
- Interest Groups - Four discussion groups on Colorimetry, Appearance, Vision, Design, Psychology and Education
- Poster Papers - Contributed papers informally presented with poster visual aids. An opportunity to chat with the authors
- Symposium - CRT to Hard Copy in Color: Fifteen invited papers on hard copy technology, CRT technology and going from CRT to hard copy. Co-sponsored by the Society for Information Display.

## Social Events: Formal and informal get-togethers with your fellow colorists

- Newcomers Meeting - May 8, 5:00 - 5:30 pm, Sheraton
- Wine-and-Cheese Reception - May 8, 6:00 - 8:00 pm, Sheraton
- Business and Awards Luncheon - May 9, 11:30 am - 1:30 pm, Sheraton
- National Aquarium - May 9, 7:00 - 11:00 pm - Cocktail Hour, Banquet, Private Tour of the world-class facilities.

## Transportation:

A limousine service is available from Baltimore-Washington International Airport to area hotels, including the Sheraton Inner Harbor Hotel. If you drive, take the Conway Street exit from I-395 North. Parking is available at the hotel.

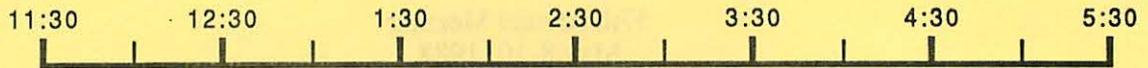
## Accommodation:

Sheraton Inner Harbor Hotel  
300 South Charles Street  
Baltimore, MD 21201  
(301) 962-8300

For the guaranteed rate (\$105 single, \$120 double) reservations must be made by April 4, 1988.

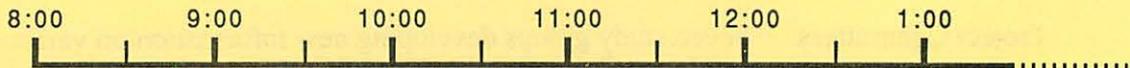
# PROJECT COMMITTEES, INTEREST GROUPS AND POSTER SESSIONS

Sunday, May 8



*	PC & IG Chairmen	Poster Sessions: Authors not present	.....	present
		IG II: App., Vis. & Mod.	IG I: Meas. & Colorim.	
*	Member-Body Chairmen	IG III: Art, Des, Psych	# 4 5 : Phys. Res. Col.	Newcomers
		# 2 2 : Mat Instr Calib	# 3 7 : Artists Mat.	

Monday, May 9



Poster Sessions: Authors not present	.....	pres	Business and Awards Luncheon	ISCC/SID Symposium
	IG IV: Color Education			
	IG III: (cont) Art, Design, Psych. of Color			
# 2 5 : Str. Col.-Fib.	# 3 2 : Image Tech.			
# 2 7 : Ind. of Met.	# 4 4 : Reg. Rhom. UCS			

**Interest Groups (see page 4 for program):**

**IG I: Measurement and Colorimetry**, Roy Berns, Danny Rich, co-chairpersons.

**IG II: Appearance, Vision and Modeling**, Paula Alessi, Norman Burningham, co-chairpersons.

**IG III: Art, Design and the Psychology of Color**, Wade Thompson, Magenta Yglesias, co-chairpersons.

**IG IV: Color Education**, Nancy Jo Howard, Evelyn Stephens, co-chairpersons.

**Project Committees:**

**#22: Materials for Instrument Calibration**, Danny Rich. Develop techniques and maintain information on materials for calibration in color measurement.

**#25: Strength of Colorants, Fibers**, George Sonn. Development of a test for strength of pigments in spun fiber utilizing a molded plaque.

**#27: Indices of Metamerism**, Hugh Fairman. Development of terminology and mathematical formulas for metamerism and related phenomena; supporting experiments.

**#32: Image Technology**, Paula Alessi. Compile a bibliography ; maintain information on calibration of video displays; experiments for CRT to hard copy color mapping function.

**#37: Artists' Materials and Cotemporary Art**, Hilton Brown. Identify and collect information on artists' materials and techniques related to color.

**#44: Regular Rhombohedral Sampling of Uniform Color Space**, Chuck Reilly. Collect information , identify improvements, define requirements for such systems.

**#45: Physiological Response to Color**, Magenta Yglesias, George Brainard. Develop terminology, conduct experiments to study human physiological and psychological response to color.

ISCC/SID JOINT SYMPOSIUM  
CRT TO HARD COPY IN COLOR

May 9-10, 1988  
Sheraton Inner Harbor Hotel, Baltimore, Maryland  
Program Chairman: Lawrence E. Tannas, Jr.  
Vice-President, Society for Information Display

Monday, May 9

2:00 - 4:30 pm

Hard Copy Technology

Chairman: Lawrence E. Tannas, Jr.

Tannas Electronics

Co-Chairman: Justin J. Rennilson

Advanced Retro Technology

"Problems and Standards"

Warren L. (Dusty) Rhodes

"Color and the Hard Copy Printer"

Ross N. Mills

IBM Corporation

"A Colorimetric Halftoning Algorithm  
for Four-Color Printers"

Peter G. Engeldrum

Imcotek, Inc.

Peter A. Zuber

Colorocs Corp.

BREAK

"Algorithms for Fast Colour Correction"

A. W. Paeth

University of Waterloo

"Color Representation in  
Page Description Languages"

Robert Buckley, Mary Ann Dvonch,

Paul Roetling

Xerox Corporation

Tuesday, May 10

9:00 - 11:30 am

CRT Technology

Chairman: Gerald M. Murch

Tektronix, Inc.

Co-Chairman: William J. Lloyd

Hewlett-Packard Laboratories

"Color and the CRT"

"Characterization of CRT and  
Hard Copy Devices, Theory"

William B. Cowan

National Research Council, Canada

"Characterization of CRT and  
Hard Copy Devices, Instrumentation"

Justin J. Rennilson

Advanced Retro Technology

BREAK

"The Colorimetric Calibration of a CRT Imaging  
System for Color Appearances Research"

Ricardo J. Motta

Hewlett-Packard Laboratories

Roy S. Berns

Rochester Institute of Technology

"An Evaluation of Methods for Producing  
Specific Colors on CRTs"

David I. Post, Christopher S. Calhoun

AAMRL/HEA, Wright-Patterson Air Force Base

Tuesday, May 10

1:30 - 4:00 pm

CRT to Hard Copy

Chairman: Gary K. Starkweather

Xerox PARC

Co-Chairman: Ross N. Mills

IBM Corporation

"A Matrix Color Correction Scheme  
for Color Electronic Printers"

Gary K. Starkweather

Xerox PARC

"Optimizing the Principles of Digital Color  
Reproduction on the Basis of Visual  
Assessment of Reproduced Images"

Pekka Laihanen

Helsinki University of Technology

"Tektronix HVC: A Uniform Perceptual Colour  
System for Display Users"

Joann M. Taylor, Gerald M. Murch, Paul McManus

Tektronix, Inc.

BREAK

"Printing Computer Graphics Imagery"

Maureen C. Stone

Xerox PARC

"CRT to Print - An Empirical Procedure"

Mik Lamming

Xerox PARC

Warren Rhodes

ChromaTech

Speaker Interviews

4:00 - 6:00 pm

## Interest Groups:

**IG I: Measurement and Colorimetry.** Invited papers: "The Optimization of a Research Spectrophotometer for High Accuracy Color Measurements", Joanne Zwinkles, Ph.D. "A Novel Method for Determination of Color Matching Functions using a Visual Colorimeter with Laser Primaries", Mark Fairchild.

**IG II: Appearance, Vision and Modeling.** LeRoy DeMarsh will discuss his modeling work on the color gamuts of both CRTs and film, which includes adjustments for human visual perception. Starting with a historical review, Fred W. Billmeyer, Jr., Ph.D. will describe some problems, pitfalls and challenges associated with quantifying appearance in color reproduction for current imaging systems.

**IG III: Art, Design and the Psychology of Color.** Daniel A. Gorsky, chairman of the painting department of the Maryland Institute of Arts will give a slide presentation: "Color for the Artist: Personal and Teaching" (Sunday session). George C. Brainard, Ph.D. will speak on the psychology of color by graphically discussing the effects of wavelength on the brain hormones and behaviour in animals and humans. Cynthia R. Field, Ph.D. will document the restoration of a room at the Smithsonian designed to stimulate children's interests in the natural world by using exhibits, color stencil work and design.

**IG IV: Color Education.** A panel will discuss color courses, credits and labs now being offered, as shown by a recent questionnaire. Their application to art, science and industrial fields will be considered, along with problem areas that remain.

## *A Special Invitation to Members of SID .....*

Although the joint ISCC/SID Technical Program will not begin until 1:00 pm, Monday, May 9, SID members are welcome to join us for the Sunday afternoon and Monday morning sessions, including the Interest Group and Project Committee meetings, poster sessions, wine-and cheese reception and Monday luncheon. We specially urge you to attend the Monday evening cocktail party and dinner at the National Aquarium at Baltimore, a world-class event. We will have exclusive use of this facility from 7:00 to 11:00 pm and all exhibits will be open for your enjoyment. Note that you can register for specific days and events.

SID is organizing an informal dinner meeting for its Washington, DC area members at the Sheraton Inner Harbor Hotel, 300 S. Charles Street, Baltimore, MD, in Baltimore's Inner Harbor area downtown. Larry Tannas, SID vice-president, will discuss the possibility of reactivation of the Washington, DC chapter of SID, a matter that has been suggested by former members as well as newcomers to this area. All SID members are invited to attend, and non-members interested in information display are also welcome. Make your reservations with Ms. Bettye Burdett by phone (213) 305-1502 or mail (SID Headquarters, 8055 W. Manchester Avenue, Suite 615, Playa del Rey, CA 90293). Dinner will be at 7:00 pm and attendees will meet Larry Tannas at that time in the hotel lobby.

Overexcitation is distracting and will interfere with work tasks. Too much visual pattern, high brightness, and over-strong color can produce negative effects.

(CAUS Ed. note: The coming Newsletter will feature additional Mahnke observations on physiological and psychological effects of color in the industrial environment.)

### R.W.G. HUNT RECEIVES THE 1987 DEANE B. JUDD-AIC AWARD

The 1987 Deane B. Judd-AIC Award has been conferred on Robert W. G. Hunt in recognition of his extensive contributions to the science and technology of colour.

The Award was instituted in 1975 in honour of the memory of the outstanding colour scientist Deane B. Judd. It is awarded biennially by the AIC to recognize and honour persons who have performed work of outstanding merit in colour science. Previous recipients have been Miss Dorothy Nickerson, Professor Dr. William David Wright, Dr. Gunter Wyszecki, Professor Dr. Manfred Richter, Dr. David Lewis MacAdam and Professors Dorothea Jameson and Leo Hurvich.

Dr. Hunt's work on colour negative films, the telecine transfer of film to television, the reproduction of reversal film using graphic art materials, his investigations towards the assessment of colour appearance and the ability of an observer to scale the hue, colourfulness and lightness of a surface colour, using a variety of adaptation conditions, are among the contributions noted here for recognition by the AIC. His professional career at Kodak Research Laboratories spanned a period of more than 35 years during which time he published his book "The Reproduction of Colour," which is seen as a standard text-book by everyone involved in the art and science of reproducing colour using photography, television, or printing. Even after 1982 in retirement he has not been inactive. His book has been updated, and another one written as well and he was President of the AIC from 1982 to 1985 having previously served on the AIC Executive Committee. His contributions to colour reproduction and the assessment of colour appearance, and his contributions to colour standardization in the relevant CIE Committees have earned him admiration and gratitude of colleagues and associates throughout the international colour community. The Executive Committee of the AIC is therefore pleased to honour Dr. Robert W. G. Hunt with the 1987, Deane B. Judd-AIC Award.

The award consists of a gold medal with a portrait of Deane Judd on one side, and on the other side the inscription "To Honour Robert Hunt 1987 for important work in colour science." The President of the AIC, Dr. Heinz Terstiege presented the Award to Dr. Hunt at the AIC Midterm meeting in Florence, Italy on 12 June 1987.

### MORE ON THE MOET-HENNESSY 1988 PRIZE AWARDS: for Appearance of Materials Research

The regulations are being printed and will be mailed to all ISCC members according to Michel Bonnaffe, Research Attache.

Dates and Deadline: The application must be sent to MOET-HENNESSY as soon as possible, and by June 15, 1988 at the latest. The winners will be notified during July 1988.

The public announcement and awards ceremony will take place in Versailles in Autumn 1988, during a meeting at which members of the international scientific, professional and press communities will be present.

Presentation and Content: In their essays and submissions, candidates must file a detailed description of their experiments, including techniques employed, their reproducibility, and their application (maximum 100 pages).

The reports must be written in French or English. Should this be impossible, a very detailed summary (about 5 pages) in one of these languages will be required.

In case of doubt on the relevance of his or her work to the theme of the prize, a candidate could send a summary to MOET-HENNESSY for confirmation.

All correspondence should be addressed to:

MOET-HENNESSY

Direction su developpement

30, Avenue Hoche

75008 PARIS FRANCE

Attention to Mrs. Marie Claude COURAGEOT

### NOTICE

One of the things the ISCC Publications Committee is trying to do this year is to make the NEWSLETTER a more comprehensive clearinghouse for color-related news. The Committee is also anxious to have the Newsletter Calendar carry well in advance the theme designation, place and date of each main or subcommittee meeting, where color is involved.

In order to provide timely notice of meetings in the Calendar, it will be appreciated if you will send the information directly to Mr. Harry K. Hammond, III, Pacific Scientific Inst. Div., 2431 Linden Lane, Silver Spring, MD 20910 as he is the Calendar Editor.

A report of each color-related meeting is desired by the Newsletter Editor as soon after the meeting as possible. Reports can be as brief or as detailed as you desire to make them. They should be submitted double spaced for ease of editing. Send meeting reports to Mrs. Bonnie K. Swenholt, Editor.

Each editor will appreciate receiving information as soon as it is available. *Your* help in providing this information is *vital* to our being able to inform the ISCC membership.

**RECENTLY PUBLISHED ARTICLES OF INTEREST**

None of us has the time to read all the periodicals that may publish articles of interest to those who are involved with color. We would like to list in the ISCC News titles, authors and publications so that you can more readily locate papers of interest that are in periodicals that you may not regularly read. For example:

"Biophysics of Visual Photoreception," Aaron Lewis & Lucian V. Prion, *Physics Today*, Jan. 1988.

"Art, Illusion and the Visual System," Margaret S. Livingston, *Scientific American*, Jan. 1988.

If you find an article in your reading that you think others in related fields would benefit from, please send me the information so that we can include the listing.

The Editor.

**CALENDAR**

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

Harry K. Hammond III  
Pacific Scientific Instrument Division  
2431 Linden Lane  
Silver Spring, Maryland 20910  
(301) 495-7046

1988

**QUALITY EXPO TIME, Apr. 12-14**  
O'Hare Expo Center, Chicago, Illinois. Information: Steven Bernstein, (312) 299-3131.

**ISCC DIRECTOR'S MEETING, May 6-7**  
Sheraton Inner Harbor Hotel, Baltimore, Maryland.

**ISCC ANNUAL MEETING, May 8-10**  
Sheraton Inner Harbor Hotel, Baltimore, Maryland.  
Information: Therese Commerford, (617) 651-5469.

**ASTM COMMITTEE E-12 ON APPEARANCE, May 11-12**  
Sheraton Inner Harbor Hotel, Baltimore, Maryland.  
Information: Robert Morgan, (215) 299-5505.

**AATCC NAT'L TECH COMMITTEE MTGS, May 10-12**  
AATCC Technical Center, Research Triangle Park, North Carolina. Information: Jerry Tew, (919) 549-8141.

**COUNCIL FOR OPTICAL RADIATION MEASUREMENTS (CORM), Annual Meeting, May 18-19**  
National Bureau of Standards, Gaithersburg, Maryland.  
Information: Norbert Johnson, CORM Sec'y, (612) 733-5939.

**SPSE 41st ANNUAL CONFERENCE, May 22-27**  
Hyatt Regency Hotel, Crystal City, Arlington, Virginia.  
Information: Pam Forness, (703) 642-9090.

**SOCIETY FOR INFORMATION DISPLAY, May 23-27**  
International Symposium, Seminar and Exhibition, Disneyland Hotel, Anaheim, California. Information: (213) 305-1502 or (212) 620-3388.

**AMERICAN CHEMICAL SOCIETY, June 5-10**  
195th Spring National Meeting and Third Chemical Congress of North America, Toronto, Canada. Information: (202) 872-4398.

**COLORIMETRY: AN INTENSIVE SHORT COURSE FOR SCIENTISTS AND ENGINEERS, June 6-9 & 13-16**  
Munsell Color Science Laboratory, Rochester Institute of Technology, Rochester, New York. Information: (716) 475-5842.

**INSTITUTE OF FOOD TECHNOLOGISTS, June 19-22**  
Annual Meeting and Food Expo, New Orleans Convention Center, New Orleans, Louisiana. Information: David E. Weber, (312) 782-8424.

**NATIONAL PLASTICS EXPO, June 20-24**  
Society of Plastics Industry, McCormick Place, Chicago, Illinois. Information: Jordan Morgenstern (202) 371-5200.

**ASTM COMMITTEE D-1 ON PAINT, June 26-29**  
Baltimore, Maryland. Information: (215) 299-5543.

**SYMPOSIUM ON PHOTOCHEMISTRY FOR IMAGING, June 26-29**  
Best Western White Bear Country Inn, White Bear Lake, Minneapolis, Minnesota. Information: Pam Forness, (703) 642-9090.

**COLOR: THE EDUCATOR IN ART & DESIGN, June 27-30**  
ISCC-FIT Seminar (Note date change). Fashion Institute of Technology, 227 West 27th Street (at Seventh Ave.), New York, New York 10001. Information: FIT Seminar Dept. (212) 760-7715.

**ASTM COMMITTEE D-20 ON PLASTICS, July 11-14**  
Town and Country Hotel, San Diego, California. Information: Robert Morgan, (215) 299-5505.

**ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA, Aug. 7-11**  
Annual Conference, Minneapolis Marriot Hotel, Minneapolis, Minnesota. Information: Diane Darrow, (212) 705-7269.

**AIC MID-TERM MEETING, Aug. 8-11**  
Color in Environmental Design, Winterthur Polytechnic; Winterthur, Switzerland. Information: Prof. Werner Spillman, Dept. of Architecture, 8401 Winterthur, Switzerland.

**AMERICAN PSYCHOLOGICAL ASSOCIATION, 96th ANNUAL CONVENTION, Aug. 12-16**  
Atlanta, Georgia. Information: (202) 955-7705.

**AMERICAN SOCIETY FOR PHOTOGRAMMETRY & REMOTE SENSING, Sept. 12-16**  
Fall Convention, Convention Center, Virginia Beach, Virginia. Information: Mary Buit, (703) 534-6617.

**AATCC 88 INT'L CONF. & EXHIBIT, Sept. 38-Oct. 1**  
Opryland Hotel, Nashville, Tennessee. Information: Jerry Tew, (919) 549-8141.

**SOCIETY FOR INFORMATION DISPLAY, Oct. 4-6**  
International Display Research Conference (IDRC), Hyatt Islandia Hotel, San Diego, California. Information: (213) 305-1502 or (212) 620-3388.

**ASTM COMMITTEE D-20 ON PLASTICS, Oct. 10-14**  
Toronto, Canada. Information: Robert Morgan, (215) 299-5505.

**OPTICAL SOCIETY OF AMERICA, ANNUAL MEETING, Oct. 31-Nov. 4**  
Santa Clara Convention Center, Santa Clara, California. Information: (202) 223-0920.

**FEDERATION OF SOCIETIES FOR COATINGS  
TECHNOLOGY, Oct. 19-21**

66th Annual Meeting and 53rd Paint Industries' Show,  
McCormick Place, Chicago, Illinois. Information:  
(215) 545-1507.

**AATC NAT'L TECH COMMITTEE MTGS., Nov. 15-17**

The Doral Inn, New York, New York. Information: Jerry Tew,  
(919)549-8141.

**1989**

**AIC, COLOR 89, Mar. 13-17**

Centro Cultural, General San Martin, Sarmiento 1551, Buenos  
Aires, Argentina. Information: Grupo Argentino del Color,  
Division Optica, INTI, c.c. 157, 1650 San Martin (BA),  
Argentina.

**OPTICS 89: OSA ANNUAL MEETING, Oct. 15-20**

Orlando, Florida. Information: OSA, 1816 Jefferson Place,  
N.W., Washington, D.C. 20036, (202) 223-0920.

Send materials for publication to:

Mrs. Bonnie K. Swenholt  
5717 Gulick Road  
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(716) 229-5925

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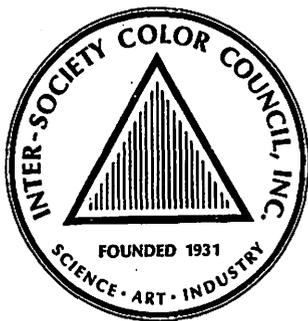
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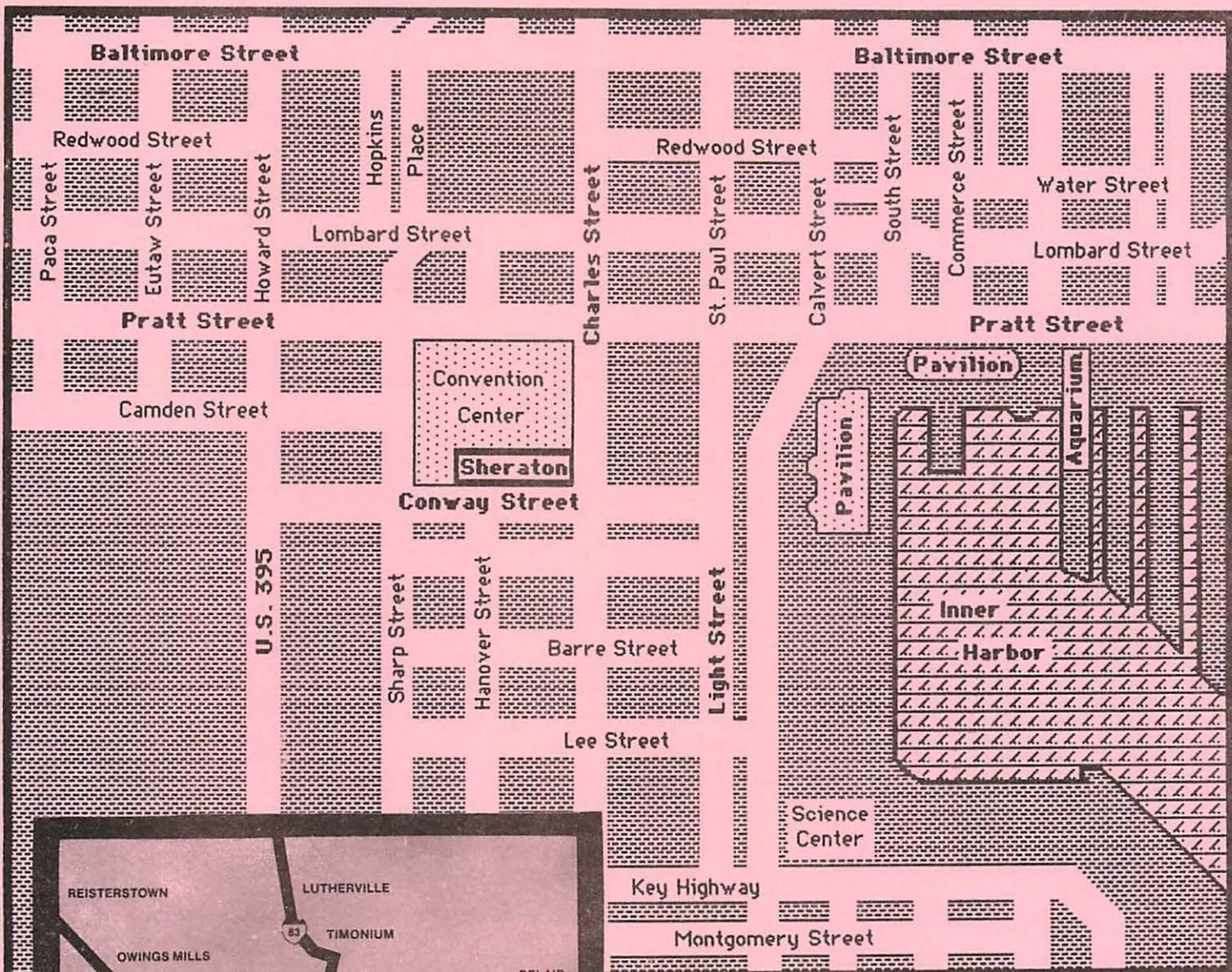
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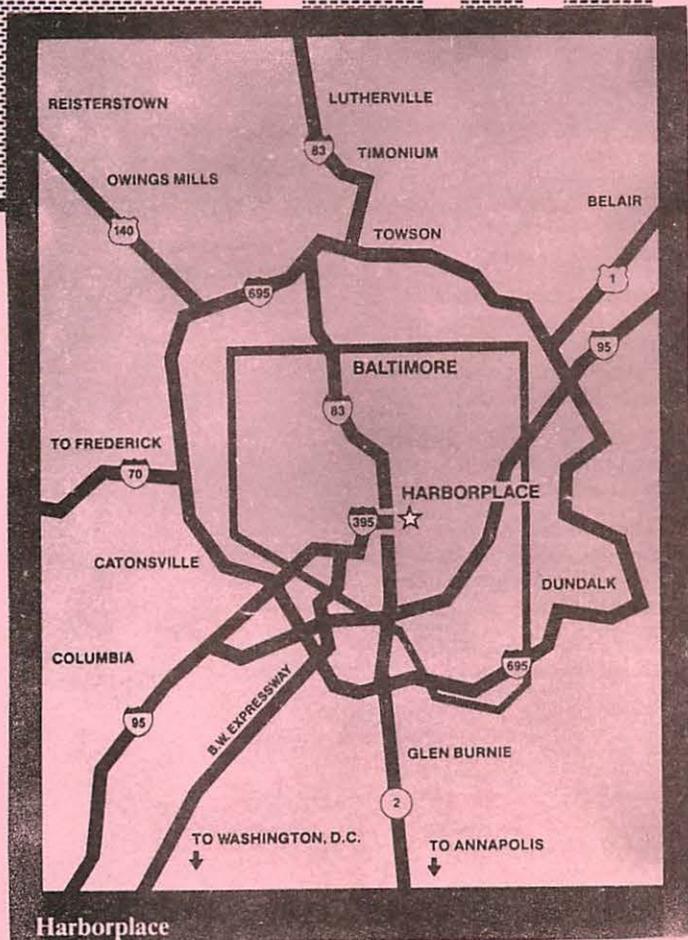




**Pavilions - shops and restaurants**

**Sheraton Inner Harbor Hotel  
300 South Charles Street**

**ISCC Annual Meeting  
Baltimore, Maryland**



**Harborplace**

# INTER-SOCIETY COLOR COUNCIL

## REGISTRATION FORM - 1988 ANNUAL MEETING

(One name per registration form - please copy this if you need more.)

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Telephone (W) \_\_\_\_\_ (H) \_\_\_\_\_

Is this the first ISCC Annual Meeting you have attended? Y N

ISCC Membership Status:    IMG                    Guest                    Other                    SID Member  
                                  IMGR                    IMGS                    HON  
                                  ISCC Appointed Delegate from \_\_\_\_\_ (Member-Body)

### Registration

		Amount Enclosed
Registration fee	140.00	_____
(includes conference, business lunch, banquet*, wine and cheese reception)		
Late Registration Fee (received after April 25)	15.00	_____
Special Student Registration (conference, wine and cheese)	35.00	_____
Single Event Fees		
Registration Sunday	25.00	_____
Registration Monday	25.00	_____
Registration Tuesday	25.00	_____
Lunch Monday	25.00	_____
Banquet Monday Evening*	40.00	_____
	TOTAL	_____

To guarantee participation, reservations must be received by April 25, 1988. Tickets are to be picked up at the registration table - no confirmations will be mailed. Make checks payable to ISCC and return them to the Arrangements Chairman:

Norman W. Burningham  
357 True Hickory Drive  
Rochester, NY 14615  
Phone: (716) 477-7466

For information, call: Nick Hale (301) 472-4850

**Note:** Hotel reservations should be made directly to the Sheraton Inner Harbor Hotel, 300 South Charles Street, Baltimore, MD, 21201, (301) 962-8300. Guaranteed reservations at the special rate (\$105 per night per room single occupancy, \$120 per night per room double occupancy) must be made by April 4, 1988.

\* There will be a cash bar prior to the Monday evening banquet. The Banquet registration will be limited to 125 persons.