

Inter-Society Color Council *News*

Number 340

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ABOUT THE INDIVIDUAL MEMBER GROUP

Have you joined the largest group in the Inter-Society Color Council (ISCC), and are you making your voice heard?

When an individual fills out a membership application and joins the ISCC, he or she becomes a member of a unique group known as the "individual member group (IMG)." The IMG represents you, the individual and all those things that brought you to join the ISCC. This group has a special position in the ISCC, but to understand what is so special and why, it is necessary to know about the origins and structure of the ISCC.

I will quote from "The Story of the Inter-Society Color Council" which was written by W. J. Kiernan in 1964 and appeared in the ISCC newsletter that year. "The Inter-Society Color Council had its beginnings in a "color conference" held in Washington, May 14, 1930. This color conference was called by Prof. E. N. Gathercoal of the University of Illinois College of Pharmacy in connection with the decennial meeting of the National Formulary 1929 Revision Committee of the U.S. Pharmacopoeia. This committee needed help in the selection of color names for describing drugs and drug products in the U.S. Pharmacopoeia. This "color conference" aroused so much interest that the Executive Committee of the

Optical Society of America adopted a resolution on October 30, 1930 that "the need for better organization of those interested in the description or specification of color which found expression at the color conference can be met by the formulation of a joint council consisting of officially designated representatives of the several national societies and associations interested in the description and specification of color."

Thus the ISCC was conceived to join delegates from national organizations that had common interests in and problems with color. In a preliminary organizational meeting in February 1931 the resolution of the principle of membership was passed. "Resolved: It is the sense of the meeting that an Inter-Society Color Council be formed composed of delegates from national societies and associations interested in the standardization, description and specification of color." At the first ISCC meeting on September 21, 1931 the membership provisions were expanded to include individuals vitally interested in the activities of the Council who may not be designated as delegates by the affiliated societies or associations.

From the beginning individuals were included in the council and its activities. They could be officers, board members, committee or problem chairmen, workers, but they did not have voting representation like the organizational delegations. Each organizational delegation was allowed three voting members. In order to give the individual members the voting privilege, the individual member group was formed in April of 1989, and since then has the right to select voting delegates as the other organizations do.

In the current by-laws it states that the IMG shall elect a delegation of at least three but not more than ten members, and shall elect from among these three voting delegates one of whom shall be elected chair. The elections shall take place each year at a meeting of the members of the IMG, called by the Chair of the IMG Delegation at a time during the annual meeting of the Council. Those members of the IMG present at the meeting shall form a quorum for the voting. The voting delegates serve for terms of three years, with one term expiring each year. Thus there is a mechanism for continual change and update in the individual member group. The IMG delegates are there to serve as a liaison from individual members to the Board. The IMG delegates encourage the participation of individual members in the activities of the Council, evaluate the effectiveness of current Council programs in meeting the needs of the IMG and encourage the IMG to submit items of note for publication in the newsletter.

The IMG is unique among the other organizations in that it must have a meeting during the annual meeting. ALL INDIVIDUAL MEMBERS ARE STRONGLY ENCOURAGED TO ATTEND THAT MEETING AND PARTICIPATE IN THE ISCC. Dr. Paul H. Hoffenberg became the chair of the IMG in June 1992. He may be contacted at Datacolor International, P. O. Box 5800, Princeton, NJ 08543; telephone 609-895-7441; fax 609 896-3809.

Dr. Ellen Carter

PRESIDENT'S COLUMN

It is my pleasure to take this opportunity to address the ISCC constituency as I begin my first year as President. I wish to extend my personal thanks to the following standing committee chairs, who have graciously agreed to continue to serve under my administration:

Mr. Hugh Fairman, AIC Liaison
 Ms. Lynn Bement, 1993 Arrangements Chair
 Dr. Romesh Kumar, 1994 Arrangements Chair
 Dr. Stephen F. Bergen, Awards and Speaker's Bureau Chair
 Dr. Fred W. Billmeyer, Jr., By-Laws Chair
 Dr. David Alman, CR&A Liaison
 Mr. Philip Hunter, Finance Chair
 Dr. Joann Taylor, Member-Body Liaison
 Dr. Norman Burningham, Photographer
 Mr. Louis Graham, Planning Chair
 Mr. Michael Hammel, Publications
 Dr. Ellen Carter, Publicity
 Dr. Joel Pokorny, 1994 Macbeth Awards Chair
 Dr. Romesh Kumar, 1993 Annual Meeting Chair

Next I wish to acknowledge the loyal long-standing service of the following standing committee chairs, who can no longer continue to serve and thank those individuals who have agreed to begin new terms serving as their replacements:

Mr. Don Woeffel will be replaced by Dr. Paul Hoffenberg as IMG Liaison.

Mr. Roland Connelly will be replaced by Mr. Richard Harold as Interest Group Coordinator.

Mr. Nick Hale will be replaced by Ms. Ann Laidlaw as Membership Chair.

I will be replaced by Mr. Ron Oldchurch as Poster Papers Chair.

Dr. Allan Rodrigues will be replaced by Mr. Hugh Fairman as Problems Committee Chair.

There were two positive responses to my request that appeared in the last Newsletter for interested individuals to serve on the Finance Committee. Many thanks to Mr. Rich Riffel and Mr. Nick Hale for agreeing to serve along with Dr. Allan Rodrigues, Mr. Hugh Fairman as Vice Chair, and Mr. Philip Hunter as Chair on the Finance Committee. We look forward to this committee providing us with a more simplified budgeting process, a more active accounting of ISCC expenses and revenues and a more extensive long-term financial investment plan.

I conducted my first Board of Director's meeting in Rochester, New York on Saturday, October 3rd. I will provide you with a summary of that meeting in the next issue of ISCC News.

In closing, I would like you to know that I have a tremendous amount of enthusiasm to see the ISCC move forward and grow as a prestigious organization that addresses all aspects of color. I welcome your suggestions on any ISCC matters that you feel must be addressed. For the next six months I will be operating out of my home and enjoying my new baby son! Please feel free to contact me at any time. I look forward to hearing from you, the ISCC constituency!

Paula J. Alessi

24 Guinevere Dr., Rochester, NY 14626, Tel: 716-225-4614

EDITOR'S NOTE

I have noticed that some of the Chair persons send printed information, after typing the information into a computer. It would be greatly appreciated if they could make a copy of the file onto a diskette (in almost any format DOS or MAC) and send it along with the type written copy.

Thank you!

CORRECTION:

Please note that W.D. Wrights' AIC 25th Anniversary Remarks were submitted by Dr. Billmeyer. The remarks were those of Dr. Wright.

NEW ISCC DUES STRUCTURE

For the coming year, beginning January 1, 1993 the ISCC has modified its dues structure. This has become necessary for two reasons. Costs of operations, like the newsletter and conferences continue to increase. This is partly due to inflation, but also to the improvement in the quality of the newsletter and of the conferences. The second reason is that the council will be expanding its activities and will be opening an office with a permanent staff person. This will allow the council to much better coordinate its many activities and to better serve the color community.

The new annual dues structure is as follows: (* indicates increase)

Individual Member	\$ 45.00 *
Student Member	\$ 10.00
Member Body	\$100.00
Sustaining Member	\$500.00 *
Retired	\$ 10.00
Library Subscriptions	\$ 60.00 *
Overseas Member	\$ 65.00 *

LETTERS TO THE EDITOR

Correction: Alex Styne -Obituary ISCC News #338

Harry Hammond III, unfortunately has been misinformed about the origin of Problem 13 as noted in the Styne write-up.

The best record of Problem 13 appears on page 65 of the 1988-89 ISCC Membership directory. To this I would add that the original objective was to develop more research into how people respond to the color of mass produced, people oriented products and architectural products and building materials.

Actually, I was the creator and founder of Problem 13, along with Art Becvar, Director of Product Design for the General Electric Appliance Divisions. We represented a desire among designers to learn more about how people responded to the color of objects in homes and the marketplace.

For the first four years I chaired the Committee with Alex, the most active member. For several years, at the annual meetings, I gave a paper on current color trends on hard goods products. The color use was defined by members of what is now IDSA and AIA.

After about 1980, Alex became chairman and the color research emphasis turned to room color and lighting - Alex's pet subjects and mostly institutional.

AIA lost interest in our program and ISCC, since it no longer dealt with building material colors as they wished, so they dropped out. Unfortunately, the IDSA board also felt the same way and has since dropped out of ISCC.

Of interest is that Faber Birren, a close friend and often associate to me as I was to him, asked if I minded his adopting my Problem 13 title "Human Response to Color" (the original name) in reverse to "Color and Human Response. Of course I agreed. So the name lives on.

So between the sketched in information and information from page 65, you might fashion a correction of the early ISCC Alex Styne relationship to Problem #33. Alex was a good chairman and a hard worker.

Thank you.

Raymond Spilman
Raymond Spilman Industrial Design
One Althea Lane
Darien, CT 06820
203/655-6969

Green Vegetables

The note on the colour of green vegetables included in ISCC News 339 may have misled some of your kitchen orientated readers. "Green vegetables will, upon the first blast of heat, in fact get greener....". This will certainly be the case on steam or water cooking, but not on microwave or convection oven cooking. "... (what is being seen is more chlorophyll as the gases initially escape);...". What is being seen is not caused by the escape of gases' but by their replacement with water. The refractive index of water is closer than that of the gas to the refractive index of the vegetable. Hence, when water is present in the interstices of the vegetable, less light scattering occurs, the incident light has more chance to become selectively absorbed, and the presence of the chlorophyll can be more readily appreciated. There is no water available to replace the gas in microwave and convection oven cooking, and vegetables thus cooked become less rather than more green.

During all these cook methods a considerable amount of chlorophyll is destroyed, as noted in your piece. Chinese stir-fry cooking in a little oil destroys less of the pigment than any of the above methods, a bright green colour resulting.

One dilemma for the home cook when boiling greens is, should the lid be on or off the saucepan during the cooking? Certainly to retain maximum greenness, green vegetables should be plunged into a large volume of already boiling salted water. There are those who advocate keeping the lid on the pan during cooking to reduce the cook time and retain the vitamins. Unfortunately, this encourages dissolved acids to remain in solution and hastens colour degradation. Conversely, encouraging the volatile organic acids to evaporate by leaving the lid off will increase the time needed to return the water to boiling point, and hence result in more colour degradation. However, in practice the lid off method tends to lead to a more desirable colour. Whatever the cooking route chosen, the cook should bear in mind the advice given in the Finchley Manual for the Training of Servants published in 1800.

"Q. How do you boil peas? A. Briskly, ma'am."

Yours sincerely,
John Hutchings,

Author of *Food Colour and Appearance*, to be published by Elsevier Applied Science in early 1993.

NEW MEMBERS

We are pleased to list the latest members to the ISCC. Welcome!

Mr. David R. Battle
Datacolor International
5 Princess Road
Lawrenceville NJ 08648 USA

Ms. Elvira L. Doman
Tupperware International Technology
102 Park Place
Kissimmee FL 34741 USA

Mr. Daniel Fusting
Compaq Computer Corporation
20555 SH249 M130603
Houston TX 77070 USA

Ms. Susan E. Vollrath
Monsanto Company
730 Worcester Street
Springfield MA 01151 USA

Dr. Joanne C. Zwinkels
National Research Council
Photometry & Radiometry
Montreal Road
Ottawa ON K1A 0R6 Canada

REALIGNMENT OF INTEREST GROUPS

At its October meeting, the ISCC board of directors adopted a modification in the structure of the interest groups. This step was taken as a result of a review of how well the current interest group's scopes were meeting the needs of the membership of the council. This review process had been planned when the interest groups were first formed in 1988. The purpose of these groups is to provide a mechanism through which members with similar interest and needs can share ideas and to provide a forum for discussion on current topics. These groups allow for a continuum of directed activity within the ISCC while at the same time not diminishing the larger function of the council of providing a means for

interaction of people from all areas of color interest, ie: Art, Science, and Industry. The officers and directors of the council feel that this new alignment will provide a more fertile environment for advancement of the art and science of color

The present interest groups are:

- I. Measurement and Colorimetry
- II. Appearance Vision and Modeling
- III. Art, Design, and Psychology
- IV. Color Education

These have been replaced by:

- I. Fundamental and Applied Color Research
- II. Industrial Application of Color
- III. Art, Design, and Psychology

Interest group IV, Color Education, has been removed as an interest group in favor of creating a new standing committee on color education. This realignment was made because color education spans all groups within the color

community and it was felt that the cause of promoting quality color education, both for educators and the general population would be better served in this manner. To insure continued support of all areas in the council for color education, the vice-chairpersons of each of the three new interest groups will serve on the education committee.

Interest group I, Fundamental and Applied Color Research, will provide the framework for scientists of all disciplines to develop and share ideas and research that are basic to our better understanding of color. For example, this could include such areas as color vision models, color design theory, and research into instrumental color and appearance characterizations. This group will primarily focus on research as opposed to the application of color theories to our daily lives.

Interest group II, Industrial Application of Color, will focus on the area of applying the current color knowledge to industrial applications. In the industrial community, there is both a tremendous reservoir of knowledge as well as a huge void on the subject of how to properly apply the color science that we have. This group will work on pulling in that knowledge and disseminating it to areas where it is needed.

Interest group III, Art, Design, and Psychology, will provide a mechanism for those that deal with color as it touches and contributes to the enjoyment of life as well as the improved functionality and efficiency of living. As the group's name indicates, it covers a huge arena of application and appreciation of color.

Roland L. Connelly

OBITUARY:

MS. KRYSZYNA DOBROWOLSKA

Krystyna J. Dobrowolska died in Rock Hill, SC, August 9, 1992, after a long struggle with cancer. A native of Poland, she had worked as an Engineer in her native country, on quality control in the government inspection of coal mines. Krystyna came to the United States around 1970 and joined The Rensselaer Color Measurement Laboratory, where she received the M. Sc. degree in color science in 1973. She then joined the Verona Dyestuff Division of Mobay Chemical Corp. (now the Organic Products Division of Miles, Inc.). There she worked under the tutelage of Rolf G. Kuehni. She retired as Supervisor of the Color Laboratory at Mobay in 1989.

Krystyna's M. Sc. thesis, titled "Effect of Some Factors on the Visual Scaling of Color Differences," led to a paper presented at AIC Color 77 and published as "Small and Moderate Color Differences III. Effect of Some Variables on Visual Scaling," by Krystyna J. Dobrowolska and Fred W. Billmeyer, Jr., in the Conference Proceedings, Color 77, pp. 495-498 (Adam Hilger, Bristol, 1978).

Fred W. Billmeyer

REPORT FROM INTEREST GROUP III

The Special Interest Group for Art, Design and Psychology of the ISCC presented a provocative program entitled **COLOR CONVERSATIONS**. The research scientists and designers on the panel engaged in conversation addressing the need to exchange information and the need to develop a format for continued conversation.

How can the scientist and the designer specifying light and color join forces, not only to talk to each other, but to awaken all those in the position of specification for low income housing, senior centers, day-care centers, emergency rooms, community centers, and classrooms? Can we inform designers, architects, entrepreneurs and those entrusted, for example, with rebuilding the riot torn areas of L.A., that we have the information and the skills to create human environments conducive to positive human behavior and feelings of wellness?

Consider Disneyworld! High dollar return environments like family theme parks, shopping malls and gambling casinos use light source and color in effective and powerful installations. Visitors actually spend more time, and therefore more money, because they are **MADE** to feel good as a result of the professionally specified use of light, color and design. Color marketing groups in fashion and package design certainly know which colors sell specific products most successfully.

The distinguished panelists of the **COLOR CONVERSATIONS** session explored, from their own disciplines and point of view, the three following questions: 1. What would you consider the best format for presenting color research and disseminating the results to the practitioners in art, design and psychology? 2. What is the singular and largest gap today in communication between the research conclusions available and the end user. Where should the practitioner go for correct color information? 3. What do you see as the most important future studies in

HUNTERLAB CELEBRATES 40TH ANNIVERSARY

The following excerpt is from an announcement published October 1, 1952 by Richard S. Hunter:

"On August 1, I left my position as Chief Optical Engineer with the Henry A. Gardner Laboratory of Bethesda, Md. to form a development, testing and consulting group devoted exclusively to appearance and related optical properties of materials... It is planned to call this new service organization in which I will be joined by several friends the "Hunter Associates Laboratory" or HUNTERLAB for short."

A wonderful open house celebration was held on October 13, 1992 which included all associates and their families, many respected community leaders, customers and friends. The Lab was festooned, there were food stations on every floor and the champagne punch flowed. But by far the most rewarding display was that of some of the early instruments which have been restored and soon will be at the Smithsonian Institution!

color use for our human environment?

CHRISTINA M. BURTON, Allied Member, ASID, Co-chair for **COLOR CONVERSATIONS**, opened the session with a welcome to all and a tribute to remember our colleague Alexander F. Styne. Ms. Burton is an interior designer and her research work includes color in education, color and light in health care facilities and post-occupancy evaluations. Ms. Burton stated that color for health care facilities cannot be specified in a set color palette, as is often suggested in publications, but must be analyzed for user needs, function, size, light source, etc. International presentations at AIC congresses of current installations in health care facilities was noted as an excellent means of disseminating research results and reaching a broad audience of professionals in color for designing our environments. Ms. Burton authored and presented a survey to be completed by those in attendance. The results of this survey will be published in an article by Christina and will provide a data base for color research issues. This will be a concrete mechanism for asking, listening and telling among the practitioners and the scientists in color.

MAGENTA YGLESIAS, ASID, Co-chair for **COLOR CONVERSATIONS** was the second speaker and moderator of the Panel. Ms. Yglesias is an interior designer and color consultant and she addressed the three questions with a less hard-line approach. Ms. Yglesias is currently working on two books dealing with color awareness: the first, a short illustrated book of ten "Color Essays"- and the second, a child's book of basic color theory, "The Little Lost Rainbow Drop!". Ms. Yglesias' approach to the three questions was altruistic in that each person in attendance was challenged to develop the mission of enhancing life by using color and light to their best advantage at every opportunity in all professional and personal environments.

WADE THOMPSON is an artist and Professor of Art and Design at Southwest Missouri State University. His work in color revolves around abstract acrylic canvases dealing with multi-layered, translucent surfaces and expressionist brushstrokes. Professor Thompson recognizes both a need and an opportunity in the United States to bring art into our public spaces, not only in objects but in environments. His

presentation of color research is apparent in his canvases which are constructed and developed over periods of time. Professor Thompson felt the greatest problem which exists within the relationship of the fine artist and the technical specialist of color is one of language. Admittedly, the typical fine artist often has little interest or desire to become acquainted or familiar with the realm of the scientist, nor the scientist with the realm of the visual. He suggested the development of a common language which would encompass both visual and verbal forms presented in a format easily accessible to fine artists. Thompson felt as fine artists continue to become more involved in less traditional media and materials, the possible contributions of the technical specialists in color to the visual arts will increase dramatically. The important information which the color scientist can make available to the artist should be presented more often within a visual format.

MICHAEL BRILL, Ph.D. has distinguished himself with his research resulting in a model of human color vision based on a retina in which spatio temporal resolution decreases at low light levels to average out quantum noise. Dr. Brill has published many articles on color constancy. However, this critical research was conducted Pre-LV, or before Dr. Brill went to Mesquite, a far flung suburb of LAS VEGAS! The "standard observer" was tested to the true metal in this environment. He found that the degree of difficulty required to seek proper exit was insurmountable, resulting in more time spent on the gambling floor. That floor was carpeted with a vibrant red and green floral pattern, which climbed a foot or two up each wall and gave way only to mirrors covering the upper walls and ceilings. Add to this, the same floral pattern on the skirts of the hostesses, large potted plants obscuring things like corners and darkened exit signs, and bright flashing lights from the ubiquitous slot machines. The result was an infinite Rousseau jungle or perhaps the inside of an infinite video game). Dr. Brill described the phantasmagoria

of his color and design experience to the great amusement of all attending the session. Las Vegas sets the standard as an example of color science, color theory and color use reaching the everyday person for a limited, but hi-impact response.

GEORGE BRAINARD, Ph.D. of the Thomas Jefferson Medical Center, brought the attendees up to date with his current work involving the architectural lighting for optimum biological stimulation and health effects. This critical work in the use of lighting will impact the lives of shift workers, for example, or anyone working out of sync with their biological clocks. This population is increasing daily in our ever more technical environments. Dr. Brainard's research in this project, as well as, his work addressing Seasonal Affective Disorder (winter depression) and Response to Wavelengths of Light in Normal Humans will have far-reaching benefits and will provide indispensable data for the specifiers of light and color use in installations. Long range applications include the lighting specifications of space shuttles and space stations.

LOUIS GRAHAM, consultant, former ISCC President and first CMG President, presented recently completed color measurements of swatches from various editions of the famous Luscher Psychological Color Test. Mr. Graham illustrated with spectrophotometric curves how the Luscher colors vary well beyond commercial tolerances from edition to edition. Thus, it seems appropriate that much of the existing data dealing with the psychology of color and human response must be carefully re-considered and evaluated in light of the new data available dealing with vision and methods of testing color vision skills. Expected color response of humans and the actual physiological response need to be discussed further and researched from a new and different direction based on recent research results. Lou gently suggested, with a great deal of Southern charm, that those espousing bonafide human color response hold themselves to a stricter task.

Dr. LEONARD OBERASCHER, a Psychologist and Design Consultant from Salzburg, Austria directed the Session's attention to the form, surface qualities, texture and color of products.

From the point of view of marketing, to arrive at a satisfactory design solution, it is essential even in the stage of product planning to be clearly aware of the rule of color and where the priorities lie. All too frequently decisions concerning colors are taken when the circumstances are unclear, or when contradictory demands are made concerning color.

Dr. Oberascher illustrated his presentation, in part, with slides of a lawn mower in gray, black and silver, red and a very fetching model in orchid and turquoise. Color is probably the most efficient tool of product marketing because it acts as a powerful "visual code" on consumers perception of a product, telling him much about its "style", "modernness" and "value". The success of product innovation and segmentation strategies depends much on the reliability of the anticipation of new color trends.

Presumably on the basis of the consumer topologies suggested in the study "Wohnwelten in Deutschland" by the SINUS-Institute (Germany), a new research-paradigm on color preferences according to different consumer types could be developed.

The central idea of this study is that the predominant motives and needs of furnishing, as well as the style of living, are a consequence of the typical ideas and moral values of the "social milieu", and therefore can be interpreted against the background of the "social milieu classification".

Not until we interpret life style and life motives against the background of day to day aesthetic ideas, can we achieve a clear picture about what sort of demands a piece of furniture, for instance, has to fulfill, in order to satisfy the requirements of a specific milieu. We can assume that a color concept if only accepted by a certain target group (or milieu) will correspond to their milieu-specific needs and aesthetic ideas.

BILL THORNTON, Ph.D. brought 30 years of experience working with lamps and lamplight to the Session. Dr. Thornton has recently published in *COLOR RESEARCH AND APPLICATION* the results of his current work in human vision asking the question, "Why COLORIMETRY disagrees so badly with what humans see?"

The three hour *COLOR CONVERSATIONS* was very active with a great deal of information presented and thoughtful and stimulating questions asked. As a result of schedule limitations, Dr. Thornton did not have sufficient time to present his views on the three questions that were presented for consideration. The Co-chairs believe that Dr. Thornton's prepared remarks, if time had permitted, would have summarized emphatically for the Attendees the questions and challenges ahead for all whose life's work is *COLOR*.

BILL THORNTON "... I have spent the last three years completing a 20-year study of colorimetry, putting numbers on the colors and brightnesses we see, which, of course, is psychophysics.

The context for today's *CONVERSATIONS* seems to involve: 1. Clients, and their demands on illuminated and colored spaces; 2. Designers, Artists,

Specifiers, and; 3. Color Scientists. All of these participants are *OBSERVERS*. All use the grand complexity of human color vision, in ways that are both very different, and yet common to us all. All of these people — not least the Clients — carry out color research. All arrive at some understanding of color. and yet, speak and think of color in terms that are by no means universal, or even intelligible, to the others.

The three issues we are asked to discuss today raise the concerns of: presenting color-research; disseminating the results: communicating to the user; informing the specifier, and then, furthering color studies.

The view that I would like to promote in answering these questions is that all of these needs... are best fulfilled

NOTE: There were a few lines dropped from the printing of the Colour Group's schedule last issue.

COLOUR GROUP (GREAT BRITAIN)

The 1993 Newton Medal will be awarded to Professor Semir Zeki, F.R.S. The Newton Lecture and dinner will be held on February 3, 1993 at the Royal Society.

The Colour Group announces their 1992-93 meeting schedule.

7 October 2 PM	<i>Colour in Displays and New Technologies</i>	City University
4 November 2 PM	<i>Colour in the History of Art</i>	National Gallery
2 December 10:30 AM	<i>Colour Matching and Prediction</i>	Leeds University
6 January	<i>Colour Deficiencies and Anomalies</i>	City University
3 February	<i>Newton Lecture</i>	Royal Society
3 March 2PM	<i>Colour in Architecture</i>	National Gallery
31 March	<i>Colour in Archeology</i>	Institute of Archeology
19 May	<i>Annual Group Meeting</i>	Cambridge University

VISUALLY. By visual presentations, by visual demonstrations, by showing the results of color research to assemblages of practitioners, by demonstrating the effects of different illuminations on differing arrays of object colors, and decor, and architectural geometries.

Yes, it will be demanding. Yes, it will require much hard work. Yes, it will require solid financial support. But, the results will be seen, with the personal visual systems of the clients, designers, architects, artists, specifiers, color scientists, and the would-be occupants and users of the spaces. 'Seeing is believing'!

We have already tried hard with verbal description and with numerical evaluation. Verbal description runs into gross vocabulary roadblocks. Numerical evaluation is a failure because colorimetry is such a mess. Colorimetry cannot, at present, put numbers on either viewed colors or on viewed brightnesses, and have the numbers agree with what is seen.... Color science

is nowhere near capable, as yet, of describing accurately colors and brightnesses as they are seen.

The obvious temporary expedient is to *SHOW* these things visually, demanding as that may be.

So my answer to issue # 1 is that the best format for presenting and disseminating the results of color research is to demonstrate them visually to practitioners in design and architecture.

My answer to #2 is the same: that visual demonstration is the most effective mode of communication with the specifier and end-user.

My answer to #3 seems to me to be consistent: To improve colorimetry!

This requires unremitting comparison of what is seen visually to what is measured physically. ..."

The *COLOR CONVERSATION* Session concluded, like all good research projects, with some questions and issues answered, but hard work and more questions ahead!

Magenta Yglesias, ASID

NEW CIE COMMITTEE ON TABLES OF SPECTRAL DATA

Technical Committee, TC1-38 Compatibility of Tabular Spectral Data for Computational Purposes, was authorized at the meeting of Division 1 on Vision and Colour, of the International Commission on Illumination (CIE), at Princeton University, on June 19, 1992. The objective of the committee is: "To prepare guidelines for tabulating CIE spectral data to promote compatibility of sets of data for computational purposes, considering such factors as spectral range, spectral interval, band-pass function, truncation, interpolation, extrapolation, and number of digits." These guidelines should make it easier to write computer programs for color calculations and, by specifying parameters of tabulation and computation, lead to unique results of such calculations. The committee will survey needs and prepare a draft of the guidelines for discussion at the meeting of Division 1 in Budapest, in June 1993. The Chairman is C.S. McCamy, Consultant, 54 All Angels Hill Road, Wappinger Falls, NY 12590-1804

*Submitted by C.S. McCamy
via Harry Hammond*

1993 NATIONAL MEDAL OF TECHNOLOGY NOMINATIONS BEING ACCEPTED

The Foundation for the National Technology Medal and the U.S. Department of Commerce are soliciting nominations for the 1993 National Medal of Technology. Applications must be submitted by October 31, 1992. This medal is the highest award presented to American technologists by the President of the United States.

Presented annually, the National Technology Medal is awarded to provide recognition of individuals and companies for their extraordinary contribution to improving the well-being of the United States, either through the development or commercialization of technology or for their contributions to the establishment or improvement of a technologically trained work force.

Recipients will be honored at the White House during a Presidential award ceremony and in a series of celebratory events. The National Medal of Technology is awarded according to the following basic criteria: technology transfer from public organizations, promotion of advanced manufacturing technology, companies best embodying technology management principles, general product and process innovations, and strengthening a technologically competent work force.

Eligibility includes any U.S. citizen, or a group of up to four U.S. citizens who worked on the same project, or any substantially U.S.-owned company.

To receive a nomination form, or if you have any questions regarding the Medal, please contact Ann Woodward, Executive Director of the Foundation, at (415) 951-3369 or Paul Braden, Manager, National Medal of Technology, of the U.S. Department of Commerce, at (202) 377-5572.

1993 DARWIN LECTURE SERIES

The 1993 Darwin Lecture Series has the theme "Colour", and will consist of eight lectures by eminent speakers, on a wide variety of aspects of color. The topics range from physics through physiology and psychology, to nature, and from the artist, through history, to culture and language. Lectures will be given at 5:30 PM on Fridays from January 15 to March 5, 1993 at Darwin College, Cambridge, United Kingdom. All interested in color are welcome. For further information, contact Dr. Trevor Lamb, Darwin College, Cambridge CB2 3EG, United Kingdom; telephone 44 223 33-3856.

15 Jan.	The Artist & Colour	Ms Bridget Riley	Karsten Schubert Gallery
22 Jan.	Light & Colour	Prof. Malcolm Longair	Cavendish Lab.
29 Jan.	Colour & Culture	Dr. John Gage	Dept. of Hist. of Art
5 Feb.	Colour Mechanisms of the Eye	Prof. Denis Baylor	Dept. of Neurobiology
12 Feb.	Colour Perception	Dr. John Mollon	Dept of Exp. Psychology
19 Feb.	History of Colour in Art	Mr. David Bomford	National Gallery
26 Feb.	Colour in Nature	Mr. Peter Parks	Image Quest
5 Mar.	Colour in Language	Sir John Lyons	Trinity Hall

NEWS FROM MEMBER BODIES

FABER BIRREN HONORED POSTHUMOUSLY BY COLOR MARKETING GROUP



Long-time ISCC member Faber Birren, who died in 1988, was recently honored by the Color Marketing Group, an ISCC

Member-Body. Faber (as he was known to all) was named a 1992 recipient of the CMG's "Dr. Forrest L. Dimmick Award for Excellence in Color Marketing." The award was presented to Faber's widow Wanda and his two daughters on what would have been Faber's 92nd birthday, September 21, at the CMG's Fall International Conference in Orlando, Florida.

A press release was kindly furnished to this writer by the CMG, but it is brief. In a few lines, Faber is "recognized as the best known and most widely read color authority of our time." Yet, surprisingly, his pioneering work in color marketing is not mentioned. This and other aspects of Faber's long and varied career are summarized in ISCC News No. 318, March/April, 1989, pp. 3-4. In the press release, only one of Faber's books is mentioned (though not even clearly identified as a book): *Color and Human Response*. In ISCC News No. 317, January/February, 1989, pp. 10-11, no less than 10 books by Faber in print at the time of his death are listed, out of a total of 26 books and over 260 articles he wrote.

Forrest L. Dimmick, for whom the CMG award was recently named, was also associated with the ISCC for many years. A professor of psychology at Hobart College from 1925 to 1947, he later joined the U. S. Naval (misnamed Navy in the press release) Research Laboratory in New London, Connecticut, where he spent the remainder of his career. He is incorrectly identified in the press release as "co-chair of the ISCC" who helped develop the first successful color aptitude test. Instead, he was co-chair

of ISCC Project Committee 10, which worked on this subject from 1940 to 1982, producing editions of the test in 1953, 1964, and 1978 (Dimmick died in 1968) that were sold for the ISCC by the FSCT with considerable success. Dr. Dimmick had joined the ISCC in its second year (1933) as a Delegate from the American Psychological Association, was a Counselor 1936-1938, and was Chairman 1938-1940.

Literal reading of the CMG press release suggests that the ISCC was a forerunner of the CMG, but of course this too is inaccurate. The CMG was an outgrowth of ISCC Project Committee 23, Expression of Historical Color Usage, which was active for many years, then was terminated when the CMG was formed and joined the ISCC as a Member-Body in 1964. Dr. Dimmick was also quite active in the CMG in its early years.

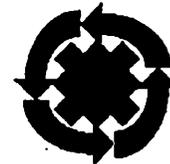
Fred W. Billmeyer, Jr.

ASTM COMMITTEE D-1 ON PAINT AND RELATED COATINGS, MATERIALS AND APPLICATIONS

ASTM The ASTM Subcommittee on Artists' Paint and Related Materials, D01.57, will meet with the D-1 Committee at the Crown Sterling Suites in Ft. Lauderdale FL, 17-20 January 1993. Several items of interest to those involved with color will be on the agenda, including further discussion of two methods of lightfastness testing using the ISO Blue Wools. These two standards are currently in the ASTM balloting process, and one for the lightfastness testing of colored pencils is under development.

For more information and a copy of the agenda, contact Mark Gottsegen, Department of Art, UNC Greensboro, Greensboro NC 27412-5001 USA, 919 334-5571, FAX 919 334-3009

HFS RELEASES UPDATE OF INDUSTRIAL ERGONOMICS BIBLIOGRAPHY



The Human Factors Society has revised its guide to the literature on industrial ergonomics. The new brochure is free of charge and lists publications that contain data used for the design of jobs in industry.

The bibliography is divided into six sections, in addition to lists of periodicals and proceedings: **General** lists texts and handbooks; **Worker Characteristics** covers size, strength, age, and gender; **Job Design** addresses productivity, human error, fatigue, and accidents; **Equipment Design** concerns displays, controls, and tools; **Workplace Design** includes information on chairs, benches, floors, and stairs; and **Environmental Design** covers heat, noise vibration, and illumination.

The bibliography is designed for human practitioners, industrial engineers, safety professionals, occupational physicians and nurses, industrial hygienists, personnel specialists, managers, labor union officials, and workers.

To obtain a free copy, contact the Human Factors Society, P.O. Box 1369, Santa Monica, CA 90406-1369; (301) 394-1811; FAX (310) 394-2410.

WE WELCOME ARTICLES FROM ALL ISCC MEMBERBODIES.



OPTICAL SOCIETY OF AMERICA (OSA)

Edwin Land Prize to Recognize Scientific and Technological Creativity

The Edwin H. Land Prize - a major award to recognize pioneering scientific and technological creativity leading to achievement in industry, public policy, or education- will be conferred annually by the Society for Imaging Science and Technology (IS&T) and the Optical Society of America (OSA). The award, which will include a medal and an honorarium of \$10,000, is endowed by the Polaroid foundation to honor Land and to recognize his unique accomplishments as scientist, technologist, inventor, industrialist, humanist, and public servant. A joint committee appointed by the two societies will select the recipient from nominations widely solicited from the scientific community. The award will be presented by the individual societies in alternate years.

Land's lifelong and incessant scientific curiosity, combined with his fascination for detail, fueled his innovative approach to every problem, whether in research, product conception, development, manufacturing, marketing, or as a high level advisor to government. His interests centered on the science of optics; the mechanisms of vision; the properties and uses of light; and the creation, manipulation, and communication of images of all kinds.

The award will recognize individuals identified with one of these sciences who, like Land, have demonstrated pioneering entrepreneurial creativity that has had significant public impact. This impact might be evidenced by: (a) industrial accomplishment that benefits the public through the use of new technology; (b) achievement pointing to new ways in which science can be conducted within its own laboratories; (c) efforts that offer the public a new understanding of science to show a new way in which science policy can be developed and promulgated; or (d) a significant role in identifying and

motivating young people with creative scientific potential.

Beyond high achievement, the recipients will have "broken the mold" - pioneering new ground whether in a commercial, intellectual, educational, or public service endeavor. The committee will consider nominees who are "emerging" in their field, as well as those with established careers.

The deadline for nominations for the first award by IS&T in May 1993 has passed, but readers can contact the Edwin Land Prize Committee, c/o Amy Arbuckle, OSA, 2010 Massachusetts Avenue, N.W., Washington, D.C. 20036, (202) 416 1400; 202/416-6130(fax) for information or forms for the 1994 prize.

1993 ANNUAL MEETING - CALL FOR PAPERS



The 1993 annual meeting of the OSA will be held October 3-8, 1993 in Toronto, Canada. The meeting will address all fields of optics and all divisions of the technical council and will include symposia, tutorials, engineering how-to sessions, invited and contributed papers, short courses, and a technical exhibit.

The 26 technical groups of the Optical Society are organized into six divisions that represent the areas of common technical interest. The divisions are 1) information processing including holography, image processing, optical computing, and optical data storage; 2) photonics including integrated and micro optics, optical communications, optical sensors and detectors, and optoelectronics; 3) optical sciences division including atmospheric and oceanic optics, optical physics, x-ray and x-uv physics and fundamental and applied spectroscopy, 4) quantum electronics including lasers, laser materials processing, nonlinear optics, and ultrafast optical phenomena; 5) optical technology including astronomical, aeronautical and space

optics, lithography, optical design, optical fabrication and testing, optical thin films, and systems and instrumentation; and 6) vision and medical optics including color, image understanding and machine vision, medical optics, and vision.

The abstracts and summaries of proposed presentations for the 1993 meeting are due March 31, 1993. For more information please contact A. John Alcock, OSA '93 Annual Meeting, 2010 Massachusetts Avenue, NW, Washington, DC 20036; Fax (202) 416-6100.

SOCIETY FOR IMAGING SCIENCE AND TECHNOLOGY (IS&T)

IS&T IS&T will hold its 46th Annual Conference at the Boston Marriott

Cambridge Hotel, Cambridge, Massachusetts on May 9-14, 1993. Dr. William Aitken of Polaroid Corporation, will serve as General Chair. Our conference organizers have outlined a full program of tutorials, papers sessions on multiple tracks and an innovative series of timely and topical state of the art seminars.

A special feature of this conference will be the presentation of the first Land Medal, a joint award of IS&T and OSA, given in memory of Dr. Edwin H. Land, to an individual whose distinguished career embodies the spirit of Land's own contributions to society and to science.

The committee invites original contributions for presentation at this meeting related to imaging science and technology. The Program Committee will be pleased to consider presentations both on the tentative topics scheduled as well as any others related to the field of imaging. Applications must be received by December 1, 1992 to be considered. Those wishing to submit a paper should contact the Publications Co-chair, Dr. Michael Lee, Polaroid Corporation, 1265 Main Street, W4-g, Waltham, MA 02154-1799; (617) 684-5391; FAX: (617) 684-4396.

TECHNICAL ASSOCIATION OF THE GRAPHIC ARTS (TAGA)

1992 TAGA Honors Award

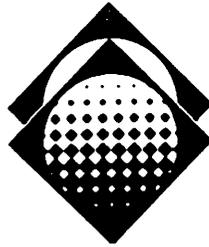
Richard S. (Dick) Fisch received the 1992 TAGA Honors Award at the Annual TAGA Awards Banquet. Carol Seibold, Technical Service manager of 3M Company's Printing and Publishing Systems Division, presented the award. Dick is TAGA Vice President of Technical Papers and Division Scientist and Coordinator of Combined Printing and Publishing Systems and Image Reproduction Divisions' Color Image Analysis Center. He received the prestigious TAGA Honors Award for his over 40 years of dedicated service to graphic arts research, as a teacher, as a Division Scientist in 3M's Printing and Publishing Systems Division, as a holder of 29 patents on color reproduction materials and processes, as the author of over 50 papers, 11 for TAGA, as the co-founder of CGATS standards group and as a member of TAGA's Board of Directors and Vice President Technical Papers and Journal. Our hats go off to ISCC Member Dick Fisch for jobs well done.

COLOR RESEARCH AND APPLICATION

In This Issue, December 1992

A new column will appear for the first time in this issue. It is "Communications and Comments" and will replace the Letters to the Editor. This column will provide space for accelerated publication of new items, as well as short papers which criticize, correct, or otherwise comment on articles previously published in this journal. In this issue five items appear in this column: an announcement about the formation of a new CIE Technical Committee on Tables of Spectral Data, guidelines for testing systems of mesopic photometry by P. W. Trezona, comments by Y. Nayatani on the article "Predicting the Lightness of Chromatic Object Colours Using

TAGA CELEBRATES 44TH ANNIVERSARY



The Technical Association of the Graphic Arts (TAGA) celebrated its 44th Anniversary at the Westin Bayshore Hotel in Vancouver, British Columbia, Canada on April 5-8, 1992. The meeting included technical papers, tutorials, technical focus groups, and discussions on a wide range of topics related to color and its reproduction.

The technical program consisted of 37 papers with 12 papers from Europe, 2 from Canada, and 29 from the USA.

These papers were presented in seven sessions with the following titles: Imagesetting and Digital Publishing, Color Reproduction, Calibration / Measurement / Control / Verification, Papers and Printability, Plates and Inks, Press Operations and Their Controls, and Graphic Arts Environmental Concerns. The two tutorials that preceded the technical program were: Ink and Water Interactions Demystified, and Imagesetter Calibration and Linearization. The three technical focus groups, scheduled one for each day following the technical program, were Desktop Publishing, Ink/Paper/Press, and Environmental Issues.

The presentations, tutorials, and focus group discussions generated excellent discussions and kept everyone up-to-date on the latest technical advances. It was gratifying that many international participants came halfway around the world to share and learn the hard-earned fruits of their colleagues' labors with TAGA membership. Next year's TAGA Annual Technical Conference will be from April 25-28, 1993, at the Minneapolis City Center Hotel located in the heart of downtown Minneapolis, Minnesota. The call for papers has been announced by Vice President of Technical Papers Dick Fisch. For more information on TAGA '93, please contact Karen Lawrence, TAGA Managing Director at (716) 272-0557.

Bob Chung

CIELAB" by Fairchild and Pirrotta, the authors' response to Nayatani, and J. Anthony Bristow's comments regarding the accuracy of the samples in the NCS System. We hope that the readers will find Communications and Comments a lively and interesting addition.

Sometimes color scientists find help from outside the community. The first article is an example of this situation. Since hue is specified by an angular measure and saturation by a linear measure, this presents the psychologist with a special challenge when trying to do statistical analysis of colorimetric data. In "Application of some statistical methods for comparing samples of hue-angle data" Edward Chronicle and Ian Nimmo-Smith look beyond color science to find statistical techniques with special features applicable to angular measures of hue. If luminance or brightness is held constant, the distribution of points might be

analyzed by the statistical technique called bivariate cluster analysis, however the effects of saturation and hue can not be considered separately with this technique. The circular nature of hue (i.e., $h=0$ and $h=359$ are almost indistinguishable purples) makes it necessary to divide hue scores into color categories before using conventional parametric linear statistical techniques. Chronicle and Nimmo-Smith present two methods for the parametric statistical analysis of hue-angle data, a test for the equality of angular variances and a test for the quality of mean angles. These tests are useful when considering hue in isolation from other variables.

The second article is of special interest to the color vision community. In "Confusion Lines of Dichromats" Glenn A. Fry describes a way to plot the mixture data of a protanope or a deuteranope on a constant luminance mixture diagram. By

analyzing the data with this projective transformation of the CIE xy diagram it can be seen that the confusion lines are parallel to the line tangent to the red end of the spectrum locus.

For those industries using spectrophotometers to integrate color measurement data, the next two articles are a two-part series "Numerical Methods for Colorimetric Calculations" by Brent Smith, Charles Spiekermann, and Bob Sember.

The first article "A Comparison of Integration Methods" examines the relative amount of error introduced due only to the spacing used in various integration methods. The Newton-Cotes, Gauss-Legendre, and parametric B-spline curve fitting integration methods are quantified and compared. The second article "Sampling Density Requirements" looks at the effects of sampling density/data interval on the numerical result and distinguishes between sampling density errors and integration errors.

Since MacAdam first published his article "Visual Sensitivities to Color Differences in Daylight" in Journal of the Optical Society in 1942, ellipses have been associated with the visual perception of color difference. In 1949 the Brown and MacAdam article "Visual Sensitivities to Combined Chromaticity and Luminance Differences", also in Journal of the Optical Society, extended the ellipses to be three dimensional ellipsoids. However, the Colour-Measurement-Committee (CMC) formulas

for color-difference acceptability do not describe ellipsoids in CIELAB space. This is in contrast to the literature which describes the acceptability surfaces as ellipsoids. Michael H. Brill in "Suggested Modification of CMC Formula for Acceptability" presents an ellipsoid formula which can be substituted for the existing quartic formulas, thus removing the possibility for conceptual confusion.

In 1990, N. S. Smith, T. W. A. Whitfield, and T. J. Wiltshire described a colour notation conversion program [Vol. 15: 338-343, 1990]. In this issue N. S. Smith describes the inclusion of Colorcurve, SCA 2541, and HunterLab systems in an expanded and improved computer program. His article is "A Colour Notation Conversion Program Revisited."

Recently in this journal, Robert Seve suggested a new equation to calculate the CIE 1976 hue difference [Vol. 16: 217-218, 1991]. This equation avoids the indeterminacy problems that occur in the official formula. However, in the field of electronic image production, where millions of pixels are calculated for each image, computational speed is essential. The last article in this issue, a note by Mike Stokes and Michael H. Brill, "Efficient Computation of H" presents an alternative calculation that significantly improves computational speed.

This, the last issue of the year concludes with the annual index. Articles are listed under both author and topic.

C A L E N D A R

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

1992

GIS / LIS Conference, Nov. 6-12

Geographic Information Systems and Land Information Systems Conference sponsored by the American Society of Photogrammetry and Remote Sensing and several other organizations, San Jose Convention Center, San Jose, California. Information: Denise Cranwell, (301) 493-0200.

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.

OPTICON, Nov. 15-20

Optical Society of America OPTICON '92, Boston, Massachusetts. Information: Optical Society, (202) 223-8130.

AATCC FALL MEETING, Nov. 17-19

American Association of Textile Chemists and Colorists, The Doral Inn, New York City, New York. Information: Jerry Tew, (919) 549-8141.

1993

COLOUR GROUP, Jan. 6

Colour Deficiencies and Anomalies, City University. Information: Hon. Secretary 081 943-6539

ASTM COMMITTEE D-1 ON PAINT, Jan. 17-20

Crown Sterling Suites, Ft. Lauderdale South, Florida. Information: Scott Orthey, (215) 299-5507.

ASTM COMMITTEE E-12 ON APPEARANCE, Jan. 17-20

Crown Sterling Suites, Ft. Lauderdale South, Florida. Information: Bode Buckley, (215) 299-5599.

IS&T/SPIE SYMPOSIUM, Jan. 31- Feb. 5

The Society for Imaging Science and Technology Symposium on Electronic Imaging: Science and Technology, San Jose Convention Center, San Jose, California. Information: (703) 642-9094.

COLOUR GROUP, Feb. 3

Newton Lecture and Dinner, Royal Society. Information: Hon. Secretary 081 943-6539

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

My work relates to the following products and services:

Name other interests _____

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 \$70.00 (US) or \$100.00 (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 Grecale 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 Couleur (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
<i>Individual Member.</i> Any person interested in color and desirous of participating in the activities of the Council.	\$30.00
<i>Student Member.</i> Full time students.	\$10.00
<i>Member-Body.</i> Any non-profit national organization interested in color and desirous of participating in the activities of the Council.	\$100.00
<i>Sustaining Member.</i> 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
<i>Retired.</i> Treasurer must be notified, in writing, of retirement before dues have been billed.	\$10.00
<i>Library Subscriptions.</i> Receives all ISCC mailings, including ISCC News.	\$40.00
<i>Overseas Member.</i> A surcharge of \$20 is added to \$30 dues to cover additional mailing costs.	\$50.00

OSA TOPICAL MEETING OPHTHALMIC AND VISUAL OPTICS, Feb. 19-20

The Optical Society of America - Third Topical Meeting on Ophthalmic and Visual Optics, Doubletree Hotel, Monterey, California. Information: OSA (202) 223-0920.

OSA TOPICAL MEETING NON INVASIVE ASSESSMENT OF THE VISUAL SYSTEM, Feb. 21-23

The Optical Society of America - Topical Meeting on Non invasive Assessment of the Visual System, Doubletree Hotel, Monterey, California. Information: OSA (202) 223-0920.

ASTM COMMITTEE D-20 ON PLASTICS, Mar. 1-4

Atlanta, Georgia. Information: Katharine Schaff, (215) 299-5529.

COLOUR GROUP, Mar. 3

Colour in Architecture, National Gallery. Information: Hon. Secretary 081 943-6539

COLOUR GROUP, Mar. 31

Colour in Archeology, Institute of Archeology. Information: Hon. Secretary 081 943-6539

CMG - CONFERENCE, Apr. 4-6

Color Marketing Group International Color Directions Conference, Hyatt Crystal City, Washington, District of Columbia. Information: Katie Register (703) 528-7666.

LUX EUROPA 1993, Apr. 4-7

Chartered Institution of Building Services Engineers, Edinburgh, Scotland. Information: CIBSE, Delta House, 222 Balham High Rd., London SW12 9BS.

ISCC ANNUAL MEETING, Apr. 18-20

Color, Environment and Regulations, Newport Islander Doubletree Hotel, Newport, Rhode Island. Information: Romesh Kumar (401) 823-2161.

TAGA ANNUAL CONFERENCE, Apr 25-28

Technical Association of the Graphic Arts Annual Technical Conference, Minneapolis - St. Paul, Minnesota. Information: Karen Lawrence, (716) 272-0557.

IS&T ANNUAL CONFERENCE, May 9-14

The Society for Imaging Science and Technology 46th Annual Conference, Boston Marriott Cambridge Hotel, Cambridge, Massachusetts. Information: IS&T (703) 642-9090.

CORM '93, May 18-21

National Institute for Standards and Technology, Gaithersburg, Maryland. Information: Dr. Jack Hsia (301) 975-2342.

ASPRS WORKSHOP ON COLOR PHOTOGRAPHY & VIDEOGRAPHY IN RESOURCE MONITORING, May 24-27

American Society for Photogrammetry and Remote Sensing - 14th Biennial Workshop on color Photography and Videography in Resource Monitoring, Utah State University, Logan, Utah. Information: Christopher Neale (801) 750-3689.

AIC-7TH CONGRESS, Jun. 14-18

International Colour Association - 7th Congress, Technical

University of Budapest, Budapest, Hungary. Information: Prof. Antal Nemcsics, Technical University of Budapest, Conference Office, Building Z, Room 101/b, H-1521 Budapest, Muegyetem rkp.3-9, Hungary, Phone and FAX (36-1) 185-2218.

IS&T INT'L SYMPOSIUM, Jun 21-25

International Symposium on Electronic Imaging Device Engineering, Munich Fairgrounds south, Munich, Germany. Information: IS&T (703) 642-9090.

ASTM COMMITTEE E-12 ON APPEARANCE, Jun. 23-25

Atlanta, Georgia. Information: , Bode Buckley, (215) 299-5599.

ASTM COMMITTEE D-1 ON PAINT, Jun. 27-30

Wyndham Franklin Hotel, Philadelphia, Pennsylvania. Information: Scott Orthey, (215) 299-5507.

MONTAGE 93, Jul.11-Aug.7

Montage 93: International Festival of the Image, Rochester, New York. Information: Montage 93 (716) 442-8898.

IESNA ANNUAL CONFERENCE, Aug. 8-12

Illuminating Engineering Society of North America, 87th Annual Conference, Houston, Texas. Information: Valerie Landers, (212) 705-7269.

DCC MEETING, Sep. 23

Detroit Colour Council New Pigments for Automotive Applications, Michigan State Management Education Center, Troy, Michigan. Information: James Hall (313) 947-5428

CMG - CONFERENCE, Sep. 12-14

Color Marketing Group International Color Directions Conference, Hotel del Coronado, San Diego, California. Information: Katie Register (703) 528-7666.

AATCC - CONFERENCE AND EXHIBITION, Oct. 3-6

American Association of Textile Chemists and Colorists, Montreal, Quebec, Canada. Information: AATCC, (919) 549-8141.

OSA - ANNUAL MEETING, Oct. 3-8

Optical Society of America Annual Meeting Toronto, Canada. Information: OSA (202) 223-0920.

IS&T 9th INTERNATIONAL CONGRESS, Oct. 4-8

The Society for Imaging Science & Technology, 9th International Congress on Advances in Non-Impact Printing Technologies with Exhibit, Pacific Convention Plaza, Yokohama, Japan. Information: IS&T (703) 642-9090.

COLOR IMAGING SYSTEMS, Nov. 7-10

Color Imaging Systems co-sponsored by the Society for Imaging Science and Technology and Society for Information Display, The Pointe Hilton Resort at Squaw Peak, Phoenix, Arizona. Information: IS&T (703) 642-9090.

ASTM COMMITTEE D-20 ON PLASTICS, Nov. 15-18

Fort Worth, Texas. Information: Katharine Schaff, (215) 299-5529.

NEWSLETTER EDITOR Michael A. Hammel

Send photo material (black and white if possible) to:

Editor, ISCC News • 98 Grand View Drive • Fairport, NY 14450 • Tel. (716) 223-1823

If at all possible, please send all other materials ON DISKETTE as follows:

MSDOS-ASCII, Q&A, Word Star, Word Perfect (5.25"-1.2 Meg, or 360K)

(3.5"-1.44 Meg, or 730K).

Macintosh-Word, Macwrite, MS Works

(3.5"-1.44 Meg, 800K, or 400K)

For hard copy transmission, FAX to (716) 425-2411.

Or send to: Dr. Ellen Carter • 2509 N. Utah St. • Arlington, VA 22207

Please note: the deadline for submission of material is the 1st of even numbered months.



meeting reports



photos



contributions from members

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1990-1993

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