



In This Issue

Dr. Michael H. Brill New ISCC President.....	1
ISCC Annual Business Meeting Report.....	2
President-Elect Jack Ladson Message.....	3
Dr. David Alman Receives MacBeth Award.....	3
Louis Graham Presented Nickerson Service Award....	4
Request for Nominations.....	5
DFWG 1998 Meeting, Germany.....	6
Color Education '99 Tri-State Meeting.....	6
TAGA/ISCC Bridge Symposium, May 1999.....	7
Call for Papers, Interest Group I.....	8
Call for Papers, Interest Group II & III.....	8
Student Travel Grants.....	8
Testing Techniques for Color Vision Website.....	8
Fourth Argentine Congress on Color.....	9
Come to Warsaw!.....	9
What is CIE?.....	10
ISCC 67th Annual Meeting Pictures.....	12-13
Mike Brill's Report on Improved Colorimetry.....	14
CR&A, In This Issue, December 1998.....	15
Detroit Colour Council Upates.....	16
CAUS News.....	17
CMG Announces New Logo.....	18
Publications Sale Continues.....	18
GATF Presents Reed Technology Medal.....	18
Special Fund Created to Preserve Historic Color.....	19
George Mandikos Obituary.....	20
Book Review by Rolf G. Kuehni.....	21
Calendar.....	22
New Advertising Opportunity.....	23
Sustaining Members, ISCC Officers.....	Back Page



from the ISCC News Staff



ISCC INSTALLS NEW PRESIDENT, DR. MICHAEL H. BRILL

The following are Dr. Brill's first official comments as President of the ISCC.

"Initially, I would like to thank Ellen Carter for having been an exemplary leader through her longer-than-usual Presidency of the ISCC. Also, my best wishes go to Ellen as she moves to her new home in Little Falls, NJ.

It's a privilege being asked to be President of the ISCC. To me, the ISCC is not only a group of people advancing color technology and practice, but also a society of close friends about whom I care greatly. I hope to be worthy of the honor. In my short administration (short because of a timing change of the Annual meetings) the ISCC will sponsor three significant events: the 1999 Annual Meeting May 5-7 in Vancouver, BC (co-located with TAGA); the Second Panchromatic Conference on Color in its Surround (Hilton Head, SC, 20-21 Feb. 2000); and the May 2000 Annual Meeting in Charlotte, NC (co-located with CPMA). These events promise to be exciting exchanges that should benefit scientists, technologists, and creative people who care about color.

(continued on page 2)

Besides enjoying these events, I hope you will join me in a personal project that has a color dimension: I'd like to make sure that on January 1, 2000, we'll be able to see artificial light with any color temperature.. at all ! This ability is threatened by the year-2000 computer bug--which will make computers think it is 1900 if they store "2000" as only "00". Although the problem is most discussed for mainframe computers, by far the most serious threat to society comes from the millions of microprocessors (on which we rely) that care what year it is. These microprocessors govern very fast decisions about everything from routing electric current to routing trains. People used to make these decisions, but now neither the people nor the manual backups are available. One's first thought is that it might be charming to return to a pre-computer age for a while, but I rather think that would be as charming as debarking from an airplane at 30,000 feet. From inside the plane, it might not feel that much was going on since take-off, yet our dependency on the plane has grown too strong for a casual stroll through nature. I hope the ISCC can be a network for solutions to the year-2000 problem--both technical and societal--as this crisis unfolds. Here is an example of what we can do. An outstanding explanation of the power-grid part of the problem appears in a one-page sidebar in the October 6, 1998 issue of PC Magazine ("My Biggest Worry", by Jim Seymour, p. 160). Because power company managers aren't facing up to the problem, I would suggest a "grass-roots" alert of these companies by enclosing a copy of this page with each of your power bills. If the corporate attitude changes, we may yet be able to correlate a color temperature on 01/01/00. Let's suggest and then do many such things, as if in a military campaign. Maybe then, as is my hope, my time as President of ISCC will be dull but pleasantly productive. At the end of it, I'll be able to pass the gavel to Jack Ladson, who will take us safely into the next millennium."

REPORT ON THE ISCC ANNUAL BUSINESS MEETING

The ISCC Annual Business Meeting was held in Baltimore, MD USA in conjunction with the ISCC Annual Meeting. The Baltimore Inner Harbor Marriott hosted the Business Meeting luncheon. There were approximately 85 in attendance consisting of special guests, CIE members, ISCC Members and friends. President Ellen Carter presided and extended a warm welcome to all. The meet-

ing formally began as Ellen introduced the ISCC officials and honored guests seated at the head table -- Mr. Jack Ladson, Mr. Roland Connelly, Mr. Louis Graham, Mrs. Jean Graham, Dr. Dave Alman, Dr. Danny Rich and Dr. Michael Brill. Dr. Danny Rich submitted the Secretary's Report announcing that the total membership of the ISCC has increased with 753 individual members and 21 Member Bodies. Mr. Jack Ladson presented the Treasurer's Report for Mr. Hugh Fairman stating that The ISCC is in good financial condition with the finances meeting or exceeding the financial plan. The budget for 1999 was drafted by the Finance Committee and approved by the Board of Directors. The budget meets and exceeds the aims, goals and objectives of the ISCC with approximately \$80,000 in the bank. The good news is that the IMG dues will stay constant."

Dr. Ellen Carter acknowledged and gave thanks to the Directors who completed their term of service: Dr. Mark Fairchild and Dr. Wade Thompson. Dr. Cynthia Brewer will complete Jack Ladson's term as Director. Dr. Carter awarded Certificates of Appreciation for faithful service to: Dr. Wade Thompson -- Completion of IG III Chair term, Mr. Jack Ladson -- Completion of Director's term, Dr. Michael Brill -- Completion of President-Elect term, Dr. Danny Rich -- Completion of Secretary term, and Dr. Mark Fairchild -- Completion of IG I Chair term.

Dr. Ellen Carter introduced the next ISCC Officers followed by the new Directors for 1998-2001:

Officers: Dr. Michael Brill -- President
Mr. Jack Ladson -- President-Elect
Mr. Hugh Fairman -- Treasurer
Mr. Rich Riffel -- Secretary

Directors: Ms. Charla Haley
Mr. Craig Johnson
Mr. Yan Liu

The Dorothy Nickerson Service Award was presented to Mr. Louis Graham with Mr. Roland Connelly giving the citation. The Macbeth Award was presented to Dr. David Alman with Dr. Danny Rich giving the citation.

Dr. Ellen Carter turned over the Official ISCC Presidential Gavel to Dr. Michael Brill, officially installing him in his capacity as ISCC President. Brill presented a bouquet of beautiful roses, a framed Certificate of Appreciation, and a

gorgeous housewarming basket of gifts to Dr. Carter in recognition and appreciation of her excellent job as President of the ISCC.

Brill performed his first official act of the ISCC, as President by closing the Annual ISCC 1998 Business Meeting.

Respectfully submitted,
Jack A. Ladson
President-Elect

A WORD FROM YOUR PRESIDENT-ELECT



Having just completed two years of a three year term as a Director, I am surprised but pleased to have been nominated and elected to a two year term as President-elect. I have the highest regard for the energy and ability of our new President, Dr. Mike Brill. Throughout my term

I will do everything within my power to assist him and the Board of Directors in formulating and executing their Program Plans for the next two years.

I want to thank each and everyone of you for our support and encouragement, and let us together look forward to two years of growth, where the aims and purpose of the ISCC will be promulgated to the ends of the earth.

Jack A. Ladson
ISCC President-Elect

MACBETH AWARD

Dr. David Alman is the honored recipient of the MacBeth award. Dr. Danny Rich presented the citation. The citation and Dr. Alman's acceptance speech follows:

"The Macbeth Award was established in 1970 in memory of Norman Macbeth. It is presented biannually to a member, or former member, of the ISCC for recent important contributions in the field of color. Dr. Alman, a Research

Fellow at the E. I. Du Pont de Nemours and Company in Troy, Michigan, is being recognized for his outstanding contributions to the advancement of industrial color difference metrics.

During the middle 1980's, Dr. Alman recognized a need for an improved color difference equation in comparison to then widely used equations such as FMCI, Hunter Lab, and CIELAB. The CIELAB equation is currently recommended for use by the International Commission on Illumination (CIE). Weighted CIELAB color difference equations, including JPC79 and CMC, provided further evidence of the inadequacy of CIELAB, especially for setting color differences and tolerances. Both the JPC79 and CMC equations were based on textile data and might not be appropriate for the automotive coatings manufactured by DuPont. Accordingly, Alman obtained funding and began a research initiative with RIT's Munsell Color Science Laboratory (MCSL). Dr. Alman was largely responsible for designing the visual experiments, introducing probit analysis at MCSL, and managing the DuPont technicians in the considerable amount of sample preparation. This relationship lasted for six years and led to the RIT-DuPont dataset. In 1989, Dr. Alman agreed to chair the CIE Technical Committee TC 1-29, which is concerned with developing an improved color difference equation. Dr. Alman defined a set of guiding principles for the committee including statistical validation, defining a set of reference conditions, not over-modeling the data during equation development, and continuous improvement. Through his leadership, the improved CIE94 equation was developed and announced in 1994. CIE94 is the first major step taken by the CIE in the area of industrial color differences and tolerances since 1976. The introduction of CIE94 has led to many new studies and re-examinations of the data leading to the CIE94 and CMC equations. The result has been the formation of a color difference consortium at the MCSL with broad industrial support for activities at the National Research Council (NRC) in Canada, the Bundesanstalt für Materialforschung und -prüfung (BAM) in Germany, and several universities around the world. In 1997, the CIE called upon Dr. Alman to chair CIE Technical Committee TC 1-47. The goal of TC 1-47 is to improve CIE94. Dr. Alman has garnered enthusiastic participation, including scientists responsible for the CMC equation. Because of Dr. David H. Alman's vision, leadership, and technical expertise, the industrial community has a clear path to continued improvements in automated tolerance metrics."



Dr. Alman's acceptance speech follows:

"When Ellen Carter called to inform me that I'd been nominated for the ISCC Macbeth award my immediate but unspoken reaction was 'Oh, damn, I'll have to give a speech.' Now that the moment for my remarks is here I would like to say just a few things. First, I want to thank ISCC and the nominating committee for this honor. But you should know that nobody accomplishes anything in the area of standardization without the support, cooperation and effort of many contributors. I want to acknowledge those contributors.

I had the privilege of working with Roy Berns and a series of graduate students at the Munsell Color Science Laboratory to carry out a research program with the aim of developing precise estimates of color-difference perception to support color-difference model evaluation and development. Among the many students involved I'd like to especially mention Lisa Reniff's contributions as first, a student and later, a staff scientist on the color-difference project.

I'd also like to mention the members of CIE TC1-29 who worked with me to develop and communicate the CIE94 color-difference model. The active members of the committee included Klaus Witt, Manuel Melgosa, Roy Berns and Alan Robertson. I appreciate their counsel, encouragement and support.

I'd like to close with some comments on the future of CIE color-difference standardization. We recognize that the work is incomplete because the CIE94 model does not account for all of the known variations in color-difference

response. We are also aware that the community of color-difference users is divided into groups of users of CIELAB, CIE94, and CMC and that CIELUV is still considered a CIE color-difference model. CIE has formed a new technical committee, TC1-47, with the aim to improve CIE94 by including compensating structures for all the known variation in color-difference perception data needed to meet the needs of colored materials industries. TC1-47 had its first meeting this past Thursday and developed a working program directed to converging on a single model. I am very encouraged that we have the right people on the technical committee to develop a model with acceptable performance for all industries because TC1-47 includes representatives from the Colour Measurement Committee of the Society of Dyers and Colourists including Ronnier Luo, James Nobbs and Bryan Rigg.

With their help and the counsel of a fine group of TC members from around the globe, we are confident that a single CIE color-difference model can be successful."

DOROTHY NICKERSON SERVICE AWARD

The Dorothy Nickerson Service Award was presented to Mr. Louis Graham. Mr. Roland Connelly presented the citation. Mr. Connelly's citation and Mr. Lou Graham's acceptance speech follows:

"The ISCC Service Award was established in 1980 to recognize outstanding long-term contributions toward the advancement of the ISCC and its aims and purposes. The contributions may be in the form of organizational, clerical, technical, or other services that benefit the ISCC and its members. The first recipient was Fred W. Billmeyer, Jr., then Dorothy Nickerson and S. Leonard Davidson. In 1986 the award was renamed the ISCC Nickerson Service Award to honor the late Dorothy M. Nickerson. She was a founding member of the ISCC, its Secretary from 1938 to 1950, and its President from 1954 to 1956. The other recipients are George B. Gardner, Harry K. Hammond III, Ruth Johnson-Feller, Walter Granville, Joyce Davenport, Bonnie Swenholt, Terry Commerford, Allan B. J. Rodrigues, and Ann Campbell Laidlaw. Today, we add Louis A. Graham to that list. Lou joined the ISCC in

1957 and has been a very active member since. While a member of Expression of Historical Color Usage Project Committee, he was instrumental in the formation of the Color Marketing Group, and served as its first president. Lou was the delegation chairman of AATCC and served as chairman of the Long Range Planning Committee from 1988 to 1993. He was responsible for the very effective Fredricksburg meeting. Lou served the ISCC as president from 1982 to 1984. He has performed many other functions, both in leadership and clerical for the organization. Lou has been a major supporter of the ISCC and has promoted it tirelessly to textile and related industries. It is with great pleasure that I present the Nickerson Service Award to Lou Graham." Roland noted that Natilie Graham-Hinkle, her husband Charlie and their children; Frances and Louis attended the luncheon.

President Carter presented the Dorothy Nickerson Service Award to Lou. Mr. Graham's acceptance speech follows: Note that upon reflection by Lou these comments are slightly expanded from his original presentation.



"Thank you, Roland, for those kind remarks, thank you, President Carter, and a special thank you to all my friends in ISCC, present and absent, current and departed members, for this award. Some of those present today remember Dorothy Nickerson from your own personal experiences. Besides her professional and ISCC activities, Jean and I fondly recall remarks that Dorothy often made which seemed to clarify the subject at hand. Years ago at a late hour discussion of travel during a Lucerne, Switzerland color meeting Dorothy said: "You think I would learn when coming to Europe that you should bring less and less clothes, and more and more money!"

There are some specific "thank you's" I would like to make: First, to Paul M. Fisher who 40 years ago introduced me to the vast store of professional knowledge that is the ISCC. Second, to Max Saltzman who showed me that good, honest color measurement data on products and raw materials provides practical knowledge for everyday use - never settle for less. Third, to Bob Hoban who shared his work and knowledge with many, while simultaneously showing us all the pleasures of color and color technology. As an aside, he also said to wear a colorful tie, which I have done today. Fourth, to Kenneth L. Kelly who was an inspiration to persevere and to pursue useful color goals. And now, back to Dorothy Nickerson. Dorothy did much for professional work. She and I shared one accomplishment. At the Department of Agriculture they needed to know the average color of hay. So Dorothy had a device rigged to rotate an entire bale of hay - three feet across, perhaps? At American Viscose we needed to know the average color of rayon yarn, a similar variegated surface problem. So we rotated a small card of yarn - about equal to a 35 mm slide. Thus knowledge of the world of color progresses - through the generous and gracious sharing of their work and experience by ISCC members. Thanks to all of you for letting me share in this.

Finally, my biggest thanks to my wife, Jean - my lovely lady who stood among all the colors of many rainbows one brilliant day at Victoria Falls. Thank you." Lou presented a beautiful silver necklace to his wife embedded with a rainbow of colors.

REQUEST FOR NOMINATIONS

The Inter-Society Color Council's Nickerson Service Award was established in 1980 to recognize outstanding long-term contributions toward the advancement of the Council and its aims and purposes. The contributions may be in the form of organization, clerical, technical, or other services that benefit the Council and its members. Candidates for the award must be members of the Council and must have been active in the affairs of the Council. If you would like to nominate a person for this award please contact :

Robert Marcus, Datacolor International
5 Princess Road, Lawrenceville, NJ 08648
tel: 609-924-2189x7323, fax: 609-895-7438
email: rmarcus@datacolor.com.

Nominations must be received before January 15, 1999.

FORTHCOMING MEETING OF DFWG 1998 PROGRAM:

Date: November 13, 1998

Place: Rheinisch Westfälische Technische Hochschule
(RWTH) Aachen, Institut für Elektronik

November 12

2 p.m. Visit of Institute of Electronics (Prof. Dr. Hill),
Sommerfeldstr. 24

7 p.m. Get together of participants Ratskeller at market
place Aachen

November 13-Meeting in FT-Hörsaal, Institute für
Elektrische, Nachrichtentechnik und
Hochfrequenztechnik, Melaterstr. 23-25.

8.30 a.m. Registration

9.30 a.m. Opening by president of DfwG
Prof. Dr. Heinz Terstiege, BAM, Berlin

9.40 a.m. Significance of CEN-standardisation for
Germany, Prof. Dr. Heinz Terstiege

10.00 a.m. Bispectral measurement of luminance using
sphere geometry -possible or not ?, Dietrich Gundlach

10.30 a.m. Chemical fibres with sphere geometry
Siegfried Kaufmann, Horst König, Reinhard Kierok

11.00 a.m. Significance of colour valence for binocular
stereoscopic vision, Christian Baumann

11.30 a.m. Graphs with simple aids, Uwe Hempelmann

12.00 a.m. Colour measurement considering background
lightness, Eva Lübke

12.30 - 1.30 p.m. Lunch break

1.30 p.m. The performance of gamut mapping algorithms
on various printed media, Ján Morovic and
M. Ronnier Luo

2.00 p.m. Significance of array-spectrometry
Manfred Göbel

2.30 p.m. Characterising a 6-channel-sensor
Patrick Herzog, Dietmar Knipp, Helmut Stiebig,
and Friedhelm König

3.00 p.m. Critical examination of color difference of
goniochromatic paints, Gerhard Rösler

3.30 p.m. Colour difference with the eyes of CIE,
Klaus Witt

4.00 p.m. To transform CIE94 into an euclidian colour
space, Hans G. Völz

4.30 p.m. Gloss at 45/0 geometry, Konrad Hoffmann

5.00 p.m. DfwG members' meeting

Klaus Witt, BAM, D-12200 Berlin, Germany

Tel. +49 30 8104 1916 Fax: +49 30 8104 3047

IS&T'S TRI-STATE CHAPTER (NY-NJ-CT) ANNOUNCES COLOR EDUCATION '99 - A PREVIEW

Wednesday, 11 November 1998

Time: 7:30PM to 9:00PM



Location: Fashion Institute of Technology, NYC

Color technology in the computer, graphic arts, motion picture, photographic, printing, video and related industries has drastically changed. Now, it is time to connect the people who use it, to the technology. How do the producers and users of color technology learn the new ways of working and of doing business? New teaching tools, such as Color Education '99 are required to connect the color needs of the arts, film, science and technology to the 21st Century Renaissance. Color Education '99 is a new multi-media program, produced by Xerox Corporation and other corporate sponsors. Color Education '99 will tour the country to show students, teachers, and the computer, photographic, printing and related industries the latest technology, and how it affects this changing marketplace. With the cooperation of professional and trade associations, Color Education '99 will reach many more people, including the Standards message, develop programs, extend the scope and provide support. Simplicity, accuracy and communications are the driving factors that the future demands. Our panel of experts are creating the event and making it happen. Learn what they are doing, and contribute your ideas to help make Color Education '99 a successful and practical effort by the educational world and by industry.

Panelists include Jean Bourges, Art Director, member of Comm. for Graphic Arts Technologies Standards, author of Color Bytes; Lloyd Carr, Professor and Dir. of Advertising Design and Technology; New York Technical College, Brooklyn, NY; Jacques Hutzler, Professor, Photography, F.I.T., New York, NY; Dawn Nye, Print Product Marketing Mgr, Xerox Corporation, Rochester, NY, Co-Chair of Education '99; James Sabino, Instructor of Visual Communications, Multi-media and Graphic Arts, Monmouth School District, Monmouth, NJ; Roy M. Zucca, Senior Vice-Pres., Young & Rubicam, New York, NY, Instructor (Computer), Parsons School of Design, New School University, New York, NY. RSVP. No charge for admission, light buffet- 6:30-7:30PM, Tel: 914-789-8172, Fax: 914-789-8370 (Fuji Photo Film USA).

TAGA TO HOLD BRIDGE SYMPOSIUM WITH THE INTER-SOCIETY COLOR COUNCIL

ROCHESTER, NY SEPTEMBER 18, 1998 - The Technical Association of the Graphic Arts (TAGA) is known to many as the Home of the Science and Engineering of the Graphic Arts Industry. It is a place where professional graphic arts scientists and engineers meet to exchange knowledge and learn how the different aspects of printing technology work together. TAGA covers all technical aspects of the Graphic Arts.



TAGA's 51st Annual Technical Conference will be held at the Westin Bayshore Hotel in beautiful Vancouver, British Columbia, Canada, on May 2-5, 1999. The conference will emphasize Color in the Graphic Arts but will include the full range of graphic arts technologies. The conference will offer dual track sessions on the topics of Color Technologies, Color and Imaging, Computer-to-Plate Workflow, Integrated Manufacturing Processes, Press and Plate Technologies, Ink Technologies, and Paper Technologies. A full day's track will be devoted to Color on Tuesday, May 4, ending with the informal Technical Focus Group session discussing the practical application of Color Technology in the industry today. A special feature will be a bridge symposium held in cooperation with the Inter-Society Color Council (ISCC) on Wednesday, May 5. Tutorial programs which will include the topic of PDF (Portable Document Format) among others, will be offered on Sunday, May 2.

According to TAGA President, John Long of Mitsubishi Imaging, "TAGA is the only industry association that provides a broad technical coverage of all aspects of printing. The technical people who attend can interact, exchange views, discuss research and broaden their view of current applications in the graphic arts industry. In the last few years, I have been able to get the background information on thermal plate and CTP platesetters by attending TAGA and discussing their research with the presenters. Both the proceedings and the conference help me stay current on the broader topics in the graphic arts; ink, paper, color and process control."

TAGA was founded in 1948 to provide forum for the advancement of the graphic arts industry through the dissemination of information on the latest research and develop-

ment and practical information regarding emerging graphic arts technologies.

Plan to attend to share information and ideas with your peers at TAGA-99. Many special events are planned in conjunction with this 51st Annual Technical Conference. Don't miss it! To request a conference brochure or membership information, contact:

TAGA

68 Lomb Memorial Drive
Rochester, NY 14623-5604

Tel: 716-475-7470;

Fax: 716-475-2250

e-mail: info@taga.org.

Web Site: <http://www.taga.org>.

**68TH ISCC ANNUAL MEETING
MAY 5-7, 1999 VANCOUVER, B.C.**

CALL FOR PAPERS INTEREST GROUP I

FUNDAMENTAL AND APPLIED COLOR RESEARCH

Abstracts are solicited for presentations on fundamental or applied research on topics related to

COLOR AND GRAPHICS

Send one-page abstract no later than March 1, 1999 to:

Dr. Helen H. Epps,

Interest Group I Chair

The University of Georgia

300 Dawson Hall

Athens, GA 30602

email: HEPPS@fcs.uga.edu

Phone: 706-542-4913

CALL FOR PAPERS INTEREST GROUP II

INDUSTRIAL APPLICATIONS OF COLOR

For the ISCC Annual Mtg. , May 5-7, 1999 Vancouver, BC, Interest Group II is soliciting contributed papers on

THE MANY INDUSTRIAL ASPECTS AND USES OF COLOR

“Industrial Applications of Color”, presents technical challenges and solutions that industry encounters in commercial color applications. The range of issues can include, but are not limited to, color reproduction, color management, color measurement techniques, color tolerances, color matching, color fidelity testing, continuous color monitoring, relationships between color and other physical characteristics, or other color related industrial application.

Send one pg abstract by March 1, 1999 not more than 200 words to the chair:

Michael Stokes
Interest Group II Chair
Hewlett-Packard Company,
11311 Chinden Blvd, MS: 227,
Boise, ID 83710
Tel: (208) 396-4261 Fax: (208) 396-5161
Michael_Stokes@hp.com

Britt Nordby
Interest Group Vice-Chair
Creanova, Inc.,
Turner Place,
P.O. Box 365
Piscataway, NJ 08855-0365
Tel: (732) 981-5433
Fax: (732) 981-5033
BNordby@Creanova Inc.com

CALL FOR PAPERS INTEREST GROUP III

ART DESIGN AND PSYCHOLOGY

Abstracts are solicited for presentations on fundamental or applied research on topics related to:

COLOR AND LIGHTING TECHNOLOGY – COLOR AND THE PSYCHOLOGY OF COLOR RENDERING.

Send one-page abstract no later than March 1, 1999 to:

Curt Fritzeen
Interest Group III, Chair
Steelcase
4 Columbus Circle
New York, NY 10019
Email: cfritzeen@steelcase.com
Phone: 212 445 8812 Fax: 212 445 8845

STUDENT TRAVEL GRANTS

Student Travel Grants applications are now being accepted for student travel to attend the ISCC Annual Meeting in Vancouver, British Columbia in May 1999. Two \$500 Travel Grants are available. A preference will be given to those who are giving presentations or posters. For further information please contact:

Dr. Vivianne Smith, Education Committee Chair
University of Chicago
939 E. 57th Street
Chicago, IL 60637
Tel: 773-702-1983 Fax: 773-702-4442
email: vc-smith@uchicago.edu

COLOR VISION REPORT ON THE WEB

A report describing correct techniques for testing color vision can now be found on the web:

NAS-NRC Committee on Vision,
Working-Group-41(1981).
Procedures for Testing Color Vision,
Washington, DC: National Academy Press.

FOURTH ARGENTINE CONGRESS ON COLOR

The Congress was held during August 3-6, 1998, at the School of Fine Arts and the School of Engineering of Misiones University of Obera, Argentina. The meeting was attended by 253 persons, and 65 papers were presented (in Spanish).

The abstracts (in Spanish) of these papers, as well as the ones presented in the previous congresses, can be found in the Web: <http://www.fadu.uba.ar/sicyt/color/congrgac.htm>. The Proceedings with the full papers will be published in 1999 (Proceedings of the previous congresses are already published). The next Argentine Congress on Color will take place in Mendoza City, during May 15-18, 2000.

Prof. Jose Luis Caivano
Grupo Argentino del Color, SICyT-FADU-UBA
Ciudad Universitaria Pab. 3 piso 4
1428 Buenos Aires, Argentina

http://www.ul.cs.cmu.edu/books/color_vision/color001.htm

INVITATION COME TO WARSAW!

The 24th Session of the CIE is approaching. In about 8 months we hope to meet in Warsaw. The organizers are in full preparation of all the practical arrangements that are needed when you host an international congress and I can assure you that they are not only preparing the venue for technical sessions and poster presentations but also for an interesting social programme.

More than 220 papers from 30 countries are accepted based on the abstracts sent in. As always the whole of CIE fields of activity are represented but the largest number is related to Division 3 Interior Environment and Lighting Design. Japan is the most active member country at the moment with by far the highest number of contributions but also Poland, the host country, has proposed a large number of papers.

A problem for the Board when making the detailed time plan is the limited time that is available for the paper presentations. The time is limited because participants want the congress to be reasonably short as many of the partici-

pants have to be away for quite a number of days to be able to participate both in the congress part and the Division meetings following.

To still give as many as possible a chance to make an oral presentation in a session the number of what is called a presented poster has been increased compared to the previous Session. There will also be a number of work-shops on important issues giving not only the authors but all participants the possibility to be active and take part in discussions that will help guiding the CIE work in the future.

At the Warsaw Session you will be introduced to the new area of activity that the CIE is starting: Image Technology, where CIE has been challenged with the task of leading joint research and development of international standards.

During the Division Meeting days all are invited to visit the meetings to hear about what is happening in the more than 100 active technical committees and what is planned to happen in the coming years. Taking part will give much more information than reading the short reports that you find in the CIE News. As a guest you don't have a voting right but are free to take part in the discussions.

We hope that the Session will attract participation also from many non-member countries and from professions not so active in the CIE work today. As the CIE covers practically all aspects of light and lighting both basic research and application, experts from many areas are needed. To be truly international we would also like to have more countries active as members especially from developing countries. The representation from Africa, Asia and South America is also too small today.

So come to Warsaw in June 1999 and meet colleagues from many countries and learn about the CIE. And take the chance to influence the activities in the direction you feel is most important for the future. **I would like to remind you the fact that AIC mid-term is 22, 23 June 1999, CIE 24th Session is 24-30 June 1999 at the Warsaw Institute of Technology.**

Session Secretariat: fax: +48 22 660 5616
e-mail: CIE_99@ee.pw.edu.pl
<http://www.ee.pw.edu.pl/cie99>

Hans Allan Löfberg
CIE vice-president Technical





WHAT IS CIE?

I am sure many of you wondered about the “secret” organization called CIE. At one time I also wondered. Looking into CIE Website I learned the answer to the question, “What is CIE?” As the name implies, the International Commission on Illumination - abbreviated as CIE from its French title Commission Internationale de l’Eclairage - is an organization devoted to the international cooperation and exchange of information among its member countries on all matters relating to the science and art of lighting. The CIE is an autonomous organization. It was not appointed by any other organization, political or otherwise, but has grown out of the interests of individuals working in illumination. Since its inception, the CIE has been accepted as representing the best authority on the subject and as such is recognized by the ISO as an international standardization body.

ITS OBJECTIVES

The CIE is a technical, scientific and cultural non-profit organization whose objectives are:

1. To provide an international forum for the discussion of all matters relating to the science, technology and art in the fields of light and lighting and for the interchange of information in these fields between countries.
2. To develop basic standards and procedures of metrology in the fields of light and lighting.
3. To provide guidance in the application of principles and procedures in the development of international and national standards in the fields of light and lighting.
4. To prepare and publish standards, reports and other publications concerned with all matters relating to science, technology and art in the fields of light and lighting.
5. To maintain liaison and technical interaction with other international organizations concerned with matters related to the science, technology, standardization and art in the fields of light and lighting. It is important to note that in these objectives light and lighting embraces such fundamental subjects as vision, photometry and colorimetry, involving natural and man-made radiations over the UV, the visible and IR regions of the spectrum, and application subjects covering all usage of light, indoors and out, including environmental and aesthetic effects, as well as means for the production and control of light and radiation.

HOW IT IS ORGANIZED

The affairs of the CIE are vested in National Committees which have the responsibility for decisions on all matters relating the organization. The composition of the National Committees varies from country to country, but each is required to represent and have the cooperation of all organizations having an interest in light and lighting. An important factor is the willingness and ability of those who represent the various National Committees to participate in and contribute to the technical activities of the CIE. At the present time the CIE comprises 40 member bodies from the following countries or geographical regions:

	Argentina	Australia	Austria	Belgium	Brazil	Bulgaria	
Canada	China	Croatia	Czech Republic	Denmark	Estonia	Finland	France
Germany	Great Britain	Hong Kong	Hungary	Iceland	India	Israel	Italy
Japan	Rep. of Moldova		Netherlands	New Zealand	Norway	Pakistan	Poland
Romania	Russia	Slovakia	Slovenia	South Africa	Spain	Sweden	Switzerland
Thailand	Turkey	USA					

In addition, persons from countries where a National Committee has not yet been established may join as Individual Members. At present they include individuals from Colombia, Greece, Korea, Malaysia, Mexico, Singapore, and Taiwan. These people may participate in the technical work of the CIE but have no voting rights on administrative or organizational matters. The affairs of the CIE are discussed and decided by the General Assembly, consisting of the Presidents of the National Committees. The general assembly meets at least every four years during the quadrennial Sessions of the CIE but usually holds a mid-term meeting between the Sessions. Between meetings of the General Assembly the administrative responsibility and the technical activities are delegated to a Board of Administration

HOW IT WORKS The success of an organization such as the CIE depends upon the effectiveness of its technical committees. Indeed, the objectives of the CIE could not be attained without a suitable and active committee

structure which draws upon the expertise of people from all the member countries. Each major subject of interest to the CIE was assigned to one of eight Divisions. Yes, eight divisions! In response to the request of national and international organizations, CIE established a new division; **Division 8 on Image Technology, October 1998**. Dr. Jack Hsia, president of CIE reported. Todd Newman, Canon, USA Inc. (Todd_Newman@cisnc.canon.com) is its first Director.

- **Division 1: Vision and Colour** To study visual responses to light and to establish standards of response functions, models and procedures of specification relevant to photometry, colorimetry, color rendering, visual performance, and visual assessment of light and lighting.

- **Division 2: Measurement of Light and Radiation** To study standard procedures for the evaluation of ultraviolet, visible, and infrared radiation, global radiation, and optical properties of materials and optical properties of materials and luminaries. To study optical properties and performance of physical detectors and other devices required for their evaluation.

- **Division 3: Interior Environment and Lighting Design** Terms of Reference: To study and evaluate visual factors which influence the satisfaction of the occupants of a building with their environment, and their interaction with thermal and acoustical aspects, and to provide guidance on relevant design criteria for both natural and man-made lighting. To study design techniques, including relevant calculations, for the interior lighting of buildings, incorporating the findings and those of other CIE Divisions into lighting guides for interiors in general, for particular types of interiors and for specific problems in interior lighting practice.

- **Division 4: Lighting and Signaling Transport** Terms of Reference: To study lighting and visual signaling and information requirements of transport and traffic, such as road and vehicle lighting, delineation, signing and signaling for all types of public roads and all kinds of users and vehicles, and visual aids for modes other than road transport.

- **Division 5: Exterior Lighting and Other Applications** Terms of Reference: To study procedures and prepare guides for the design of lighting for exterior working areas, security lighting, floodlighting, pedestrian and other urban areas without motorized traffic, areas for sport and recreation, and for mine lighting.

- **Division 6: Photobiology and Photochemistry** Terms of Reference: To study and evaluate the effects of optical radiation on biological and photochemical systems (exclusive of vision).

- **Division 7: General Aspects of Lighting** Terms of Reference: To study and evaluate activities in terminology, education, economics of lighting and provide information on the development of light sources.

- **Division 8: Imaging Technology** Terms of Reference: To study procedures and prepare guides and standards for the optical, visual and metrological aspects of the communication, processing, and reproduction of images, using all types of analogue and digital imaging devices, storage media and imaging media.

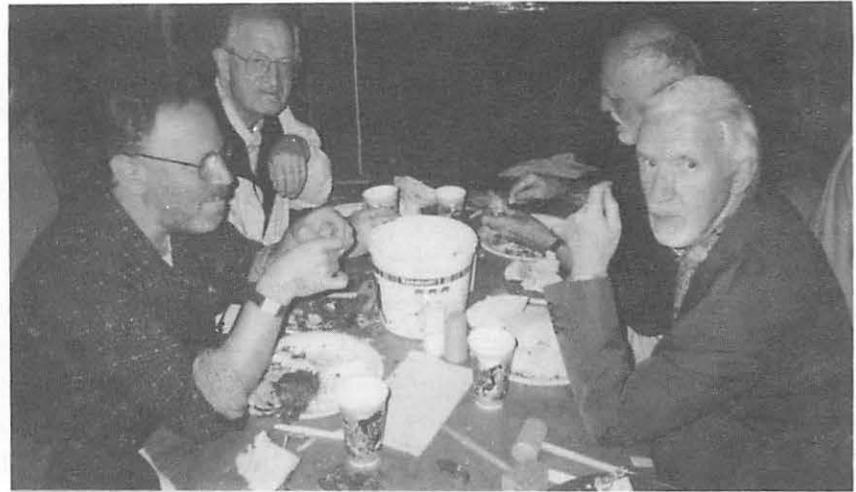
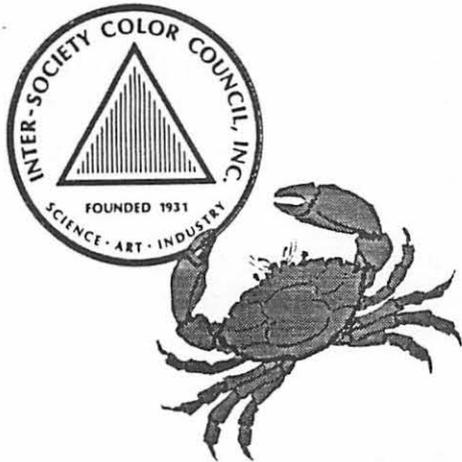
Each National Committee is entitled to have one voting member in each Division. One Division Member is appointed Director of that Division by the Board of Administration. It is through the Division members that National Committees will be kept informed of the activities being carried on by the Technical Committees, consisting of small groups of experts that are established in each Division to work on single subjects. The intent is that such committees are to concentrate on one specific topic and render a report to the Division for further discussion and approval within a reasonable period of time after which the committee will be discontinued.

CIE CENTRAL BUREAU ADDRESS:

General Secretary : C. Hermann, Kegelgasse 27, A-1030 Wien Austria;
Tel: +43 7143187-0, Fax: +43(1) 713 0838 18
e-mail: ciecb@ping.at website: <http://www.cie.co.at/cie/>

This text was provided by CIE Central Bureau Web Site and Dr. Jack Hsia, President, CIE at NIST, Office of Int'l and Academic Affairs, Admin. A-505, Gaithersburg, MD 20899 USA, Tel: 301-975-3067; fax: 301-975-3530;
e-mail: jack.hsia@nist.gov

Gultekin Celikiz
Editor, ISCC News



Roy Berns, Cal McCamy, Larry Hardin and Rolf Kuehni enjoying crabfeast.



Site where crab population decreased!



Paula Knee (England) "You mean I have to do WHAT to this crab?"



Good time was had by all.



Ellen Carter, Ann Laidlaw, Lynn & Roland Connelly



Dr. Hiroshisa Yaguchi (Chiba Univ. Japan) and Ms. Youngshin Kwak



Pres. Brill, Pres-elect Ladson, Danny Rich



Dr. Klaus Witt (Germany) and Prof. Da Pos (Italy)



Dr. Danny Rich and the head table.



Prof. Osvaldo Da Pos (Italy)



Max Saltzman and Anni Berger-Schunn (Germany)



Dr. C. J. Hawkyard (England)



Dr. Alan Robertson (Canada) Dr. Jack Hsia (CIE Pres.)



Dr. Joanne Zwinkels and Dr. A. Robertson
(Both from NRC, Canada)



Dr. Francoise Vienot (France)



Dr. Melgosa (Univ. of Granada, Spain), Dr. David Alman



Mr. Jack Ladson, President-elect of ISCC

REPORT ON IMPROVED COLORIMETRY-OCTOBER 1998

Michael H. Brill, 27 September 1998

1. Janos Schanda made a substantive report to CIE Division 1 of continuing work on Improved Colorimetry by William A. Thornton: effects of field size and brightness on color matches (Color Res. Appl. 22, 189-198 [1997]), putative rod contribution to color matches (Color Res. Appl. 23, 92-103 [1998]), improved weighting functions (Color Res. Appl. 23, 226-233 [1998]), and three other articles to be published in Color Res. Appl. Where Schanda states, "Further papers will deal with the question of the prime colours relating to colour imaging (TV, colour printing, colour photography, etc.)," an example is the following focus paper to be given in November at the Sixth IS&T/SID Color Imaging Conference in Scottsdale, AZ: M. H. Brill, G. Finlayson, P. Hubel, and W. A. Thornton, "Prime Colors and Color Imaging". Schanda recommended that CIE Division 1 set up a task force with the aim of creating a technical committee to resolve the salient issues.

2. I have thought more about the problem of Grassmann's Laws and the transformability of primaries. The problem was first revealed when W. Thornton (1992) found significant errors when transforming any observer's color-matching functions (cmfs) to new primaries mathematically, as opposed to using the cmfs directly from the new primaries for that observer. I confirmed the problem with another numerical experiment (Brill, 1993a, b), and in fact the cmfs I predicted were also noisier than Thornton's (i.e., had many inflection points). The reason the results were different is now apparent: my transformation matrix is the inverse of a matrix of experimental color-matching values (cmfs of the old primaries evaluated at the new primary wavelengths); Thornton's transformation is simply a matrix of experimental values (cmfs of the new primaries evaluated at the old primary wavelengths). Thornton's method requires, in addition to the old-primary cmfs, three measurements of the new-primary cmfs, but needs no matrix inversion. My method predicts the new-primary cmfs solely with the old-primary data, but needs the matrix inverse. It turns out that the matrix inverse magnifies random measurement errors, so Thornton's method is better for isolating the transformability problems that are not related to such errors.

That being said, it is instructive to understand why the matrix inverse is so vulnerable. Largely because of the denominator determinant in the matrix inverse (Cramer's rule), measurement errors in the matrix itself may be considerably magnified in the matching predictions for the new tristimulus basis. Denominator errors are less significant when the old primary set subtends a large tristimulus volume. (particularly for the PC set, which is maximal [Brill, 1996]). They are larger when the old primary set subtends a small volume (particularly for AP primaries). In my 1993 papers, I always started out from AP and NP primaries as old primaries, and "predicted" the PC cmfs. So the old primaries in my study (particularly AP) are quite volume-error-sensitive. My predicted cmfs are noisy-looking because the inverse matrix effectively subtracts nearly-equal quantities in the Cramer's-rule numerator (which differ mainly by measurement noise), and then amplifies these differences via the the near-zero denominator determinant.

My results and Thornton's would have been the same if measurement noise were zero and transformability worked perfectly. Because Thornton's predicted PC cmfs, though smooth, still show errors of transformability, we still do not know why transformability fails. Remapping to a new domain doesn't seem to make things better (Brill, 1993a,b). Thus further work is necessary, including the harvesting of new data, with repeated measurements to reduce noise. This was the plan for the original Consortium.

References

M. H. Brill, Color Sameness: What to do When Grassmann Additivity Fails Experimentally, in Device-Independent Color Imaging and Imaging Systems Integration, R. J. Motta and H. A. Berberian, Editors, Proc. SPIE 1909, 44-53 (1993).

M. H. Brill, Additivity Failures for Color Matches: Toward a Covering Theory and a New Standard Observer, 1993 CIE Symposium on Advanced Colorimetry, Vienna, Austria, June 8-10, 1993; also in CIE Publication CIE x007 (1993).

M. H. Brill, A Theorem on Prime-Color Wavelengths, Color Res. Appl. 21, 239-240 (1996).

W. A. Thornton, Toward a More Accurate and Extensible Colorimetry, Part II, Color Res. Appl. 17, 162-196 (1992).

COLOR RESEARCH AND APPLICATION IN THIS ISSUE, DECEMBER 1998

It is with sadness that we report that Dorothea Jameson died on April 12, 1998. We begin this issue with a piece by David Krantz of Columbia University, "Dorothea Jameson, A Memoir." I thank Dr. Krantz for sharing his thoughts with the readers of Color Research and Application.

In 1996, C. S. McCamy described the appearance of metallic materials viewed at a distance of a few meters, with the measurement of the appearance and standardization efforts in that field. In this issue, his article, "Observation and Measurement of the Appearance of Metallic Materials. Part II. Micro Appearance," addresses the appearance of these materials at reading distances. He identifies and names a number of metallic attributes of appearance, some of which can be perceived only with binocular viewing, and brings many years of experience in image optics and photographic psychophysics to bear on the problems of measuring these attributes. Some attributes are illustrated with computer-synthesized figures to be viewed binocularly.

When Hemmendinger Color Laboratory (HCL) was established in 1970, one of the major objectives of the laboratory was the determination of the repeatability and ultimately the accuracy, with which commercially available instruments could be used over an extended period of time. Coincidentally, almost 30 years ago, the British Ceramic Research Association (BCRA) began supplying a set of twelve tiles for use as spectrophotometrically and colorimetrically defined color standards. Over the past 25 years the HCL has monitored the performance of a specific set of BCRA tiles from Series I. In "Stability of Ceramic Color Reflectance Standards," Henry Hemmendinger and Hugh Fairman conclude that the tiles have not changed color during this period of time by an amount exceeding the limits of instrumental repeatability, namely about 0.15 units.

In the last issue, Yoshinobu Nayatani provided explanations of the relationship between the two kinds of representation methods for the Helmholtz-Kohlrausch Effect, and detailed how and when to use each representation. In this issue Dr. Nayatani gives "A Colorimetric Explanation of

the Helmholtz-Kohlrausch Effect." The Helmholtz-Kohlrausch effect for spectral colors exhibits characteristics that are very similar to those of the zero-grayness function studied by Evans and reported in his book *The Perception of Color*, and also of the colorimetric purity discrimination. Evans pointed out that the zero-grayness function is directly caused by the differences in chromatic strength between spectral colors of various wavelengths. While the association of the Helmholtz-Kohlrausch effect and the chromatic strength has been widely acknowledged in the literature, the colorimetric explanation of the zero-grayness function and the change due to the Helmholtz-Kohlrausch effect is first given here. The purpose of this article in the words of Dr. Nayatani is "to present a simple conjecture on its cause, and to give a clue for further study."

Our next two articles deal with metamerism. Since normal color vision is trichromatic, the light reaching our eyes is reduced to three signals. There are many possible combinations of light energy that can produce the same colorimetric perception. According to the Commission Internationale de l'Éclairage (CIE) the term metamerism describes the property of color stimuli that are spectrally different and have the same tristimulus values. Observer metamerism is the extension of the concept of metamerism to cases where an observer's color vision differs from that for which the matching samples were designed. The Davidson and Hemmendinger (D&H) Color Rule is a useful tool to test for individual variations in color vision. On each of two slides is a series of painted surfaces made out of a set of colorants. The match the observer makes using one color from each of the sets of colorants is highly sensitive to the spectral distribution of the light source and to the observer's visual response. In "Tracing a Metameric Match to Individual Variations of Color Vision," José A. Diaz, Alain Chiron, and Françoise Viénot show how the metameric match on the D&H Color Rule changes when each physiological parameter varies around its average value. By first deriving the color rule match of a theoretical observer with normal color vision, then deviating the match by changing the macular pigment density, the lens density, and shifting the long-wave-sensitive photopigment, then finally comparing eight observer's matches to their personalized cone fundamentals, the authors show that use of personalized cone fundamentals provides a better prediction than use of the data from the theoretical observer.

In the next article William Thornton makes the distinction between color order systems and color spaces. Color order systems (such as the Munsell or Optical Society of America Uniform Chromaticity Scales) comprising sets of real objects in a specified illuminant, and which are visually arranged by normal observers, do not suffer the effects of strong metamerism. However, in "How Strong Metamerism Disturbs Color Spaces," Dr. Thornton explains and illustrates the extent to which color spaces are perturbed by highly metameric matches.

Often in visual experiments the simultaneous comparison of two stimuli in a small central area is studied. However, in everyday activities the more common task uses a successive color matching technique, either because we must shift our gaze between the positions of the objects to be considered, or because there is a delay in seeing the second stimulus. This brings up the question of how well do we remember colors? The answer could depend on whether the memory colors are associated with familiar objects, or not. Bartleson stated that due to the frequency with which the colors of familiar objects are perceived, their images tend to be relatively stabilized in our memory. Therefore, remembering the colors of familiar objects may not be as variable as the memory of pure colors. J. Pérez-Carpinell, M. D. de Fez, R. Baldoví, and J. C. Soriano examine "Familiar Objects and Color Memory." They studied the nature and consistency of the color memory of eight familiar objects such as a red tomato.

For our final article in this issue, José Luis Caivano presents a path to better communication between two fields of study. The purpose of his article, "Color and Semiotics: a Two Way Street" is two-fold: to make semioticians interested in visual semiotics better acquainted with the aspects of color theory, from which they could take models to develop other aspects of visual semiotics, and to make color theorists more familiar with general semiotics. Since this is a color journal, the general semiotic notions are described and illustrate with examples taken from the domain of color, and an account of some of the advances of color theory is given within the framework of semiotic categories.

We conclude this issue with a review of the new book, *Color for Science, Art, and Technology*, edited by Kurt Nassau. Followed by the annual index for *Color Research and Application*. Finally the readers and contributors to

the journal are asked to note the new address for the editorial office:

11 Morningside Circle
Little Falls, NJ 07424.

The editorial office address can be found on the contents page of each issue of the journal.

Ellen C. Carter, Editor
Color Research and Application



The Detroit Colour Council held its 20th in a series of annual panel conferences at the Michigan State University Management Education Center on September 17, 1998. The title of the conference was, "ISSUES AFFECTING MATCHING OF AUTOMOTIVE COLOR AND APPEARANCE." Approximately 190 people heard from 3 speakers: Lisa Nicol - Ford Design; Bill Longley - Consultant (Retires Ford Design), and Jim King - Dupont. The interesting and informative talks generated many questions around issues of matching different substrates and chemistries to ONE master standard, as well as the lack of instrumental tolerances. The panel included the 3 speakers, plus: Fiona Clark - Collins & Aikman; Doug Pickett - GM; Don Lehnert - A. Schulman, and Thelma Sibley - Johnson Controls. The lively Question & Answer session addressed some of the problems facing suppliers in meeting OEM specifications. While some issues around color and appearance remain subjective, it is expected that these discussions will result in more objective analyses and more meaningful tolerances in the future.

Addendum: The committee upgrading SAE - J361, will present their findings around "Visual Evaluation of Automotive Color." The meeting will take place at the Troy, MI, Marriott, Thursday, November 19, 1998, with registration beginning at 5:00 P.M.

Contact: Jim King at 248-583-8276.

Jim R. Keiser



Color Association of the United States

CAUS Interior Colors for 2000/2001 are evolutionary, soft and at a midtone range. Oranges and yellows make a strong showing; blues are also much in evidence; metallics appear to be a growing tendency with eight metalized shades shown on a forecast of 55 colors. The 55 shades share a commonality of softness, of lightness and of tenderness. Comfortable, liveable and at times unexpected, describe the palette.

Interiors Committee Members are Jack Lenor Larsen, Chair, Cowtan & Tout/Larsen; Kenneth Charbonneau, Benjamin Moore & Co.; Sharon Clarke-Fodor, Koroseal Vixtex, Inc.; Clodagh, Clodagh Architectural Design; Murray Douglas, Brunshwig & Fils, Inc.; Joann Eckstut, Ehrenkrantz, Eckstut, Kuhn Architects; Diane Facticeau, Queen Carpet; Mary McFadden, Mary McFadden, Inc.; Barbara Schirmeister, consultant; Linda Thompson, Pallas Textiles; Jay Yang, Hines & Co.; Marypaul Yates, Yates Weisgal, Inc.

The CAUS August NEWS

CAUS Intern Project:

The Politics of Color: Politics has always been a game of image and power, and especially now with the use of the electronic medium as a means of communication. Although clothing has always been a natural way to express different moods and images, the post-Cold War era has produced a more calculated approach.

The color-coordinated wardrobes of Bill and Hillary Clinton have taken numerous twists and turns. Hillary's appearances in coral, royal blue and canary yellow are striking. She is able to suggest with these colors independence and support for her husband. Clinton's advisors have succeeded in portraying the President in conservative yet relaxed clothing that helps the American public relate to him as a leader as well as an average achiever of the American dream.

In the Cabinet and Congress, major differences exist between men's and women's business attire. Male political figures rarely stray from dark Brooks Brothers suits and conservative ties, symbols of strength and masculinity.

Prominent female politicians such as Madeline Albright, Diane Feinstein, Barbara Boxer and Janet Reno step out as a minority in bright, bold colors surrounded by the chromatically dark sea of males.

*Lily Chan, Columbia University '01.,
CAUS Spring Intern*



CMG

Color Marketing Group unveils its new logo and vision statement that will carry CMG into the next century. According to CMG, the new logo better reflects the wide-range of CMG members as well as the breadth of the color spectrum. Color Marketing Group President Melanie Wood, CMG, declares, "CMG has modified its logo to represent a vision of forward movement, and innovative thought in color and design." CMG's vision statement, "The Premier International Association for Color and Design Professionals," reflects the elite group of color and design experts world-wide who are CMG members.

This design was selected from among several concepts developed by graphic designers who are members of CMG. The designer John Currie, President and Creative Director of Currieworks Inc., in Minneapolis, MN, says, "Currieworks' goal was to update existing logo by unifying it with the corporate acronym and adding a suggestion of the world of color that CMG represents. It was meant to simultaneously convey an image of strength, authority and creativity." Color Marketing Group announces its Spring and Fall International Conference dates and locations for 1999:

Spring 1999 • April 18-20, 1999

Chicago, Illinois, The Palmer House Hilton

Fall 1999 • October 24-26, 1999

Palm Springs, CA, Renaissance Esmeralda Resort

In Spring 1999, CMG members will be forecasting for Consumer markets in the year 2001. In Fall 1999, colors for Contract/Commercial markets in 2002 will be in the forecast. For more information, contact:

CMG, 590 Richmond Hwy, Suite 408,
Alexandria, VA 22303 USA
tel: 703-329-8500; fax: 703-329-0155
email: cmg@colormarketing.org;
web-site: www.colormarketing.org.

Special Sale Continues.....**Reprints of "Color and Light"**

by Fred W. Billmeyer Jr., and
Harry K. Hammond, III.

Chapter 40 of ASTM Paint Manual, 23 pages

\$5 each 20 copies \$50...

An authorized reprint from ASTM Manual 17, Copyright 1996. American Society for Testing and Materials, 100 Bar Harbor Dr., W. Conshahocken, PA 19428-2959

Demystifying Color by Bob Chung

11 pages (color)

\$5 each 20 copies \$50...

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

Either of these publications can be obtained by sending a check or money order (pre-paid-s&h included) to:

Inter-Society Color Council
Cynthia J. Sturke, Admin. Asst.
11491 Sunset Hills Road,
Reston, VA 20190

For color and appearance technology questions call.....



Craig Johnson
Product Manager

BYK-Gardner USA
RiversPark II
9104 Guilford Road
Columbia, MD 21046-2729
Phone: 301-483-7230
Fax: 301-483-6555
E-Mail: C.Johnson@bykgardnerusa.com

For physical testing equipment questions call.....



Scott D. Ahrens
Market Segment Manager
Paint Maker / Physical Test

BYK-Gardner USA
RiversPark II
9104 Guilford Road
Columbia, MD 21046-2729
Main Phone: 301-483-6500
Direct 800-713-5307 ext. 7207
Cust. Serv. 800-343-7721
Fax: 301-483-6555
e-mail: sahrens@bykgardnerusa.com

GATF

JOHNSON RECEIVES REED TECHNOLOGY MEDAL

Pittsburgh, Pa., August 31, 1998 - Color Management pioneer, expert, and consultant, Anthony Johnson has been named the recipient of the Robert F. Reed Technology Medal. First presented in 1974 by the Society of Fellows (SOF) of the Graphics Arts Technical Foundation (GATF), the award honors the memory of the "Dean of Lithography." It is presented annually to an individual who has made a major contribution to the technical and scientific development of the graphic arts industry.

Tony Johnson's 30-year research and development career in the printing industry has made him an expert in color measurement and reproduction, process control, data exchange, and image processing. He developed an interest in color reproduction while studying printing technology for three years at the London College of Printing. In 1973 he joined the U.K. Printing Industry Research Association (PIRA) to undertake research work in this field. After joining Crosfield Electronics, Ltd, in 1983, Mr. Johnson was able to develop many of the concepts that had been initiated in PIRA studies. Currently Mr. Johnson is a Principal Lecturer at the London College of Printing, an independent consultant, and a Visiting Professor Colour Reproduction at Derby University in England.

Mr. Johnson has served on international standards committees such as British Standards Committee for Inks and Viewing Conditions. He recently served on the Board of Directors of TAGA and is currently a committee member of the Color Group of Great Britain. In 1993 he was awarded the Gold Medal of the Institute of Printing and in 1995 was given the TAGA Honors Award. He has lectured at numerous seminars and presented scores of technical papers at national and international conferences in the U.K. and the U.S. In addition to writing two books, Mr. Johnson has had several articles and reports published.

For additional information about the conference or award, contact Amy Ciminel, conference coordinator at GAFT, 200 Deer Run Road, Sewickley, PA 15143-2600; Tel: 412-741-6860; Fax: 412-741-2311 or email: info@gatf.org.

DONATIONS NEEDED TO PRESERVE HISTORIC COLOR

ISCC members, their companies and ISCC member-bodies are being asked to contribute to a special ISCC fund dedicated to conserving historic materials relating to color and making it available to scholars.

In 1973 Dorothy Nickerson sent 20 boxes of papers and objects relating to color to the Cooper-Hewitt Museum. She began collecting information on color after she was hired by the Munsell Color Company in 1921. In 1927 she accepted a position in color science at the Department of Agriculture where she worked closely with the Munsell company and the National Bureau of Standards (now NIST) on color problems. She was part of the U.S. delegation to international color conferences throughout her life and corresponded with all the major figures in color science. The material she collected covers the history of modern color science. Dorothy persuaded Albert H. Munsell's son Alex Munsell to donate material to the Cooper-Hewitt collection and Walter Granville sent his color materials there. Over the last ten years several ISCC members who needed to use the collection were told it was inaccessible. In January of 1996, as co-chairwoman of the ISCC History committee, I contacted the Cooper-Hewitt Museum and inquired about the collection. Evelyn Stephens and I were told that it was stored off the premises and that the Cooper-Hewitt wanted to get rid of it. Other museums and libraries were contacted, looking for a place that would properly conserve the material and make it available for research. Mr. Michael Nash, Chief Library Curator at the Hagley Museum and Library expressed a strong interest in the collection. The Hagley Library had already accepted color material from the Color Association of the United States. The Hagley is located on beautiful grounds near Wilmington, Delaware, once belonging to the DuPont family. It is a non-profit educational institution dedicated to the preservation and understanding of America's economic and technological heritage. The Library houses an important collection of manuscripts, photographs, books, and pamphlets documenting the history of American business and technology and beginning to collect in the consumer products field. Scholars will find the Hagley Library a pleasant place for research, and staying nearby less expensive than in New York.

After three years of red tape, the many boxes and filing cabinets containing the color collection now occupy a very large part of the storage area at the Hagley Library. All the material must be catalogued and conserved before it will be available for research. The Hagley has asked if the ISCC and its member-bodies could contribute some funds to expedite this work. For many years the collection has been stored under less than ideal conditions and parts of it are now at risk. Given the size and scope of the collection, processing the archive will take many years unless staff can be hired dedicated to this project. Since the ISCC keeps dues and registration fees at a minimum, there are no ISCC funds available; however, the ISCC Board of Directors has set up a special fund to accept donations to be used to assist this work. There are two reasons why the work is important to ISCC members; to make the material available for research as soon as possible and to create a place where unique materials still in the hands of members can be accepted.

Mr. Nash has already had inquiries about access to the material from scholars and advanced graduate students. On a personal note, at the October ISCC conference in Baltimore three individuals asked me about materials they need to see. Dr. Trezona is looking for Deane Judd's notes preliminary to development of the ten degree observer and two members wanted to see the National Bureau of Standards report on the proposed re-renotation of the Munsell color system. Since ISCC and CIE committees continue to work on color difference formulas and uniform color spacing, it is important that they be able to reach papers that form the basis for decisions made in the past. Several important collections of color materials have already been lost. When the Bureau of Standards closed the section on colorimetry, ISCC members Kenneth Kelly, Fred Billmeyer and Nick Hale did their best to save the material being discarded. Boxes were trucked around, scattered across the country and much of the material finally lost. When David MacAdam gave up his space at the University of Rochester, he was forced to put his collection of books in the student lounge for individual students to pick up because there was no place willing to accept them. His three dimensional models of the OSA Uniform Color Scales, ovoids representing just noticeable color differences arranged in chromaticity diagram space, and his model of the strange three dimensional form constructed from observations made by the Optical Society committee, are in temporary storage or

have been destroyed. Please write a check to the ISCC, mark it for the **Hagley Color Fund** and send it to the ISCC office at 11491 Sunset Road, Reston, VA 20190. You may charge your donation and ISCC dues to your credit card when the 1999 dues invoice arrives. Contact me at the address below about any items that you believe should be part of the collection.

Submitted by,

Joy Turner Luke

Studio 231

93 Bronson, Sperryville, VA

Phone: 540 987-8386 Fax: 540-987-3353

email: jtluke@mnsinc.com



AATCC LOSES A GOOD FRIEND

When I joined AATCC in 1952, George Mandikos was a central figure in the organization. His advice, support and problem solving abilities were clearly apparent. He was known as Mr. AATCC. On September 20, 1998, Mr. George J. Mandikos died at his home following a brief period of illness. We have all lost a dear friend. lost a dear friend.

A native of Haverhill, MA, Mr. Mandikos had devoted his entire professional career to AATCC. After earning his BS (1942) and MS (1944) degrees in textile chemistry, Mr. Mandikos accepted a position as a staff member of AATCC's research laboratory established at his AlmaMater, Lowell Textile Institute. In 1947 he became research associate and in 1955, technical manager. In 1957 he was named technical secretary and in 1976, technical director until his retirement. Mr. Mandikos was president of AATCC (1989-1990). In 1981 he was elected an Honorary Member in recognition for "long and distinguished service to this association, to its members, to textile chemistry and to textile wet processing industry." He was only the eighth person to be accorded honorary membership since the association was founded in 1921, and he was the only living honorary member.

In addition to AATCC, Mr. Mandikos had been active in a number of organizations as well. He had held membership in the American Chemical Society for more than 40 years, in ASTM more than 20 years and The Fiber Society more than 25 years. He was named an Honorary Member of the American Association for Textile Technology in 1977. He had authored and co-authored numerous technical articles and had been a contributing editor—dyes and dyeing—to Britannica Junior. He had participated in a number of international conferences including ISO meetings in England (1961) and Canada (1977) and the Pan American Standards Committee on Textiles in Peru (1963).

He and his wife Sofia moved to North Carolina in 1963 when the AATCC Technical Center transferred from the University of Lowell campus to Research Triangle Park.

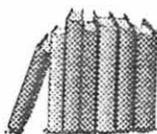
Mr. Mandikos was also a past president of the Parish Council of Holy Trinity Greek Orthodox Church In Raleigh. He was also a past president of the American Hellenic Educational Progressive Association.

Mr. Mandikos is survived by his wife Sofia, his daughter, Joyce of Raleigh and his son and daughter-in-law John and Adina Mandikos of Greensboro, and grandsons Nick and Alex. Our warm wishes are extended to his wife and family.

Gultekin Celikiz
 Editor
 ISCC News

BOOK REVIEW

Kurt Nassau, Editor
 Color for Science, Art and Technology
 Elsevier, Amsterdam, 1998,
 Hard cover, 491 pages, 39 color plates, \$132.



This book attempts to be a survey of the state of knowledge concerning the multi-dimensional subject of color. It brings together a group of experts well versed in their fields. It is difficult to put together a survey of a field with so many divergent aspects and have it appear to be of one piece. As the editor indicates, each subject covered is deserving of a volume of its own. It is the art of the author to abstract the subject in a manner that gives justice to the subject and remains sufficiently interesting to the generalist presumably interested in the wide picture offered. The editor provides an essentially historical introduction to the fundamentals of color that ranges from early views on color to quantum mechanics, with an idiosyncratic tour through the subject of "Science versus Art". What I find disappointing in view of the editor's outspoken belief in the value of Goethe's contributions to color, is that he has not found a spokesperson that could provide a meaningful modern interpretation of that work. I also missed a discussion of the genetics and evolutionary development of color vision in animals and man.

The scene quickly changes to color technology and Bob Marcus provides a solid, workmanlike introduction to the mundane world of color measurement and calculation. It can be usefully employed as an up-to-date 65 page introduction for colorists and color technologists.

On overview of the foundations of physiology and psychophysics of color vision by John Krauskopf is followed by an abstract of Nassau's book "The Physics and Chemistry of Color." Science then lets the humanities step forward and we are treated to an essay on "Color in Abstract Painting" by the artist and Professor of Art, Sanford Wurmfeld. His key thesis is that "by investigating color, the abstract artists discovered new possibilities for stimulating more complex visual experiences in order to contest the physical limits of the canvas." John Hutchings presents an unnecessarily brief survey of color in anthropology and folklore. This is a massive subject deserving significantly more room in a volume that surveys the subject of color. In

an equally over-brief chapter by Larry Hardin on the philosophy of color we make the acquaintance of Blind Mary and of the problem of chromatic inversion. Fortunately, he provides good references for those interested in more depth. Hutchings follows again, with a survey of color in plants, animals and man. Extensive references provide good support but one is surprised not to see any mention of Backhaus and his very interesting work on color vision of animals and its relationship to coloration of plants and animals.

Biological and therapeutic effects of light is the subject of the next chapter by George Brainard. It has been and continues to be somewhat controversial. In an unusual step the editor has seen fit to append a short essay on how to do double blind testing to support the claims of biological and therapeutic effects of color.

The next two chapters are devoted to colorants. Peter Lewis' article on pigments is a brief description of the chemistry and some application properties of the better known pigments but does not include any discussion of the effects of physical properties of pigments on the resulting color. In contrast, Dick Aspland in his presentation on dyes essentially gives an introduction to textile dyeing, complete with machinery schematics and discussion of textile processing chemicals, a treatment I would have expected in another book.

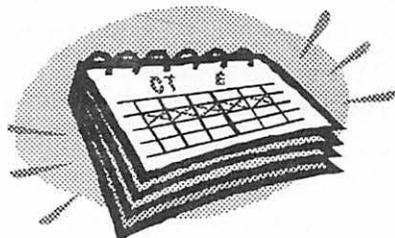
Another solid technical discussion, for me as a non-expert, is the one by Gary Field on color imaging in printing and photography. In its condensed form it appears quite complete. The same can be said of Heinwig Langis' chapter on color displays. More unusual is the space provided in this survey for a discussion of Kodak's Photo CD system.

Comparatively disappointing are the color plates. It is a mystery to me that some publishers can publish a book full of excellent color plates for \$45 but that it is seemingly impossible to publish in a book three times as expensive and on the subject of color a satisfactory number of color illustrations in a satisfactory quality.

As an author of a book that overlaps many fields I wonder what the audience for this book can be. It will be interesting to see if it has staying power in the small world of books on color.

Rolf G. Kuehni

CALENDAR



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

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

1998

IS&T TRI-STATE (NY-NJ-CT) CHAPTER MTG.

Color Education '99 - A Preview. Nov. 11, 7:30-9 PM, Fashion Institute of Technology, F.I.T. No charge.
RSVP to: Tel: 914-789-8172 or Fax: 914-789-8370.

DfwG 1998. Nov. 13, 1998, Rheinisch Westfalische Technische Hochschule (RWTH) Aachen, Institut für elektronik. For info: Klaus Witt, BAM, D-12200 Berlin, Germany. Tel: 49-30-8104-1916 Fax: 49-30-8104-3047.

IS&T/SID, 6TH COLOR IMAGING CONFERENCE, Nov 17-20, Society for Imaging Science and Technology/Society for Information Display, Sunburst Hotel, Scottsdale, AZ, Info: IS&T, 7003 Kilworth Lane, Springfield, VA 22151 tel: 703-642-9090; fax: 703-642-9094 email: info@imaging.org; internet: www.imaging.org

Detroit Colour Council, Visual Evaluation of Automotive Color, Troy, MI, Marriott, Nov. 19. Registration begins 5 PM. Contact Jim King: 248-583-8276.

1999

ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications, Jan. 24-27, Embassy Suites, Ft. Lauderdale, FL., Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: tbrooke@astm.org

ASTM COMMITTEE E-12 ON APPEARANCE, Jan 26-28, Embassy Suites, Ft. Lauderdale, FL Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: tbrooke@astm.org

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

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

ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications June 13-16, Omni Rosen Hotel, Orlando, FL; info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: tbrooke@astm.org

ASTM COMMITTEE E-12, Color and Appearance, June 20-23, Toronto, Ontario. Info: Bode Buckley, Tel: 610-832-9740; Fax: 610-832-1547 email: bbuckley@astm.org

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

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

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

IS&T/SID 7TH COLOR IMAGING CONFERENCE, Nov. 14-17, Color Science, Systems & Applications, co-sponsored by the Society for Information Display, The SunBurst Resort Hotel, Scottsdale, Arizona.

2000

ASTM COMMITTEE D-1, Paint, and Related Coatings, Materials and Applications, Jan. 23-26, Hyatt Regency, New Orleans, LA Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: tbrooke@astm.org

ASTM COMMITTEE E-12 ON APPEARANCE, Jan 25-28, Hyatt Regency, New Orleans, LA, Info: Bode Buckley: tel: 610-832-9740; fax: 610-832-1547; email: bbuckley@astm.org

ISCC WILLIAMSBURG CONFERENCE, Feb 20. 2nd Panchromatic Conference, Color in it's Surround; Hilton Head, S.C. info: Dr. Cynthia Brewer, tel: 814-865-5072; fax: 814-865-7943

ISCC & CPMA ANNUAL MEETINGS; April, Inter-Society Color Council and Color Pigments Mfg Association, Charlotte, N.C., info: Romesh Kumar Tel: 410-823-2161

SID 2000, May 14-19, Society for Information Display Long Beach CA, Info: SID, tel: 714-545-1526; fax: 714-545-154 email: socforinfodisplay@mcimail.com www home page: <http://www.sid.org>.

ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications, June 11-14, Ascagua's Nugget, Reno, NV Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: tbrooke@astm.org

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

IS&T/SID 8TH COLOR IMAGING CONFERENCE, Nov. 14-17, Color Science, Systems & Applications, co-sponsored by the Society for Information Display, The SunBurst Resort Hotel, Scottsdale, Arizona.

2001

ASTM COMMITTEE E-12, Color and Appearance, Jan 23-26, Info: Bode Buckley, Tel: 610-832-9740; Fax: 610-832-1547; email: bbuckley@astm.org

ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications, January 23-26, Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: tbrooke@astm.org

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

IS&T/SID 9TH COLOR IMAGING CONFERENCE, Nov. 13-16, Color Science, Systems & Applications, co-sponsored by the Society for Information Display, The SunBurst Resort Hotel, Scottsdale, Arizona.

NEW ADVERTISING OPPORTUNITY!

The ISCC Board of Directors has initiated a new advertising policy for the Inter-Society Color Council News. Pre-paid color-related advertising will be accepted thirty days in advance of the publishing date. The rates are as follows:

\$100	business card ad
\$250	1/4 page ad
\$500	1/2 page ad
\$1,000	full page ad.

There is a 20% discount offered for a yearly contract.

Artwork must be publisher ready and will be returned within 30 days after publication. The publishers reserve the right to determine the acceptability of the advertising.

For further information contact: Cynthia Sturke, ISCC Office or Tek Celikiz, ISCC News Editor.



Inter-Society Color Council News
Number 376 November/December 1998
Editor: Gultekin (Tek) Celikiz

Send newsletter material to:

Prof. Gultekin Celikiz, Editor
 1309 Paper Mill Rd.,
 Erdenheim, PA 19038-7025
 Tel: 215-836-5729 Fax: 215-836-0448
 E-mail: celikizg@philacol.edu

Please note: Deadline for submission of material is the 1st of each even numbered month. Material received after the 1st may not be printed until the following issue.

All submissions must be in English.

SUSTAINING MEMBERS

BYK-Gardner USA
Tel: 301-483-6500

Chromatics Color Sciences International, Inc.
Tel: 202-717-6544

Hunter Associates Laboratory, Inc.
Tel: 703-471-6870

Labsphere, Inc.
Tel: 603-927-4266

David L. Spooner, rhoMetric Assoc., Ltd.
Tel: 302-764-9045

Minolta Corporation, Inc.
Tel: 201-934-5291

ISCC MEMBER-BODIES

American Association of Textile Chemists and Colorists (AATCC)
American Society of Interior Designers (ASID)
American Society for Testing and Materials (ASTM)
American Society for Photogrammetry and Remote Sensing (ASPRS)
The Color Association of the United States, Inc. (CAUS)
Color Marketing Group (CMG)
Color Pigments Manufacturing Association (CPMA)
Council on Optical Radiation Measurements (CORM)
Detroit Color Council (DCC)
Federation of Societies for Coatings Technology (FSCT)
Gemological Institute of America (GIA)

Graphic Arts Technical Foundation (GATF)
Human Factors & Ergonomics Society (HFES)
Illumination Engineering Society of North America (IESNA)
National Association of Printing Ink Manufacturers (NAPIM)
Optical Society of America (OSA)
Society for Information Display (SID)
Society of Plastics Engineers, Color & Appearance Div.(SPE)
Society for Imaging Science and Technology (IS&T)
Technical Association of the Graphic Arts (TAGA)
Technical Association of the Pulp and Paper Industry (TAPPI)

OFFICERS 1998-2000

Position	Name	Address	email	Telephone	Fax
President	Dr. Michael H. Brill	David Sarnoff Research Ctr. CN 5300, Princeton NJ 08543	mbrill@sarnoff.com	609-734-3037	609-734-2662
Pres-Elect	Mr. Jack Ladson	Dir. Color Technology, The Estee Lauder Companies, Inc. 411 Sinclair St., Bristol, PA 19007-1525	jladson@estee.com	215-781-1600	215-781-1789
Secretary	Mr. Rich Riffel	Hunter Associates Laboratory, Inc. 11491 Sunset Hills Rd., Reston, VA 20190	riffel@hunterlab.com	703-471-6870	703-471-4237
Treasurer	Mr. Hugh Fairman	P.O. Box 490, Tatamy, PA 18085	efairman@minolta.com	610-252-2120	610-253-1564
Past-Pres.	Dr. Ellen C. Carter	Minolta Corp. 101 Williams Rd. Ramsey, NJ 07446	ecarter@minolta.com	201-934-5228	201-825-4374

LIST OF DIRECTORS

1996-1999

Dr. Helen H. Epps	University of Georgia, 300 Dawson Hall, Athens, GA 30602	hepps@hestia.fcs.uga.edu	706-542-4913	706-542-4862
Mr. James R. Keiser	DuPont Automotive Products, Detroit Colour Council 945 Stephenson Hwy, Troy, MI 48007-2802	keiserjr@sptyv4.dnet.dupont.com	248-583-8345	248-583-8316
Dr. Cynthia A. Brewer	PSU Dept. of Geography, University Park, PA 16802	cbrewer@essc.psu.edu	814-865-5072	814-863-7943

1997-2000

Ms. Shashi Caan	Gensler Assoc. & Architects, 135 W. 70th St., NY, NY 10023		212-492-1400	212-492-1472
Mr. David L. Spooner	rhoMetric Assoc., Ltd., 2918 N. Franklin St., Wilmington, DE 19802	rhomet@delanet.com	302-764-9045	302-764-5808
Dr. Joanne C. Zwinkels	National Reserach Council of Canada Photometry & Radiometry Montreal Rd., M-36 Ottawa ON K1A OR6, Canada	joanne.zwinkels@nrc.ca	613-993-9363	613-952-1394

1998-2001

Ms. Charla S. Haley	Techner PM, LLC Color Dev. Mgr., 1 Quality Circle, Clinton, TN 37716	chaley@techmerpm.com	423-457-6700	423-457-3012
Mr. Craig Johnson	BYK-Gardner, USA RiversPark II, 9104 Guilford Rd., Columbia, MD 21046-2729	cjohnson@bykgardnerusa.com	301-483-7230	301-483-6555
Mr. Yan Liu	GIA, 5355 Armada Drive, Carlsbad, CA 92008-4606	yliu@gia.edu	760-603-4500x7563	760-603-4021

ISCC OFFICE

Website: <http://www.iscc.org>

Cynthia J. Sturke, Adm. Asst.	11491 Sunset Hills Road., Reston, VA 20190	iscc@compuserve.com	703-318-0263	703-318-0514
-------------------------------	--	---------------------	--------------	--------------

ISCC NEWS EDITOR

Prof. Gultekin (Tek) Celikiz	1309 Paper Mill Rd, Erdenheim, PA 19038-7025	celikizg@philacol.edu	215-836-5729	215-836-0448
------------------------------	--	-----------------------	--------------	--------------