

Inter-Society Color Council *News*



Number 359 January/February 1996

IN THIS ISSUE

359

| | |
|----------------------------------------------|-----------|
| From The Editor | 1 |
| ISCC Annual Meeting | 2 |
| ISCC Interest Group I | 2 |
| ISCC Interest Group II | 2 |
| ISCC Board of Directors Nominees | 2 |
| New Members | 4 |
| News From Member Bodies | 6 |
| AATCC, ASTM, CAUS, CMG, HFES, IESNA, SID | |
| Other News | 12 |
| In this Issue of CR&A | 15 |
| Birthday Greetings | 16 |
| ISCC Student Chapter News | 17 |
| Graduate Scholarships in Color Science | 17 |
| Calendar | 18 |
| Jobs Wanted | 23 |
| Officers, Directors, | Back Page |
| Member Bodies, Sustaining Members | |

FROM THE EDITOR

Who would have thought that when I joined ISCC as a new member in April 1959 that one day I would be editing the ISCC Newsletter. At that time, the editor was Warren L. Rhodes and the Newsletter Committee was composed of:

Warren L. Rhodes, Chairman
Deane B. Judd
Robert W. Burnham
Dorothy Nickerson
Ralph Pike
Helen D. Taylor

Impressive list!

I took this job from the able bodied Mike Hammel who improved upon the format of the Newsletter from what it was yesteryear to what it is today. I hope I can continue the good track record that Mike created.

I would like to thank Roland Connelly for having confidence in me by offering me the editorship. Thanks also goes to Mr. Ken. Richardson of Penn State University for his support and guidance when things needed to be unscrambled.

Finally, I thank my wife for her understanding when I was tucked away in my office for long periods of time with this labor of love.

I wish each and every one Seasons Greetings and a Happy New Year.

New beginnings to you all.



COMING-ISCC 1996 ANNUAL MEETING

**Orlando, Florida
May 5 -7, 1996**

The ISCC Annual meeting will be held in Orlando, Florida, May 5-7. An ASTM symposium and E-12 meetings will follow on May 7 and May 8-10, respectively.

The Doubletree Guest Suites resort at the Walt Disney World Village is the meeting hotel.

Please call the hotel directly at 407- 934-1000 to reserve your accommodations at the special ISCC/ASTM rate. The hotel provides complimentary transportation to all Disney Theme Parks. Please note however the cut-off date is April 3, 1996. Don't delay.

Make your reservations early!

There will be a Polynesian Luau at Disney World and special priced tickets for the theme parks will be available to attendees.

*Romesh Kumar
Arrangements Chair*

ISCC 1996 ANNUAL MEETING MAY 5-7 INTEREST GROUP 1

ISCC Interest Group I, Basic and Applied Color Research, serves to bring together researchers in the field of color science, color measurement, color technology, vision, design, education and psychology, to discuss topics of mutual interest. For the 1996 Annual Meeting to be held in Orlando, Florida, May 5-7, 1996, the topic of discussion is color order systems. The session will include as invited tutorial lecture (approximately 1 hour in length) followed by several contributed papers (approximately 20-30 minutes in length).

Dr. Gunilla Derefeldt, of the Swedish Institute for the National Defence in

Linköping, an internationally-recognized expert on color order systems, will present the introductory tutorial lecture.

Interest Group I is now soliciting contributed papers on any aspect of basic and applied research in the field of color order systems. Please submit by March 1, 1996 a title and an abstract of no more than 200 words to either of the Co-Chairmen below:

Dr. Joanne Zwinkels
National Research Council of Canada
Institute for National Measurement
Standards
M-36 Montreal Road
Ottawa, Ontario
K1A 0R6 CANADA
613/993-9363
613/952-1394 (fax)
email: joanne.zwinkels@nrc.ca

Dr. Michael Brill
David Sarnoff Research Center CN5300
Princeton, NJ 08543-5300, USA
609/734-3037 (Office)
609/734-2662 (fax)
email:
michael_brill@maca.sarnoff.com

ISCC 1996 ANNUAL MEETING MAY 5-7 INTEREST GROUP II - INDUSTRIAL APPLICATION OF COLOR CALL FOR PAPERS

Interest Group II's main goal is to provide a forum for the exchange of information highlighting the practical application of Color Science to modern industrial problems. Some of these problems include formulating and controlling production of colored materials, improving customer understanding

of color tolerancing and specifications, and incoming certification of colored products.

Interest Group II is now soliciting contributed papers for the 1996 Annual Meeting to be held in Orlando, Florida on May 5 - 7 1996. Papers should center around the application of color to an industrial issue in keeping with the goals of the group, and be targeted for approximately 30 minutes in length.

Abstracts should be submitted by January 15 to either of the Co-Chairmen below:

Mr. Bill Tuting
Hunter Associates Laboratory
11491 Sunset Hills Road
Reston VA 22090
(703) 471-6870 (voice)
(703) 471-4237 (fax)

Mr. Richard Riffel
Accuracy Microsensors Inc.
3800 Monroe Avenue
Pittsford NY 14534
(607) 733-0718 (home)
(716) 381-1480 (office)
(716) 381-9801 (fax)

In addition, the Co-Chairmen welcome your questions on either contributing a paper or the Interest Group in general.

ISCC BOARD OF DIRECTORS NOMINEES

The following members have been nominated to be elected to the Inter-Society Color Council's Board of Directors for a term to last from the Annual Meeting of 1996 to the Annual Meeting of 1999. The following biographies have been prepared to assist the voting delegates in making their choices.

Helen H. Epps is an Associate Professor in the Department of Textiles, Merchandising and Interiors at the University of Georgia in Athens, Georgia. She received her Ph.D. degree in textile science from the University of

Tennessee in 1981. Her research interests include weathering and lightfastness of textile materials, color perception and color measurement. A current research project supported by a grant from the U.S. Coast Guard focuses on relationships between color changes and strength loss of fluorescent dyed fabrics used in personal flotation devices.

Helen has been active in ISCC since 1991, and has been a long-term member of AATCC (American Association of Textile Chemists and Colorists), having served as past chair of AATCC RA-64 Research Committee on Weather Resistance, and as a member of RA-36 Research Committee on Color Measurement of Textiles and RA-50 Research Committee on Colorfastness to Light Test Method. Through her interest in relationships between human perception and instrumental methods of color, in 1992 she was one of four faculty members at the University of Georgia to be awarded a "Study in a Second Discipline" fellowship, which enabled her to complete a one-year program of coursework and research in sensory psychology. Helen developed and teaches two Color Science courses which regularly attract students from a variety of disciplines across campus, in addition to students within her department majoring in textile science and interior design.

Jack A. Ladson currently serves as a Senior Scientist at BYK Gardner Laboratories. His undergraduate studies were at the University of Rochester in Optics and his graduate studies at the Massachusetts Institute of Technology in Mathematics. Jack has worked in Research and Development department of BYK-Gardner for twenty years. He has also served as the Director of Engineering, product champion.

Jack is an active member and sub-committee chairman of ASTM (American Society for Testing and Materials). He functions as the chairman of ASTM E12.02 on Colorimetry and Spectrophotometry and task group chairman of Effects Coatings (Metallic and Mica Flakes). He is a member of

USNC/CIE (United States National Committee/Commission Internationale de l'Eclairage), ISCC, CGATS (Committee on Graphic Arts and Technical Standards), the CORM (Council on Optical Radiation Measurement), the ASA (American Statistical Association), and the SAS (Society for Applied Spectroscopy).

Jack has authored and published papers on the geometrical properties of appearance phenomena, instrumental performance and process control. He has been awarded patents in the field of colorimetric instrumentation and he has blazed the path for the utilization of new technology at BYK-Gardner.

James R. Keiser is currently a Research Associate at E.I. DuPont responsible for the color development chemistry for new Ford automotive colors. Jim received a B.A. degree in Chemistry from North Park College in Chicago, in 1963. He served two years in the US Army Coatings and Chemical Laboratory, Aberdeen, Md. He joined DuPont in December 1965 and worked as a product development chemist and later as a first line supervisor through all areas of manufacturing. He was transferred to DuPont's automotive laboratory in Troy, MI and has worked in a number of color-related positions in both Refinish and Automotive.

Jim is also Past President and currently Board Member of the Detroit Color Council, and a very active member of the ISCC. In this capacity Jim was program Chair of the highly successful joint ISCC/DCC meeting held in April 1994 in Troy, Michigan.

Kathy Willis currently manages Color and Design Styling for the Industrial Wood Coatings Business of PPG Industries, Inc. She is responsible for developing color systems and color marketing programs for furniture, hardwood flooring, and cabinet customers.

Kathy received a BS degree in Interior Design from East Carolina University in 1990. Her initial professional challenge was the development of a color library for a major textiles R&D laboratory located

in Greensboro, NC. Upon completion of the color library, Kathy assumed responsibility for color matches and standards for an apparel manufacturer. She joined the PPG Industries Coatings and Resins group in 1992 and assumed her present responsibilities.

Kathy conducts research on color and design trends to develop new finishing systems for customer marketing personnel. She leads the PPG technical and manufacturing groups in finalizing the formulation and quality control of new color products. She also maintains a computerized color library and formulating system.

Kathy's interest in art and design is inherited from her parents whose hobbies include painting and photography. Kathy became a student member of ASID in 1989 and has been a member of ISCC since 1992.

James A. Worthey is presently employed by the National Institute of Standards and Technology in Gaithersburg, MD, a federal laboratory. Jim received a BS degree in Electrical Engineering from the University of Missouri; an MS in Physics from Michigan State University; and a PhD in Physiological Optics from Indiana University at Bloomington.

Jim's research has several times addressed applied problems with an opponent-color approach. He utilized an opponent model in papers on color constancy and object-color metamerism. His deepest interest is the role of the light source as it affects vision of color and shapes. He likes to take on small assignments for Color Research and Application, such as reporting on the February 1995 ISCC Williamsburg Pan-Chromatic conference. He is a member of the Optical Society of America and Illuminating Engineering Society of North America, as well as the ISCC.

*Respectfully submitted,
Paula J. Alessi*

ISCC Nominating Committee Chair

NEW MEMBERS

The following are the list of new members and one not so new member as approved by the September 30, 1995 Board Meeting

Dr. Louis W. Adams, Jr.
Milliken Research Corporation M-405
920 Milliken Road
P.O.Box 1927
Spartanburg, SC 29304-1927
particular interests: device independent color, color appearance models

Mr. Daniel Axelrad
Rochester Institute of Technology
244 Main St. Barrifield
Kingston, Ontario K7K 6W4
Canada
particular interests: color reproduction in computer based imaging

Mr. Andrew J. Casey
Key-Tech, Inc.
28 Sand Hill Dr.
North Kingstown, RI 02852
particular interests: to better understand the description of color and color formulation for production and QC

Prof. Gültekin Çelikiz
1309 Paper Mill Rd.
Erdenheim, PA 19038-7025
particular interests: color vision, color education, color measurement as applied to dyes

Mr. Joe Clark
Uniform Color Company
942 Brooks Avenue
Holland, MI 49423
particular interests: pigments and color application (plastics)

Ms. Ruth Dar
University College London
Gower Street
London WC1E 6BT
England

Mr. Roger Duty
Uniform Color Company
942 Brooks Avenue
Holland, MI 49423
particular interests: industrial application for color

Ms. Martha Eskew
STO Corporation
6175 Riverside Dr. SW
Atlanta, GA 30536-5609
particular interests: how to use effectively in architecture, how to choose harmonious color for buildings and environment

Mr. Edwin B. Faulkner
Sun Chemical Corp.
5020 Spring Grove Ave.
Cincinnati, OH 45232
particular interest: the application of color in the ink, plastics, coatings and cosmetics industries

Ms. Mary Ann Freeman
3M/235 Technical Library
3M Center, 235-1A-25
St. Paul, MN 55144-1000
particular interests: color chemistry, techniques for digital electronic representation of color

Mr. Christopher Gaudette
Reflexite Corporation
120 Darling Drive
Avon, CT 06001
Particular interests: Relation to safety and conspicuity, establish req. for adequate conspicuity using reflective color

Ms. Kim Young Im
Dept. of Clothing & Textiles
College of Human Ecology
Yonsei University
134 Shinchondong
Sudamunku 120-749
S. Korea
particular interests: color planning, color harmony, color symbolism, color education

Mr. Jake Jacobson
University of Minnesota
240 McNeal Hall
1985 Buford Avenue
St. Paul, MN 55108-6136
particular interests: color & packaging, afterimage, color & design education

Dr. Peter R. Jones
Island Graphics Corp.
4000 Civic Center Drive
San Rafael, CA 94903
particular interests: CMYK-RGB (and vice-versa) color mapping, gamut mapping/morphing, mathematics of color transformations, physiology of color vision

Mr. Todd Jones
Uniform Color Compant
942 Brooks Avenue
Holland, MI 49423
particular interests: pigments and color applications (plastics)

Ms. Anne T. Miller
Zeneca Colours
9129 Southern Pines Blvd.
Charlotte, NC 28273
particular interests: color measurement and textile matches

Dr. Mary C. Miller
UNC-Greensboro Faculty Emerita
5409 Greenought Way
Greensboro, NC 27410
particular interests: color for interior design

Mr. Michael Ray Nofi
Flex Products, Inc.
2793 Northpoint Parkway
Santa Rosa, CA 95407
particular interests: special effect metallic pigments

Ms. Kathy J. Reamer
Autoplas Inc.
560 Goodrich Rd.
Bellevue, OH 44811
particular interests: molded color evaluation, painted color evaluated

Mr. James R. Redford
NBC Room 1101W
30 Rockefeller Plaza
Radio City Stn. NY 10112
particular interests: physiology of color vision, color deficiencies, color-difference scales, RGB light splitters (camera prisms), display phosphores.

Dr. James A. Schirillo
University of Chicago
Visual Sciences Center
939 E. 57th Street
Chicago, IL 60637
particular interests: study of color constancy in two & three dimensional scenes

Dr. Carole J. Simmons
U.S.DOT - Federal Highway Admin.
6300 Georgetown Pike HSR-30
McLean, VA 22101
particular interests: the use of fluorescent colors for conspicuity, color categories & boundaries, color coding for displays

Mr. Demetrius A. Simpson
Americhem, Inc.
225 Broadway East
Cuyahoga Falls, OH 44221
particular interests: from a business standpoint more application than fundamentals, this overlaps into the area of data analysis and spectrophotometer techniques

Mr. Gregory J. Stehn
SheLyn, Inc.
1108 Grecale
Greensboro, NC 27408
particular interests: color appearance and difference as they apply to textiles

Mr. T. Michael Weed, IV
Uniform Color Company
942 Brooks Avenue
Holland, MI 49423
particular interests: pigments and color application (plastics)

Mr. Robert F. Willis
SheLyn, Inc.
1108 Grecale Street
Greensboro, NC 27408
particular interests: color measurement

Ms. Nicole Lyn Zielaskowski
Uniform Color Company
942 Brooks Avenue
Holland, MI 49423
particular interests: color matching software, pigments

NEWS FROM MEMBER BODIES

AATCC



Color Measurement Committee (RA36) of American Association of Textile Chemists & Colorists met at Governor's Inn, Research Triangle Park, NC on November 15, 1995.

Color Evaluation Video (Gray Scales and Chromatic Transference) is in the planning stage. Ann Laidlaw reported that sub committee will meet in January to review the script for video. Interested RA36 members may review the script in February meeting.

ISO commitments: ISO 105-j03 (CMC) is an official publication.

ISO 105-J01 (similar to Evaluation Procedure 6) submitted as committee draft. Transmittance measurement text omitted.

ISO 105-JO2 (relative whiteness) submitted as draft international standard. Similar to method #110, except title change to "Relative Whiteness."

Evaluation Procedure 6 (formerly Test Method #153) Instrumental Color Measurement passed the committee ballot, and will appear in the 1996 AATCC Technical Manual.

Blue Wool lightfastness standards test method #145 will be withdrawn from the Manual.

Color Measurement Workshop: September session was successful. There were more application than available space. Extra session is scheduled for Jan. 9-10, 1996. That session is already filled!

Under new business the following were discussed:

a. Develop scale for absolute whiteness. US and UK to draft.

b. Light viewing conditions: combination of ASTM 1729 and comparable UK standard being rewritten with consistent format.

c. Need whiteness values F01-F10 for different fibers. Being rewritten with consistent format using CIE whiteness, CIE Tint, and L*.

Removal of CWF lamps from the market produced a problem for the textile manufacturers.

Although WWF has been recommended as replacement for CWF, it introduces metamerism for many

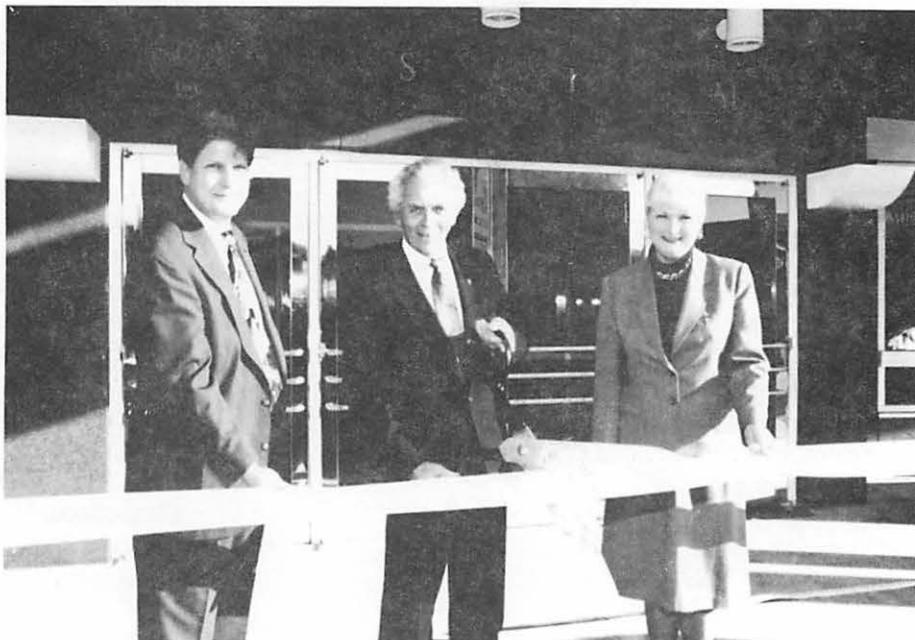
standards. It is reported that GE will provide RA-36 with spectral power distribution data for all fluorescent lamps, and will continue communication with RA-36.

A subcommittee is measuring and studying the results of visual and instrumental Gray Scale. The findings will be reported in February meeting.

NEWS RELEASE FROM ASTM

ASTM To further enhance service to its members and costumers, ASTM has relocated to a newly-constructed headquarters building in West Conshohocken, PA., a suburb of Philadelphia. ASTM the world's leading developer and publisher of voluntary standards for industry, began operating from its new facility October

2. The new building incorporates advanced communications and services technology. Staff offices will be joined by local area computer networks and a state-of-the-art order and fulfillment system will be installed to handle membership renewals, training course registrations and publication orders. In addition the new facility includes a generous meeting space for the Society's 35,000 members. "The relocation represents a commitment by the Board of Directors, members and managements to ASTM's continued excellence in standards development and distribution,"



James A. Thomas, President of the American Society for Testing and Materials (ASTM), George C. Moran, 1995 ASTM Chairman of the Board, and Patricia Barr, Vice President of the West Conshohocken Borough Council cut the ribbon at ASTM's building dedication ceremony held October 26 at ASTM's new headquarters. The building accomodates ASTM's 200 employees and provides ample space for ASTM committees to hold their meetings at the facility. More than 200 people including area business people, sister standards organizations, members and others attended the ceremony and toured the building.

says ASTM President James A. Thomas.

The new address of ASTM International Headquarters:
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
Tel: 610/832-9500
Fax: 610/832-9635

ASTM's members include scientists, engineers, researchers, technicians, representatives of business and industry, educators, and representatives of local, state and federal government. Together they maintain more than 9,300 standards for paints, plastics, construction materials, petroleum products, energy, the environment, electronics, textiles, consumer products, medical devices and services, and many other areas. These standards and related information are widely referenced throughout the world.

*Carla M. Juliani
Media Relations*

MEETING ANNOUNCEMENT

ASTM Committee E12

ASTM Committee E-12 on Appearance is meeting on Jan 22-24, 1996 in Crown Sterling Suite, Ft. Lauderdale, Florida. ASTM meetings are open to all interested individuals. For a copy of the agenda or other information, please call Bode Buckley at 610/832-9740.



THE COLOR ASSOCIATION OF THE UNITED STATES



Members of the Interiors Forecasting Committee are Kenneth X. Charbonneau, Benjamin Moore & Co.; Clodagh, Clodagh Architectural Design; Sharon Clarke-Fodor, Forbo Industries; Murray Douglas, Brunschwig & Fils; Diana Facticeau, Queen Carpet; Mary McFadden, Mary McFadden, Inc.; Barbara Schirmeister, color consultant; Linda Thompson, Pallas Textiles; Jay Yang, Jay Yang Partners; Marypaul Yates, Yates Weisgal, Inc.; and Chairman, Jack Lenor Larsen, Jack Lenor Larsen, Inc.

At a session to select the colors for the CAUS 1997/1998 Interior Colors Forecast, committee members noted that offices are shrinking in size and homes are growing as more people work out of their residences. As a result, the committee foresees interiors becoming envelopes of neutrality - largely creams, beiges and grays - with chosen objects bringing in color.

Textures and Metallics:

Textures and Metallic fabrics "with sheen but not shine" were cited as a means of increasing color dimensions in furnishings. The look will be reassuringly "ancient" crimped, cracked, patinated and with the sheen of mother-of-pearl or burnished plaster rather than a high gloss. Copper, silver and brass were projected as part of the move towards the toned interiors of "tasteful glitz."

Yellows & Purples

Yellow now has a definite presence, and will be seen in ochers, golds and creams. It will also influence the greens, blues and reds, many of which will have a strong yellow cast by 1998. Two interesting combinations cited were ocher and poppy with sienna;

and brown, bamboo and corn yellow with beige. Green continues to be a strong direction.

Purple along with blue is still influential if not a volume color: both will be essential to play off the yellows and coppers. The blues will move towards gray and teal, and purples - which may play a role in a new interest in Japonism - will be filtered by texture.

On the interiors Forecast for 1997/1998, there are few genuine brights. Overall, colors are softened and exhibit a warm, "honeyed" tone. The palette emphasizes the trend towards natural colors - colors that appear to have been made from earth pigments, such as ocher, umber, malachite, azurite and cinnabar (a rich Pompeian red that is the perfect foil to ocher, blue-green and black).

Ken Charbonneau of Benjamin Moore pointed out: "I work in an industry and for a company that can actually chart popular interior and exterior colors. For years, white with green shutters-the coward's choice-was an accepted norm. Five or ten years ago, an American split level house would have been generic white with green, a scheme that was commercially viable almost anywhere in the U.S. Today, to give a house 'curb appeal,' more sophisticated combinations such as taupe for the siding, creamy off-white for the trim, and the front door in burgundy would be popular. Sound familiar? This of course is a classic interior scheme."

According to Ken Charbonneau, two other popular exterior schemes include a gray, a crisp white trim, and a teal for the front door, and shutters, and an eighteenth-century scheme of putty green, with a lighter shade on the trim and a deep Turkey red door.

Color coordinating with gardens is a burgeoning aspect of the new colorfulness in exterior decorating, he said. "Consider a garden of coral geraniums, white petunias with a matching coral front door."

(Continued→)

"Or consider a yellow front door accented with yellow and gold marigolds."

His parting words of advice to us: "Live it up. Life is short. Why not create a memorable first impression of your home by doing the front door in a unique color. Perhaps a color that gives a hint of what the interior scheme is. Remember, it only takes a quart of paint and less than an hour's work to personalize your entrance way."

Maps are used everyday to locate towns, cities, rivers, forests, and highways. Colors distinguish each of these features easily from one another. Cartographers use color to create and define the natural and cultural features that maps illustrate.

On a typical topographical map made by the U.S. Geological Survey, six basic colors are used. Red delineates highways, while blue distinguishes bodies of water from green forests and parks. Black lines and symbols display boundaries, railroad trails, and places of cultural interest, purple marks other features like boat ramps and photorevised data that is not field checked. Brown is the color used for topographic contours showing hills and valleys. Lines and symbols display boundaries, railroad tracks, trails, and places of cultural interest; purple marks other features like boat ramps and photorevised data that is not field checked. Brown is the color used for topographic contours showing hills and valleys.

Less well known is color usage in geological maps. Like topographical ones, they have standard colors used by cartographers including Gary M. Bradford, including Gary M. Bradford, retired from the U.S. Geological Survey, logical survey, who now volunteers at the agency and who generously provides CAUS with information on color and maps.

The Earth is millions of years old, and its layers of rock and crust are categorized by named time periods. Rocks from each period are marked with a specific color on USGS

geological maps. For example, rock, earth and fossil from the Jurassic period (205-138 million years ago) are depicted in a green. Consecutive time periods use the standard color wheel progression of toned colors.

Triassic (240-205 millions years ago) is illustrated in blue-green, Cretaceous

(138-66 million years ago in olive-green (Geologic Time, pp. 18-19, U. S. Geological Survey).

Color assignments make maps more readable. They also add immeasurably to their attractiveness and aesthetic qualities.

COLOR MARKETING GROUP

"HUES NEWS FOR 1996" - A RETURN TO BASICS

CMG Alexandria, VA- October 16, 1995 - Softer, warmer shades will surround us in 1996 in the cars we drive, the clothes we wear and in our homes, according to Color Marketing group (CMG). CMG says trends to look for are yellow's warming influence on greens, browns and reds; an upswing in the influence of metals and minerals manifested in a resurgence of browns and grays; and a broadening of the focus on environmentalism into all aspects of nature. We can also expect the sheer look of "color on color" to be big, as the continuing search for peace, comfort and stability drives a *return to basics* as reflected in colors.

CMG's 1996 Consumer Color Directions™ Forecast includes the following:

- Highway:** A medium neutral gray with a hint of warmth, this solid stable gray stretches across the country from east to west.
- Wet Clay:** A rich, complex mineral gray that's soft, warm, very usable.
- Purple Veil:** This lavender-tinted medium gray is a new for neutrals in the palette.
- Treasure:** Poised between brown and green, this rich, deep gold is a pivotal color.
- Buckskin:** Medium brown touched with red. Warm and dry, this desert neutral is a cautious transition into brown.
- Caffe Latte:** A soft, medium red-gold. Warm and comfortable, this red-influenced neutral is rich yet harmonizing.
- Red Haute:** Hailing from south of the border, this clean "NAFTA" red-orange is hot and energetic.
- Wright Red:** This architecturally inspired red is sturdy and functional.
- Victorian Secret:** Innocent yet romantic...a soft yellow-touched pink which hints at a new direction for rose.
- La Rosa:** A deep bluish pink, this rambling rose returns a classic hearty pink to the palette.

- 'Round Midnight:** A no-risk alternative to traditional black with a blue undertone.
- Lucia Blue:** A soft medium blue touched with green, this color is a natural evolution of teal toward classical turquoise.
- NYCMG Blue:** This medium-dark, muted blue-green is softened into a quiet, restful, and more natural teal.
- Plantain:** A fresh, light yellow-green, from nature with a touch of the tropics.
- Wintermoss:** A complex, grayed yellow-green which burrows from natural architectural elements such as rocks and minerals.

Color Marketing Group, based in Alexandria, Virginia, is a 33-year-old international not-for-profit association of 1500 Color Designers* who forecast Color Directions one to three years out for all industries, manufactured products and services. These Consumer and Contract (Commercial) products include: Residentail, Transportation, Architectural/Building, Communications/Graphics, Fashion, Recreational and environments for Retail, Hospitality, Office and Health Care.

For more information, please call 703/329-8500 or write: Color Marketing Group, 5904 Richmond Highway, Suite 408, Alexandria, VA 22303 USA.

**Color Designers are professionals who enhance the function, salability and/or quality of a product through their knowledge and appropriate application of color.*

*Jennifer Freedman
Director, Marketing/Communications*

key word indeces. Areas covered include:
Aerospace systems
Aging
Cognitive Engineering and Decision Making
Communications
Computer Systems
Environmental Design
Forensics
Human Factors Education
Industrial Ergonomics
Medical Systems and Rehabilitation
Organizational Design and Management
Personality and Individual Differences in Human Performance
Safety
Surface Transportation
System Development
Test and Evaluation
Training
Visual Performance

Cost of the 39th Annual Meetings Proceedings is \$55 for HFES members and \$70 for non-members, plus \$10 for US postage and \$15 for non-US postage.

To order, send payment by check (US \$ drawn on a USA or Canadian Bank), MasterCard or Visa to the Society at the address above.

Orders delivered to California must include California sales tax.

HFES is a multidisciplinary professional organization of more than 5200 members in the United States and throughout the world. Members include psychologists, engineers, designers, and scientists, all of whom have a common interest in designing systems, tools, consumer products, and equipment to be safe and effective for the people who operate and maintain them.

Mike Hammel

INFORMATION ABOUT THE HFES 39TH ANNUAL MEETING PROCEEDINGS

HFES Human Factors and Ergonomics Society
P.O. Box 1369, Santa Monica CA 90406-1369 USA
310/394-1811, Fax 310/394-2410
72133.1474@compuserve.com

HFES PUBLISHES PROCEEDINGS OF 39TH ANNUAL MEETING TECHNICAL PAPERS

The Human Factors and Ergonomics Society is pleased to announce the availability of the PROCEEDINGS OF THE HUMAN FACTORS AND ERGONOMICS SOCIETY 39TH ANNUAL MEETING. The meeting was held October 9-13, 1995, in San Diego, CA.

The two-volume, 1478-page proceedings contains more than 300 abstracts and full papers representing symposia, panels, lectures, debates, and demonstrations from more than 90 sessions, as well as abstracts for 75 posters. Also included are author and

"HUMAN-CENTERED TECHNOLOGY: KEY TO THE FUTURE"

HFES

SANTA MONICA, CA - The Human Factors and Ergonomics Society 40th Annual Meeting will take place September 2-6, 1996, at the Center City Marriott Hotel in Philadelphia, Pennsylvania. The theme draws attention to a core concept of the human factors/ergonomics profession. Although design methodologies that build on the human-centered theme have proliferated in recent years, many systems continue to be built without adequate consideration of human users, maintainers, and other stakeholders. Much work remains to be done.

Throughout the week, the meeting will feature hands-on workshops geared toward professionals at all levels (CEU credit is available) as well as nearly 100 technical sessions on a broad range of ergonomics-related topics: for instance, office ergonomics, carpal tunnel syndrome, aging, consumer products, persons with disabilities, medical systems, safety, computer systems, environmental design, aviation/aerospace, biomechanics, communications, forensics, system development, organizational design and management, test and evaluation, and visual performance.

Attendees will also have the chance to browse book, service, and product exhibits; tour technical and research facilities in the area; and attend special events, such as receptions, an awards banquet, and local outings. The HFES Placement Service will be available to help match job seekers and employers. The deadline for lectures, panels, symposia, debates, demonstrations, and workshops is February 1, 1996; poster proposals are due March 8. You need

not be an HFES member to participate. The Call for Proposals will be available in mid-December 1995, and preliminary program/registration packets will be mailed in July.

For information, contact HFES
P. O. Box 1369, Santa Monica, CA
90406-1369, USA;
Phone: 310-394-1811
Fax: 310-394-2410;
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IESNA NEWS

IESNA

New York, October 16, 1995 - The

International Illumination Design Awards (IIDA) committee of the Illuminating Engineering Society of North America (IESNA) announced the recipients of the 1995 IIDAs comprising the Edwin F. Guth Memorial Awards, Paul Waterbury/JJI Awards for Outdoor Lighting, the Aileen Page Cutler Memorial Awards, and the Awards for Energy Efficiency in Lighting for Commercial Buildings sponsored by the Electric Power Research Institute (EPRI). This year marked the twenty-second anniversary of the IIDA program, which has served the lighting industry by recognizing and honoring those who create pace-setting lighting design and providing lighting education by example.

The 1995 awards were presented at the IIDA luncheon of the IESNA Annual Conference, held July 29-August 2, 1995 at the Marriot Marquis Hotel in New York City. The IIDA program is one of the most and visible programs in the IESNA. It recognizes the fruition of all the Society's research, development and education. Projects received Special Citations, Awards of Excellence and Distinction that emphasize both efficiency and aesthetics while setting quality standards for the entire lighting industry.

The IIDA program provides the opportunity for public recognition of

professionalism, ingenuity, and originality in lighting design and is unique in that projects are judged individually on their own merits and not against each other. The IIDA program is open to all professional affiliations. The recipients of the 1995 awards are:

Edwin F. Guth Memorial Special Citation

OSI Lighting Technology Wall

Designer: B. Liebel & J. Fisher; Company: Design+ ; Owner: Osram Sylvania Inc.

"Take Flight" Aviation Exhibit

Designer: B.L.White Company; Jack Morton Productions Inc.;

Owner: Museum of Science & Industry
Passage of Forest

Designer: S. Tsuchiya; Company: Suma Bright Art Institute;

Designer: S. Mimura; Company: Syowa Design Co., Ltd.

Owner: Mr. Jun Azuma

Washington Square Mall

Designer: M. Janicek; Company: Candela Architectural Lighting;

Designer: W. Niehoff; Company: Loschky, Marquardt & Nesholm

Owner: Winmar Company, Inc.

Edwin F. Guth Memorial Awards of Excellence

Diamonds and Gold II

Designer: B. Yarnell & D. Porter; Company: Yarnell Ass.

Owner: Tivol at Hawthorn Plaza

Entrance/Lobby Renovation - 222 W. Hubbard Street

Designer: Y. Starr; Company: Starr Design Ass.,

Owner: USG Interiors, Inc.

Hachioji City Art & Cultural Hall

Designer: T. Iwai, J. Watanabe, N. Oyamatsu, M. Fujino; Company: TL Yamagiwa Laboratory Inc.,

Designer: M. Hosoda; Company: AXS Satow Inc.; Owner: The City of

Hachioji.

La Salle National Bank - Main Banking Hall

Designer: R. Shook & A. Bennett;
Company: Schuler & Shook, Inc.

Owner: The Lurie Compant

MagneTek Technology Center

Designer: S. L. Klein; Company:
Standard Electric Supply Co.,

Owner: MagneTek, Inc.

Thorne-Sagendorph Art Gallery at Keene State College

Designer: J. M. Stockman ; Company:
J&M Associates;

Designer: Ed Gibson; Company: L. F. Carroll, P. E.,

Designer: C. P. Williams, R. Holt;
Company: Christopher P. Williams,
Architects; Owner: University System of
New Hampshire

Toyonokuni Libraries for Culture Resources

Designer: K. Mende, H. Mori, C. Ozeki;
Company: Lighting Planners Associates
inc., A. Isozaki, H. Aoki, and K. Imanaga

Company: Arata Isozaki & Associates;
Owner: Oita Prefecture

Urban Playground

Designer: Martin Peck; Company:
Creative Lighting Design & Engineering;
Owner: Marquette University

Edwin F. Guth Memorial Awards of Distinction**Children's Hospital Chapel**

Designer: John Gill; Company: Cater
Reddington Staub

Designer: John Poole; Company:
Giattina Fisher Aycock; Owner: The
Children's Hospital of Alabama

Lighting the Cockrell Butterfly Center

Designer: Richard W. Jeter; Company:
Studio of Richard Jeter

Owner: Houston Museum of Natural
Science

Paul Waterbury /JJI Special Citations**"Chisei," a Sculpture Tilting at an Angle of 35° 43'**

Designer: T. Hashimoto & T. Yasuda;

Company: Yamashita Sekkei Inc.

Designer: H. Fujita, T. Yamada;
Company: ALS Landscape Design
Institute Inc.

Designer: M. Kobayashi; Company: TEC
Yamagiwa Corporation

Owner: Ichikawa City Office

Night Illumination Scene of Kodaiji Temple in Kyoto

Designer: S. Uchihara; Company:
Uchihara Creative Lighting Design Inc.

Owner: Jyubuzan Kodaiji

Seahorse Fountain

Designer: T. Strobel; Company: Strobel
Energy Consultants

Designer: M. Hillman; Company:
Fasnacht & Nelson

Owner: City of Kansas City

Paul Waterbury/JJI Awards of Excellence**Akasia Forum**

Designer: Urbain du Plessis; Company:
U2+3 Imagineering

Owner: Akasia Town Council.

Entel Tower

Designer: Paul Gregory & Douglas Cox;
Company: Focus Lighting

Owner: Entel, Chile

The Santa Barbara County Courthouse

Designer: Ross De Alessi; Company:
Ross De Alessi Lighting Design

Owner: County of Santa Barbara

EPRI Energy Efficiency in Lighting for Commercial Buildings Award of Excellence**Scottsdale Mall Renovation.**

Designer: Craig A. Roeder, Robert L.
Oakes; Company: Craig A. Roeder
Associates, Inc. Owner: Massachusetts
Mutual Life Insurance Co.

The awards program is administered
by the IESNA through its IIDA
Committee, with the help of regional
and section IIDA Chairpersons. Initial

judging of projects occurs at the IESNA
section and regional levels. Those
designers advancing through the
regional judging earn Awards of Merit
and consideration at the international
level - earning Special Citation, Awards
of Excellence, and Awards of
Distinction. The Award of Distinction,
the highest honor that can be earned by
a lighting designer, is presented at the
judges' discretion; only six have been
earned in the last 8 years.

The IIDA program continues to be
the most highly respected and
worthwhile awards program in the
lighting industry. Committee
applications and forms for project entry
may be obtained from the IESNA office,
120 Wall Street, 17th floor, New York,
NY 10005-4001. Or call the IESNA
office at 212-248- 5000, ext.117.

The IESNA is the recognized
authority in illumination. For more than
85 years its mission has been to promote
good lighting practice and provide
information to the lighting community
for the benefit of society.

*Dr. Danny C. Rich
Secretary, ISCC*

SOCIETY FOR INFORMATION DISPLAY (SID) ANNOUNCES MANUFACTURING TECHNOLOGY PROGRAMS FOR DISPLAY WORKS 96.



The programs
committee for the
manufacturing
technology program at Display Works
96, formerly the Display Manufacturing
Technology Conference, has
announced a strong line-up of invited

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and contributed papers from the world's foremost display manufacturing experts. The conference is to be held February 6-8, 1996 at the San Jose Convention Center, San Jose, CA. and is entering its third year with a new name, an expanded format, and the combined sponsorship of the Society of Information Display (SID), the United States Display Consortium (USDC), and the Semiconductor Equipment and Materials International (SEMI). The 12 invited and 49 contributed papers will share manufacturing know-how for electronic information display — a class of products that are continually reshaping military, aerospace, commercial, and consumer electronics systems.

Roger K. Ellis of the Honeywell Technology Center, is the chairman of the Technical Program Committee. According to Ellis, the manufacturing of those products has become an economic and political hot topic over the last few years.

Invited papers include "Experiences in Bringing up a Cadmium Selenide Display Factory." (Annette Pritchard, Litton Systems, Canada). "Display Inspection Systems in Flat-panel Display Manufacturing" (Andrei Brunfield, Display Inspection Systems, "Dry etching Processes for FPD Manufacturing" (Richard Beer, Lam Research), "Scoring AMLCD Substrates" (R. Allaire, Corning, Inc.) and "Chunghwa Picture Tube Yangmei Plant's Profit Management Strategy" (Hsan-Queey Chung, Chunghwa Picture Tubes).

Jason Tong of AT&T Engineering Research Center will chair a panel discussion on manufacturing low-cost display modules. Representative topics include the reduction of parts count by designing the display into the product, standardization of TAB (tape-automated bonding), driver packaging, low-cost drives vs. COG (chip on glass) vs TAB, built-in test, manual assembly vs. automation, micro-cleanroom environments, and mini-fabs.

Ellis said the contributed paper program was particularly strong this year, with only 60 percent of the submitted papers passing the

committee's strict quality standards. Among the 49 contributed papers that were accepted are "Advanced Fine-pitch Low-cost LCD Packaging Trend in Asia: The Surge of the new TAB" by Jackson Hwang of MCC; "The Effects of Washing Methods for AMLCO Glass Substrates Treated with Buffered Hydrofluoric Acids," by Yoshihiro Kato, Shigeru Yamamoto, and Shinkichi Miwa of Nippon Electric Glass; "Critical Process Parameters for Printing of Thick Films Used in LCD Manufacturing" by Mark Fochs of Standish Industries; and "A Programmable Universal Chassis for Yoke and ITC Application" by Charles Chuang and his colleagues at DynaColor.

In addition to the technical program organized by the SID, Display Works 96 consists of a business development and investment program organized by USDC and a manufacturing equipment and materials exhibition organized by SEMI. Over 60 exhibitors have been assigned space at the show, including Arconium-Plasmarc Div., Brooks Automation, Lam Research, Leybold Materials, MRS Technology, Photo Research, Plasmaco, PRI Automation, Progressive Systems Technology, Semitool, Steag MicroTech, Tamarack, TEAM Systems, Telic, Tencor, Toshiba, Veeco/Sloan, Watkins-Johnson, and XMR.

*SID News Release
Karen Braun*



OTHER NEWS

CIE PUBLICATIONS CATALOG

CIE The United States National Committee of the International Commission on Illumination (USNC/CIE) had published a new catalog of currently available CIE Publications. These publications include the International Lighting Vocabulary, International Standards, meeting proceedings and reports on photometry, colorimetry and design. Copies of this new catalog as well as additional information about the USNC/CIE are available from CIE Publications c/o TLA Lighting Consultants, Inc., 7 Pond St. Salem MA 01970, Phone: 508/745-6870 Fax: 508/741-4420.

Message from the new President

CIE IN THE YEAR 2000

Dear CIE members:

For fourteen years I have been associated with CIE, witnessing its involvement to become the premier international standardizing body on metrology evaluation and the application of light and color. It was with sense of awe and humility that I accepted the CIE gavel from our able immediate past president, Robin Aldworth, on November 9, 1995 to be the CIE President to lead this great organization into the 21st century.

What surrounds us today and lies ahead in the future are dramatic changes occurring in the global economy, rapid information exchange through the information highway, changing needs of both the developed and developing

countries in the area of technology research and application, as well as rapid shifts in required skills and knowledge in the next generation of scientists, engineers, practitioners in corporations and industries. Although these changes can be potentially overwhelming, they are also challenges to overcome, offering golden opportunities for all CIE members to become energized and contribute to a "brighter" world through proactive strategic actions.

Embracing these challenges, the CIE Board of Administration held a brainstorming session to air current concerns about CIE in the context of global changes and to explore possible solutions. The following themes and strategies emerged from this endeavor:

Achieve world-wide recognition of CIE as the leading authority in color science, light & lighting.

- Increase linkages and collaboration with other national, regional, and international organizations.

- Institute CIE design competitions, sponsor CIE awards for advances in color science, light and lighting.

- Refine classification of CIE publications, publish high quality technical reports; increase consumer use of CIE publications.

- Utilize electronic media and electronic bulleting board to increase visibility of CIE in the international technology arena.

Be a forerunner in emerging technology

- Select themes for CIE Sessions, and plan topical meetings.

- Increase communication and collaboration between the CIE basic and applied divisions.

- Monitor international research.

- Establish CIE-wide plans in color science and measurements for image technology.

- Develop policy on addressing energy, education, health, safety and environmental issues.

- Assure responsiveness to needs of both developing and developed countries.

Enhance financial support to CIE

- Seeks industrial sponsorships, and study the feasibility in establishing the CIE Foundation.

- Review and update the pricing policy of the CIE products.

- Explore collaborative efforts with the United Nations Organizations (e.g., UNESCO and UNIDO), the World Bank, and other similar organizations to assist developing countries in lighting technology.

Strengthen the CIE organizational structure

- Expand and retain country membership, encourage active participation of younger members, recruit and motivate volunteers.

- Maintain partisan interests, identify priorities, establish strategic plans, and adopt a proactive stance in all CIE work activities.

- Assures timely response to inquiries to CIE.

- Increase access to the Board of Administration by CIE members and the international technology community.

- Evaluate and revise the existing division structure as needed.

CIE belongs to all of us. The members of the Board of Administration and I

pledge to be responsive to you and your needs. We urge you to contact us, and to volunteer your thought and talents.

Together we can and will face the challenge of our changing time creatively and energetically.

May the new year be bright and colorful for you and your family.

Dr. Jack Hsia, President
Mailing Address: NIST, Admin. A-505
Gaithersburg, Md, 20899 USA
Tel:301/975-3067, Fax: 301/975-3530
e-mail: jackh@nist.gov

CIE - CALL FOR PAPERS

CIE expert symposium '96 on COLOUR STANDARDS for IMAGE TECHNOLOGY

Currently there is considerable effort within the imaging industry and the imaging standards community to move forward in the area of colour image definition and exchange. This has, in part, been enabled by the recent rapid increases in both computer power and data storage technologies.

While the basic fundamentals of colour technology are well laid out by the work of the CIE there has been little coordination of the options selected by the various activities for use in formal or defacto standards.

THE GOALS

The goals of the meeting are:

- to share information on the technical content and status of projects involving the characterization of definition of the colour of images.

- to identify areas where existing/ proposed directions are divergent and to initiate discussion towards resolution.

- to identify areas requiring new technology or knowledge and to recommend needed activities of CIE, industry and other standards groups to

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provide the necessary solutions.

WHO SHOULD ATTEND?

This meeting is open to all participants. To insure adequate space and support, and to allow distribution and adequate review of relevant documents, prior registration is required.

The following individuals are specifically encouraged to attend:

Nominated representatives of ISO/IEC/ITU/CIE committees and of industry groups involved in the development or use of standards for colour specification.

Representatives of companies that "own" or are developing defacto colour standards specification.

Colour science and vision experts who are willing to provide help in these areas.

The format of the meeting will include a series of presentations followed by appropriate roundtable discussions of key issues and problem areas in colour image technology. Presentations are invited dealing with items enumerated in the Symposium Agenda.

Authors are invited to submit two page extended abstracts in English no later than 1 November 1995 to:

CIE Central Bureau
Kegelgasse 27, A-1030 Vienna,
AUSTRIA
per mail or e-mail:
x0401daa@vm.univie.ac.at.

(please do not fax, as the extended abstracts, if accepted, will be used to print the Abstract Booklet).

Only papers dealing with one of the listed subjects will be accepted. Some will be accepted for oral presentation and others as posters. Authors will be notified of acceptance of their abstract by 1 January 1996. Instructions for preparing of camera-ready copy of papers will be forwarded to accepted authors. Final camera-ready copy is due at the Symposium.

REGISTRATION

The Registration Fee for the Symposium is USD 260,-(USD 220,- for early registration until 25th January, 1996) and will cover coffee breaks, welcome reception and the Proceedings which will be published in 1996.

The registration fee should be sent by cheque to the CIE Central Bureau or a money transfer of the net amount of USD 260,- should be made to the CIE Bank Account No. 04610-665-450 at BAWAG, Landstr. Hauptstr. 60, A-1030 Vienna, Austria.

Registration deadline is 25th February 1996.

SYMPOSIUM AGENDA

Main Agenda Items are:

1. Colour space definitions and selections
2. Colorimetric specification (what to choose out of the CIE recommendations)
3. Colour appearance models
4. Viewing conditions (should viewing conditions and colorimetric conditions match?)
5. Standardization of colour test targets-scanner input, internal data, output characterization
6. Colour "profile definition" as used in the exchange of data between colour management systems.

Proposed roundtable discussion topics:

Open roundtable discussions will be held on some of the following issues, and others that may be identified in earlier parts of the meeting, with the goal of identifying appropriate paths forward leading to useable solutions.

1. Appearance comparisons across divergent media/display technologies.
2. Soft display viewing environment
3. Soft display calibration/characterization

4. Cross media gamut mapping (compression and expansion).

The meeting is organised by the CIE and co-sponsored by the ISO and IEC.

Dates of the symposium are 25 - 27 March 1996

CALL FOR PAPERS:

Special issue of "Perception" on CONTEXTUAL EFFECTS ON COLOR APPEARANCE (Guest editors: Lothar Spillman and Paola Bressan)

Manuscripts are solicited for a special issue of "Perception" dedicated to effects of context on the chromatic or achromatic color of surfaces. We are seeking papers that report empirical or theoretical studies of how a change in the spatial arrangement of parts of a scene can affect the color of a target region. Examples of such effects include, but are not limited to, neon color spreading, transparency, the Benary and White effects, induced brightness in illusory figures, color contrast and assimilation. Although the issue will focus on neon color spreading and related phenomena, contributions may concern any of those situations in which physically identical objects (or regions) acquire different appearances as a result of the presence, or rearrangement, of other objects or figural elements within the scene.

Manuscripts should be submitted, in quintuplicate, not later than May 31st, 1996.

One copy should be sent to:

PAULA BRESSAN
Dipartimento di Psicologia
Generale, Universita' di Padova, Via
Venezia 8, 35131 Padova, Italy
(e-mail:bressan@ipdunivx.unipd.it);
one copy to:
LOTHAR SPILLMANN,
Arbeitsgruppe Hirnforschung,

Institut fuer Biophysik, Hansastrasse 9,
79104 Freiburg, Germany (e-
mail:spillman@sun1.ruf.uni.freiburg.de);

and three copies to :
PERCEPTION
Perceptual Systems Research Centre,
Department of Psychology, University

of Bristol,
8 Woodland Road, Bristol BS8
1TN, England.

Ellen C. Carter
Editor, *Color Research and*
Application

COLOR RESEARCH AND APPLICATION

IN THIS ISSUE, February 1996

This issue is eclectic; all the articles in this issue deal with the central theme of looking at color: comparing reproductions, reading colored text, looking at how the color of objects change when the illuminant is changed, judging grapes by color instrumentally, selection of preferred colors, and colors to be surrounded by in a constructed environment. Though the theme is similar, the areas of the study span a wide spectrum from Spanish grapes to color preferences in the Far East, from earthly color measurement laboratories to architectural design for the moon. Everyone is looking at color.

In industrial quality control laboratories, the general wisdom and even the recommended practices encourage observers to evaluate the batch for color by comparing directly to the standard in a controlled lighting situation such as a light booth. However, what does one do when the comparison is to be made between a self-luminous display such as a CRT image and some type of reflection material such as photograph or a printed image? Several factors must be considered, including changes in luminance levels, adaptation, effects of the surround, as well as possibly differing white points.

In "Viewing Techniques for Cross-Media Image Comparisons," Karen Braun, Mark D. Fairchild, and Paula J. Alessi compare five of the possible different techniques that can be used for such comparisons.

We have all seen examples of colored printing on different colored backgrounds where the words are almost illegible, perhaps on slides at a presentation. Conversely, we have other examples where the color and size of print seem to be chosen so that the message seems to be immediately obvious. Choosing the right size and

"UPCOMING EVENTS" ANNOUNCEMENTS

The schedule is set for the 1996 Coatings Science Short Course Series sponsored by the University of Southern Mississippi and the Southern Society for Coatings Technology.

| | |
|-------------|--------------------------------------------|
| April 16-19 | Introduction to Coatings Science |
| May 14-17 | Practical Emulsion Polymerization |
| May 21-24 | Coatings Science for Coatings Technicians |
| June 18-21 | Coatings Science for Coatings Chemists |
| June 25-28 | Coatings Science for Coatings Formulators |
| July 16-19 | Introduction to Powder Coatings Technology |

Although registration is limited, two complimentary registrations are offered to the first two registrants from the media who enroll in each course with one exception. Due to the additional equipment expense and limited laboratory space for the "Practical Emulsion Polymerization" short course, two half-price registrations from the media are also offered. Thus, if you or one of your employees would be interested in attending one of the listed short courses, please register as soon as possible as the registration assignments are reserved on a first-come-first serve basis.

For further information, call Debbie Ballard at 601/266-5618 or Shelby F. Thames at 601/266-4080 or fax 601/266-5880.

Dr. Shelby F. Thames
University of Southern Mississippi
Thames Research Group
Box 10037
Hattiesburg, MS 39406-0037



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contrast for colored texts has been an area of study by Cobb and Moss, most specifications are based on luminance contrast.

That is great for black and white. . . but what about colored text, one might ask. Tai-Lioan Chen and Chi-Yuan Yu have examined "the Relationship Between Visual Acuity and Color Contrast in the OSA Uniform Color Space." According to the report in this issue, there is evidence that both chromatic contrast and luminance contrast can induce high visual acuity, and that there can be an additive interaction between these two types of contrast.

In this journal we have often printed articles relating to metamerism. A pair of objects are metameric if their color appears the same in one lighting environment and does not match under another light source. Metamerism is both a blessing and a curse. In the industrial paint laboratory the goal is to develop nonmetameric matches. That is, to produce colors that have the same spectral reflectance curve so that under any light source objects painted with those colors will match. However, metameric matches are the fundamental premise to all reproduction industries. How else could a photographic print ever approach the appearance of the real life scene that was the subject of the photography? Or the magazine print? Or the computer display with its three phosphors? Metamerism is here to stay, so we just have to learn how best to understand it and live with it. In the research reported in the article "Evaluation of the Performance of Metameric Indices," A. K. Roy Choudhury and S. H. Chatterjee studied the reliability of 11 different measures of metamerism by comparing visually ranked metameric pairs with the rankings calculated from established general metameric indices, special indices of metamerism, chromatic adaptation transforms, and color constancy calculations.

In 1993, the Tenth Chromatic Thesis Prize in Japan was awarded to Miho Saito for her thesis "A cross-cultural survey on color preference in Asian countries (1) -Comparison between Japanese and Koreans with emphasis on preference for white." In this issue Ms. Saito's article is based on that thesis as well as two other surveys, "Comparative Studies on Color Preference in Japan and Other Asian Regions with Special Emphasis on the Preference for White," describing the distinct Japanese preference for white.

Have you ever picked up a bunch of grapes only to discard them and choose a different bunch whose color is more vibrant, or just seems to look better? Color is an important part of decision making in humans. The quality of fruit in particular is assessed by its looks, often primarily its color. Juan Carreño, Adrián Martínez, Luis Almela, and Jose A. Fernández-López face this issue in their article, "Measuring the Color of Table Grapes.

Increasingly, instrumental measurements have been used to remove the subjectivity from the evaluation of food products. Previous studies have shown that the color indices for other fruits whose colors are green, yellow, and red are not applicable to grapes because they do not distinguish accurately between the red, blue, and violet areas. Thus the authors propose a color index for red grapes based on CIELAB measurements and compare it to the subjective evaluation ratings.

For the final article in this issue, Dr. Theano Fanny Tosca is examining a tantalizing problem, how to make life on the moon comfortable, productive, and still in tune with the universe. Because of the moon's harsh environment, people living and working on the moon would be virtually imprisoned in a man-made environment to a much greater extent than any place on earth. The careful design of such an environment is essential. In "Color Study for a Lunar

Base," the goals of the color design of a lunar workstation are laid out and methods to meet these goals are proposed. With such a created environment the level of decision must go far beyond which color I should paint my office. How these lunar workers look at color in their environment can do much to affect their productiveness, well-being, and happiness during extended extraterrestrial stays.

*Ellen C. Carter, Editor
Color Research and Application*

BIRTHDAY GREETINGS

On the occasion of Prof. Tai-Huo Dong's 80th birthday and to commemorate his 43 years of academic teaching, the Dept. of Optical Engineering and Scientific Instrumentation at Zhejiang University is planning a celebration in his honor. We know all his friends in the Inter-Society Color Council would like to know this, so they also can send their congratulations and good wishes. Prof. Dong has been a member of ISCC for many years and diligently reads the Newsletter publication to keep him informed of color science and its activities.

We have kept in contact with Prof. Tai-Huo Dong— Dr. Wenyong Jin, his devoted and former student and Joyce Davenport an admirer and friend for many years.

Prof. Tai-Huo Dong was born in December 1916 in Dinghai, Zhejiang. He graduated from the Dept. of Engineering, Leishide Institute of Technology in Shanghai in 1936. He obtained his MS degree from London University in 1939 studying under Dr. W. David Wright. He has been a professor at Guanxi, Wuhan, Yingshi and Zhejiang Universities until 1949 when he began working for the Chinese PLA navy where he was instrumental in

developing the young Chinese navy. He returned to Zhejiang University to continue his teaching job in 1954. He retired in 1986 and was invited to continue his work in guiding the research of both Ph.D. students and postdoctoral fellows.

Prof. Dong is serious and persistent in his teaching as well as his research work. He has achieved many accomplishments in research which is reflected from the numerous papers and books he has authored. He is well known academically both in China and abroad. He has been a teacher and advisor to tremendous amount of BS, MS, PhD students and postdoctoral fellows, who are now working all over the world. In Chinese words, those students are called his peaches and plums.

Although his university wished to make this a big event of commemorating the two milestones, Prof. Dong asked that such efforts and time be used for more important things and that his pleasure and rewards would come from letters and commemorations from his friends around the world.

Anyone wishing to personally send congratulations to Prof. Dong may do so by writing to the following address:

Dept. of Optical Engineering and Scientific Instrumentation
Zhejiang University
Hangzhou, Zhejiang 310013
P. R. China

Respectfully submitted
Wenyin Jin and Joyce Davenport



NEWS FROM ISCC STUDENT CHAPTERS

THE UNIVERSITY OF CHICAGO STUDENT CHAPTER VISITED PPG OAK CREEK PLANT

"Color industry could really be an exciting place for students after their graduation, even for students from research-oriented universities".

This is one of the thoughts shared by members of the University of Chicago Student Chapter of the ISCC after they visited the PPG Oak Creek plant, Wisconsin, on October 16, 1995. The afternoon visit was filled with questions from the student members and answers from the PPG personnel. Pam Longo, general manager, Shawn Johnson, General Industrial QA manager and Ric Bradstreet, General Industrial Color Control Supervisor took the students through every department, providing them with insightful knowledge of the color industry. The visit lasted one hour longer than expected due to the

enthusiastic participation of the students and the warm hospitality of the PPG people. Both the chapter and the corporation felt the need to strengthen the partnership for the future.

The arrangement of the visit was initiated after one of the founding members of the chapter was recruited by PPG. Headquartered in Pittsburgh, PPG industries Inc. is a global producer of coatings and resins, continuous-strand fiber glass, flat and fabricated glass and chemicals. Its Oak Creek branch is the largest US manufacturing plant of paint.

The student visit, encouraged by Dr. Joel Pokorny, faculty advisor of the Student Chapter, and Dr. Vivianne C. Smith, chairwoman of the Education Committee of the ISCC, was one of the activities of the University of Chicago Student Chapter since its foundation in March 1995. Lectures on how to obtain a job in industry as well as in academia and small group member discussions culminated in this field visit.

Jun Xu
Secretary, ISCC Student Chapter
The University of Chicago

GRADUATE SCHOLARSHIPS IN COLOR SCIENCE AND COLOR-IMAGING

Rochester Institute of Technology through its graduate degree programs in color and imaging science is seeking highly-qualified applicants to fill the following scholarships:

Macbeth Engel Fellowship, Grum Memorial Scholarship, and Munsell Color Science Laboratory Scholarship. In addition, funding is available for teaching and research assistantships. Support can include full-time tuition and twelve-month stipend. Partial scholarships are also available. Past scholarship recipients have had bachelor degrees in mathematics, computer science, psychology, chemistry, printing, and electrical engineering.

The Color Science master of science degree program is an inter-disciplinary program consisting of required courses in color vision, psychophysics, colorimetry, optical radiation measurements, color appearance, and color modeling, elective courses that build on the student's background and interests, and either a research

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thesis or graduate project. Graduates are in high demand and have accepted industrial positions in electronic imaging, color instrumentation, colorant formulation, and basic and applied research.

The Imaging Science doctoral degree program encompasses a wide range of activities in imaging science including color science and image perception. This program involves approximately 2-years of course work beyond the BS degree and completion of a doctoral dissertation. Graduates of this program are also in extremely high demand and have accepted research positions in academia, government, and industry.

For further information visit the web page on <http://www.cis.rit.edu> and be sure to check out the Munsell Color Science Laboratory link.

To obtain application forms and degree requirements, contact:

Dr. Roy S. Burns, Color Science M.S. Coordinator,
rsbph@rit.edu., 716/475-2230

-or-

Dr. Mark D. Fairchild, Imaging Science Ph.D. Coordinator,
mdfph@grace.rit.edu, 716/ 475-2784

Munsell Color Science Laboratory
Carlson Center for Imaging Science
Rochester Institute of Technology
54 Lomb Memorial Drive
Rochester, NY 14623-5604

C A L E N D A R

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

Harry K. Hammond, III
or
John Peterson
BYK-Gardner, USA
2435 Linden Lane
Silver Spring, MD 20910
Phone: 301-495-7150
Fax: 301-585-4067

Information: Bode Buckley
Phone: (610) 832-9740
Fax: (610) 832-9555

USNC/CIE "1995" ANNUAL MEETING
Jan. 27-29

United States National Committee of CIE
Orlando, FL

Information: Jonathan Hardis
Secretary USNC/CIE
Phone: (301) 975-2373
Fax: (301) 840-8551
E-mail: hardis@onyx.nist.gov

IS&T/SPIE

Jan. 28 - Feb. 2

Electronic Imaging: Science and Technology
San Jose Convention Center
San Jose, CA

Information: IS&T Conference Manager
7003 Kilworth Lane
Springfield, VA 22151
Phone: (703) 642-9090
Fax: (703) 642-9094
email: imagesoc@us.net

OSA VISION SCIENCE AND IT'S APPLICATIONS

Feb. 1-6

SANTA FE, NM
INFORMATION - OSA
PHONE: (202) 223-0920
FAX: (202)416-6100

1996

ASTM COMMITTEE D-1 ON PAINT

Jan. 21 - 24

Fort Lauderdale, FL

Embassy Suites Hotel

Information: Scott Orthey

Phone: (610) 832-9717

Fax: (610) 832-9555

ASTM COMMITTEE E-12 ON APPEARANCE

Jan. 22 - 24

Fort Lauderdale, FL

Embassy Hotel Suites

CPMA PIGMETAS DE COLORES 1996
FEB. 6-8
HOTEL PRESIDENTE INTER-CONTINENTAL MEXICO
MEXICO CITY. MEXICO
INFORMATION CPMA
P.O. BOX 20839, ALEXANDRIA, VA 22320-1839
PHONE: (703) 684-4044
FAX: (703) 684-1795

IS&T 9th INTERNATIONAL SYMPOSIUM
Feb. 18 - 21
Photofinishing Technology
Co-located with PMA Show (Feb. 22 - 25)
Las Vegas, NV
Information: IS&T Conference Manager
7003 Kilworth Lane
Springfield, VA 22151
Phone: (703) 642-9090
Fax: (703) 642-9094

ASTM COMMITTEE D-20 ON PLASTICS
Mar. 18 - 21
Orlando, FL
Information: Mrs. Katherine Morgan
Phone: (610) 852-9500
Fax: (610) 832-9555

TAGA ANNUAL CONFERENCE
Apr. 28 - May 1
Technical Association of the Graphic Arts Annual Technical
Conference
Dallas, TX
Information: Karen Lawrence
Phone: (716) 475-7470

CMG SPRING CONFERENCE
May 5 - 7
Color Marketing Group Conference
Sheraton New Orleans Hotel & Towers
New Orleans, LA
Information: Katie Register
Phone: (703) 329-8500
Fax: (703) 329-0155

ISCC ANNUAL MEETING WITH ASTM
May 5 - 7
Doubletree Guest Suites
Orlando, FL
Information: Danny Rich
Phone: (609) 895-7427

Fax: (609) 895-7461

ASTM COMMITTEE E-12 ON APPEARANCE
Doubletree Guest Suites
May 8 - 10
Orlando, FL
Information: Bode Buckley
Phone: (610) 832-9740
Fax: (610) 832-9555

EXPO 96
May 11 - Oct. 4
Color and Light in Communication
Information: Gabor David
3 Tukory u.
Budapest, H-1054 , Hungary

SID '96
May 13 - 17
San Diego, CA
Information: Lauren Kinsey
SID
1526 Brookhollow Drive
Suite 82
Santa Ana, CA 92705
Phone: (714) 545-1526
Fax: (714) 545-1547
email: socforinfodisplay@mcimail.com

IS&T 49th ANNUAL CONFERENCE
May 19 - 24
Minneapolis Marriott City Center
Minneapolis, MN
Information: IS&T Conference Manager
7003 Kilworth Lane
Springfield, VA 22151
Phone: (703) 642-9090
Fax: (703) 642-9094

GATF COLOR MEASUREMENT WORKSHOP
May 30 - 31
Graphic Arts Technical Foundation
4615 Forbes Ave
Pittsburgh, PA 15213
Information: Amy Mangis
Phone: (412) 621-6941
Fax: (412) 621-3049

AIC - '96 INTERIM MEETING

June 16 - 18

Color Psychology Beyond Psychophysics

Gothenburg, Sweden

Information: Lars Sivik

Kullaviks Skogsväg 4

S-429 35 Kullavik, Sweden

Phone: (011) 46-31-933347

Fax: (011) 46-31-431012

email: sivik@psy.gu.se

ASTM COMMITTEE D-1 ON PAINT

June 23 - 26

San Francisco, CA

Information: Scott Orthey

Phone: (610) 832-9717

Fax: (610) 832-9555

ASTM COMMITTEE E-12 ON APPEARANCE

June 24 - 26

San Francisco, CA

Information: Bode Buckley

Phone: (610) 832-9740

Fax: (610) 832-9555

GATF COLOR MEASUREMENT WORKSHOP

Aug. 8 - 9

Graphic Arts Technical Foundation

4615 Forbes Ave

Pittsburgh, PA 15213

Information: Amy Mangis

Phone: (412) 621-6941

Fax: (412) 621-3049

AATCC CONFERENCE AND EXHIBITION

Sept. 15-18

American Association of Textile Chemists and Colorists

Opryland Hotel

Nashville, TN

Information: AATCC

Phone: (919) 549-8141

OSA 80th ANNIVERSARY ANNUAL MEETING

Oct. 20-25

Rochester, NY

Information: OSA

Phone: (202) 223-0920

Fax: (202) 416-6100

IS&T 12th INTERNATIONAL CONGRESS

Oct. 27 - Nov. 1

Advances In Non-Impact Printing Technologies

Hyatt Regency San Antonio

San Antonio, TX

Information: IS&T Conference Manager

7003 Kilworth Lane

Springfield, VA 22151

Phone: (703) 642-9090

Fax: (703) 642-9094

email: imagesoc@us.net

CMG FALL CONFERENCE

Nov. 3 - 5

Color Marketing Group Conference

Sheraton Seattle Hotel & Towers

Seattle, WA

Information: Katie Register

Phone: (703) 329-8500

Fax: (703) 329-0155

IS&T FOURTH COLOR IMAGING CONFERENCE

Nov. 17 - 20

Color Science, Systems & Applications

Radisson Resort

Scottsdale, AZ

Information: IS&T Conference Manager

7003 Kilworth Lane

Springfield, VA 22151

Phone: (703) 642-9090

Fax: (703) 642-9094

ASTM COMMITTEE D-20 ON PLASTICS

Nov. 18 - 21

New Orleans, LA

Information: Mrs. Katherine Morgan

Phone: (610) 852-9500

Fax: (610) 832-9555

1997**ASTM COMMITTEE D-1 ON PAINT**

Jan. 26 - 29

Fort Lauderdale, FL

Information: Scott Orthey

Phone: (610) 832-9717

Fax: (610) 832-9555

ASTM COMMITTEE E-12 ON APPEARANCE

Jan. 26 - 29

Fort Lauderdale, Florida

Information: Bode Buckley

Phone: (610) 832-9740

Fax: (610) 832-9555

TAGA ANNUAL CONFERENCE

May 4 - 7

Technical Association of the Graphic Arts Annual Technical Conference

Montreal or Quebec City, Canada

Information: Karen Lawrence

Phone: (716) 475-7470

SID '97

May 12 - 16

Boston, MA

Information: Lauren Kinsey

SID

1526 Brookhollow Drive

Suite 82

Santa Ana, CA 92705

Phone: (714) 545-1526

Fax: (714) 545-1547

email: socforinfodisplay@mcimail.com

COLOUR '97

May 26 - 30

8th AIC Quadrennial Meeting

Colour '97 Executive Committee Meeting

May 25

Kyoto International Conference Hall (KICH)

Kyoto, Japan

ISCC ANNUAL MEETING

Sep. 14 - 17

Inter-Society Color Council Annual Meeting with Color and Appearance Division of Society of Plastics Engineers

Newport, RI

Information: Gary Beebe

Phone: (215) 785-8497

AATCC CONFERENCE AND EXHIBITION

Sep. 28 - Oct. 1

American Association of Textile Chemists and Colorists

Marriot Marquis

Atlanta, GA

Information: AATCC

Phone: (919) 549-8141

1998

TAGA ANNUAL CONFERENCE

May 3 - 6

Technical Association of the Graphic Arts Annual Technical Conference

Chicago, IL

Information: Karen Lawrence

Phone: (716) 475-7470

SID '98

May 17 - 22

Anaheim, CA

Information: Lauren Kinsey

SID

1526 Brookhollow Drive

Suite 82

Santa Ana, CA 92705

Phone: (714) 545-1526

Fax: (714) 545-1547

email: socforinfodisplay@mcimail.com

ASTM COMMITTEE E-12 ON APPEARANCE

Jun. 16 - 18

Saint Louis, MO

Information: Bode Buckley

Phone: (610) 832-9740

Fax: (610) 832-9555

AATCC CONFERENCE AND EXHIBITION

Sept. 22-25

American Association of Textile Chemists and Colorists

Convention Center

Philadelphia, PA

Information: AATCC

Phone: (919) 549-8141

1999

TAGA ANNUAL CONFERENCE

May 2 - 5

Technical Association of the Graphic Arts Annual Technical Conference

Philadelphia, PA

Information: Karen Lawrence

Phone: (716) 475-7470

SID '99

May

California

Information: Lauren Kinsey

SID

1526 Brookhollow Drive

Suite 82

Santa Ana, CA 92705

Phone: (714) 545-1526

Fax: (714) 545-1547

email: socforinfodisplay@mcimail.com

(Continued→)

AATCC CONFERENCE AND EXHIBITION
Oct. 12 - 15
American Association of Textile Chemists and Colorists
Convention Center
Charlotte, NC
Information: AATCC
Phone: (919) 549-8141

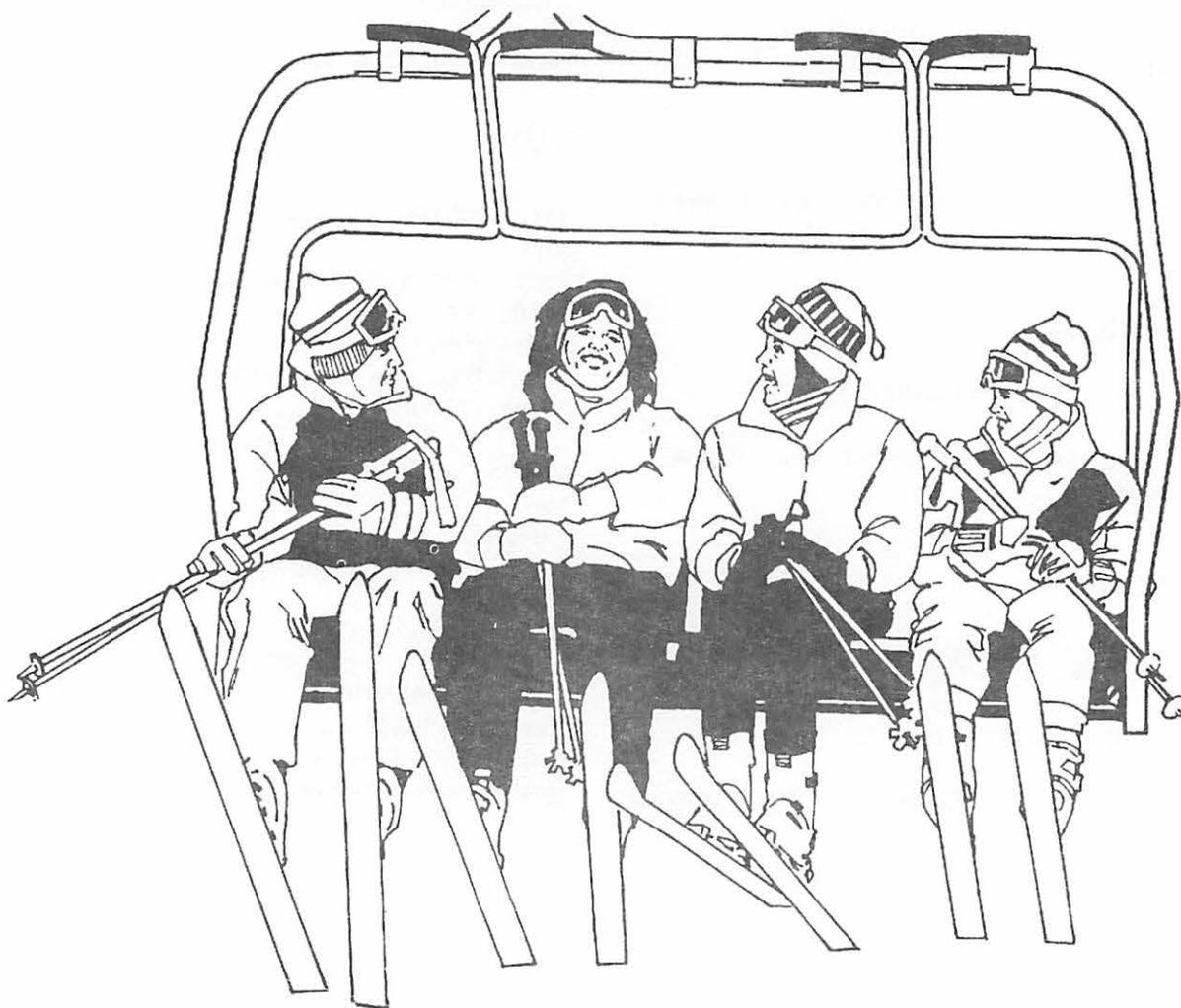
AATCC CONFERENCE AND EXHIBITION
Oct. 1-4
American Association of Textile Chemists and Colorists
Marriott World Center
Orlando, FL
Information: AATCC
Phone: (919) 549-8141

2000

SID 2000
May
Toronto, Ontario
Canada
Information: Lauren Kinsey
SID
1526 Brookhollow Drive
Suite 82
Santa Ana, CA 92705
Phone: (714) 545-1526
Fax: (714) 545-1547
email: socforinfodisplay@mcimail.com

AATCC CONFERENCE AND EXHIBITION
Oct. 7-10
American Association of Textile Chemists and Colorists
Sheraton Hotel
Boston, MA
Information: AATCC
Phone: (919) 549-8141

2001





J O B S WANTED!

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

There is no charge for this service. However the restrictions are as follows:

1. This service is for ISCC members' use only.
2. No more than 50 words may be used to describe yourself.
(Not including name address and/or telephone number).
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5. Neither the ISCC News nor the editors are responsible for any errors.
6. You must advise us in writing when you have obtained employment.

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

JOB WANTED:

Prof. Dr. Todor Kehlibarov
P.O. Box 1089
Sofia, BG-1000 Bulgaria
Ph/fax: 011 359 2 880597
US Contact: Dr. F.W. Billmeyer,
Ph/fax: 518 377 9511

Senior color and light scientist seeking short or long term position in the West. Speaks English, French, several European languages. More than 30 years experience in instrumental and visual color measurement of wide variety natural and synthetic materials. Can perform research, establish laboratories, teach courses, supervise quality control, much more.

JOB WANTED

Huanzhao Zeng
809 University Park
Rochester, NY 14620
Tel: 716/461-3127
email: hxz1536@vaxa.isc.rit.edu

M.S. Imaging Science (1995), M.S. Color Science (1990). Interested in obtaining a responsible position related to color/imaging science applications and software development. Experienced in color management system, color reproduction software development, digital color halftoning, printer model, scanner and CRT color reproduction, C/C++, UNIX, Dos, color/image processing software, and mathematics/statistics software.

ISCC NEWS EDITOR: Gultekin (Tek) Celikiz

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

Editor, ISCC News • Gultekin Celikiz • 1309 Paper Mill Rd, Erdenheim, PA 19038-7025

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MS DOS-ASCII, (3.5"- 1.44 Meg); MACINTOSH- (Most formats)
(3.5"-1.44 Meg, 800K or 400K).

E-mail: celikizg@hardy.texsci.edu

If necessary, fax material to (215) 836-0448

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

All submissions must be in English.



meeting reports



photos



contributions from members

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| Position | Name | Address | email | Telephone | FAX |
|-------------|------------------------|-----------------------------------------------------------------------|---------------------------|----------------|----------------|
| President | Mr. Roland L. Connelly | SheLyn, Inc., 1108 Greccade Street, Greensboro, NC 27408 | 73041.2772@compuserve.com | (910) 274-1963 | (910) 274-1971 |
| Pres. Elect | Dr. Ellen C. Carter | 2509 N. Utah Street, Arlington, VA 22207 | ecarter@capaccess.org | (703) 527-6003 | |
| Secretary | Dr. Danny C. Rich | Datacolor International, 5 Princess Rd., Lawrenceville, NJ 08648 | 73700,3514@compuserve.com | (609) 895-7427 | (609) 895-7461 |
| Treasurer | Mr. Daniel S. Walton | Color and Appearance Technology P.O. Box 3709, Princeton, NJ 08543 | | (609) 734-0300 | (609) 734-0245 |
| Past-Pres. | Ms. Paula J. Alessi | Eastman Kodak Company, Rochester, NY 14650 | pjalessi@kodak.com | (716) 477-7673 | (716) 722-1116 |

LIST OF DIRECTORS

1993-1996

| | | | |
|------------------------|---------------------------------------------------------------------|---------------------|-------------------------------|
| Mr. Gary E. Beebe | Ato Hass North America Inc., P.O. Box 219, Bristol, PA 19007 | (215) 785-8497 | (215) 785-8931 |
| Mr. Joseph F. Campbell | DuPont Marshall Lab., 3401 Grays Ferry Ave., Philadelphia, PA 19146 | (215) 339-6039 | (215) 339-6431 |
| Dr. Robert T. Marcus | Pantone Inc., 590 Commerce Blvd., Carlstadt, NJ 07072 | rmarcus@pantone.com | (201) 935-5500 (201) 896-0242 |

1994-1997

| | | | |
|-----------------------|--------------------------------------------|--------------------------|-------------------------------|
| Mr. Michael A. Hammel | 3782 Bonny Rigg Trail Roswell, GA 30075 | mahammel@ix.netcom.com | (770) 587-5120 (770) 587-5128 |
| Mr. Richard W. Riffel | 3800 Monroe Ave., Pittsford, NY 14534-1330 | 73441.512@compuserve.com | (908) 236-2311 (908) 236-7865 |
| Mr. William S. Vogel | 10013 Sagefield Dr., Baton Rouge, LA 70818 | | (504) 261-7107 |

1995-1998

| | | | |
|-----------------------|----------------------------------------------------------|-----------------------|-------------------------------|
| Ms. Cynthia A. Brewer | PSU Dept. of Geography, University Park, CA 92182-0381 | cbrewer@geosc.psu.edu | (619) 594-8039 (619) 594-4938 |
| Dr. Mark Fairchild | RIT Munsell C.S. Lab., P.O. Box 9887 Rochester, NY 14623 | mdfpph@grace.rit.edu | (716) 475-2784 (716) 475-5988 |
| Prof. Wade Thompson | 1910 East Cardinal St., Springfield, MO 65804 | | (417) 836- |

ISCC MEMBER-BODIES

| | |
|----------------------------------------------------------------|--------------------------------------------------------------|
| American Association of Textile Chemists and Colorists (AATCC) | Graphic Arts Technical Foundation (GATF) |
| American College of Prosthodontists (ACP) | The Human Factors & Ergonomics Society |
| American Society for Testing and Materials (ASTM) | Illuminating Engineering Society of North America (IESNA) |
| American Society of Interior Designers (ASID) | National Artists Equity Association (NAEA) |
| American Society for Photogrammetry and Remote Sensing (ASPRS) | National Association of Printing Ink Manufacturers (NAPIM) |
| The Color Association of the United States, Inc. (CAUS) | Optical Society of America (OSA) |
| Color Marketing Group (CMG) | Society for Information Display (SID) |
| Color Pigments Manufacturers Association (CPMA) | Society of Plastics Engineers, Color & Appearance Division |
| Detroit Colour Council (DCC) | Society for Imaging Science and Technology (IS&T) |
| Federation of Societies for Coatings Technology (FSCT) | Technical Association of the Graphic Arts (TAGA) |
| Gemological Institute of America (GIA) | Technical Association of the Pulp and Paper Industry (TAPPI) |

SUSTAINING MEMBERS

Pantone Color Institute
Color and Appearance Technology

BYK-Gardner
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