# Inter-Society Color Council *News*

Number 349 May/June 1994

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## EDITOR'S NOTE

# HELP!

Many of you attend meetings throughout the year. Let your fellow ISCC members know what is going on out there. Write a brief paragraph or two of what you saw, put it on disk and send it to ISCC News.

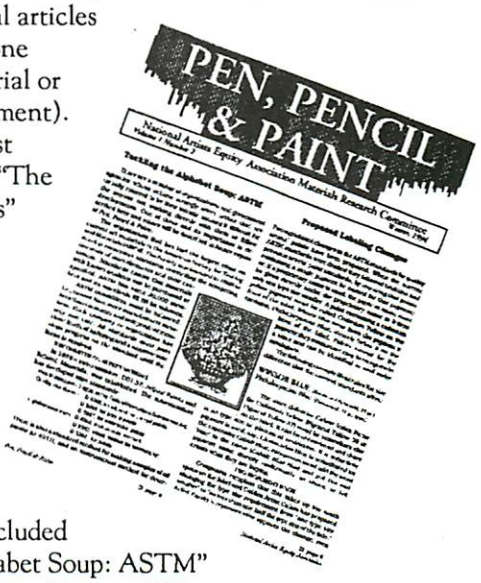
Thank you.

Ed.

## NEWS ABOUT MEMBERS

### Joy Turner Luke

Joy Turner Luke is the editor of the new publication "Pen, Pencil & Paint" a quarterly newsletter of the National Artists Equity Association Materials Research Committee. It began publication with the Fall 1993 issue. From a look at the first and second issues, I can tell you a little of the format. Each issue includes several articles and three profiles (one company, one material or person, and one pigment). For example, the first issue's articles were "The Disappearing Fuchas" and "Art vs. Craft Materials" with the company profile of Schmincke, the pigment profile of alizarin, and a hero profile of Henry W. Levison. In the second issue, the articles included "Tackling the Alphabet Soup: ASTM" and "Proposed Labeling Changes." The company profiled was Turner Colour, the material Gouache, and the pigment quinacridone.




Interspersed throughout each issue are boxes containing either health notes, technical notes, or other specific pieces of information. All in all the newsletter is very readable, and packed with interesting and useful color information.

If you are a member of the National Artists Equity Association, you automatically receive the newsletter, but others can receive this gem also, by sending $12/yr to National Artists Equity Association, P. O. Box 28068, Washington, DC 20038.

*Ellen Carter*

# COLOR RESEARCH & APPLICATION

## In This Issue

Dr. Theano Fanny Tosca has been examining cities as complete architectural environments for several years. Dr. Tosca is particularly interested in how the conscious use of color can portray the particular character of a city or section of a city. Since color is more easily changed than many other building aspects such as structure, color can be a relatively inexpensive method of modifying an otherwise indefinite buildingscape. In "Dreams of Light for the City," she describes a basic program to analyze a space, research the color preferences of its inhabitants, and establish a color scheme that, by the color rendering of facade elements of the buildings, can lead to the color structuring of the contemporary city thus producing a sense of belonging within the community as well as a message to visitors about the community's directions, roots, and goals.

Moving from the external environment of the city into buildings, it is common knowledge that different lighting techniques and sources change the impression of the area. Certain stores, offices, or even outdoor situations seem to create the impression of great visual clarity, while others have the opposite effect. A number of researchers have studied visual clarity, but the causes of increased clarity have not been thoroughly studied. It might be thought that how well objects keep their color appearance under the light source (color rendering) would be a measure of visual clarity, and it is true that changing the general color rendering index of the illumination of the area does have a significant affect on the visual clarity. Kenjiro Hashimoto and Yoshinobu Nayatani have determined that the visual clarity of a lighting environment is different from the perceived lightness of objects in the environment, but is highly correlated to the feeling of contrast within the area. In "Visual Clarity and the Feeling of Contrast," these authors describe methods to assess the visual clarity by assessing the feeling of contrast, rather than by comparing the general color rendering index of the illumination.

Moving as we have from looking at the city environment to the indoor environment, let's move to an even closer look at objects; in this case, jewelry. Part of the fascination of gemstones is the unusual interplays of the stones with light. Most gems do not change color when viewed under different light sources. However, in 1930 it was noticed that some stones that are green or bluish-green under daylight appear purplish-red under incandescent light. For a number of reasons, this gem was named "alexandrite" in honor of Tsar Alexander II. Thus the term "Alexandrite Effect" in gemology describes a distinct change of color appearance that certain stones undergo when the illumination is changed from daylight to incandescent light. Yan Liu, James Shigley, Emmanuel Fritsch, and Scott Hemphill in "The 'Alexandrite Effect' in Gemstones" examine this effect quantitatively. Now it is known that gems other than just alexantrite can exhibit this effect. This article contains impressive color photographs of alexandrite, garnet, sapphire, and gem glass.

Several articles in this journal over the last few years have dealt with perceived brightness of colors. The term Helmholtz-Kohlrausch effect has been mentioned often. I would like to review the background of the term. The glossary of terms in "Measuring Colour, 2nd ed." by R. W. G. Hunt defines "Helmholtz-Kohlrausch effect - change in brightness of perceived colours produced by increasing the purity of a colour stimulus while keeping its luminance constant (within the range of photopic vision)." From reading Judd [A new look at the measurement of light and color, Illum. Eng.53, 61-71, (1958)], I believe that the term was first used by Urbanek and Ferenez in 1939 when they described the additivity failure that occurs when a red light and a green light, both of which have been matched to standard incandescent source, are combined; the result does not equal two units of the standard source. Because this phenomenon was first noticed by Helmholtz and later studied in detail by Kohlrausch, the effect was named for them. The experiment just described involves aperture colors. However, increasingly research of such additivity failures and applications which involve such failures have involved either object colors or colors shown on a display with a definite background. In this issue, we have such an article. Peep F. M. Stalmeier and Charles M. M. de Weert in "On the Conditions Affecting the Contribution of Color to Brightness Perception" report on studies of heterochromatic additivity failures. In the next issue we will have even more on the Helmholtz-Kohlrausch effect, but let's get back to this issue.

The next article in this issue addresses industrial design concerns. To design a product that really satisfies the demand of a customer, the designer should consider the special color and configurational demands that fit the customer's image of the product. The automotive industry is an example of a relatively high-priced product where image is quite important. In "Fuzzy Set Theory on Car-Color Design," Shih-Wen Hsiao examines color and the customer's overall image of the automobile. He shows that by using a multivalued logic such a fuzzy set theory, the designer has a powerful tool for designing the product, while including color during the period of conceptual design to fit certain images, rather than selecting a color after the car is fully designed.

In this issue, Mark D. Fairchild, Elizabeth Pirrotta, and Taek Kim describe a new experimental technique for color appearance research. Color-appearance measurement and modeling require quantitative evaluation of the color perception along the various dimensions of color (hue, brightness,

chroma, to mention a few). There are several procedures for quantitative evaluation. One group of procedures involves haploscopic viewing (that is, presentation of different stimuli to each of the observer's eyes.) In "Successive-Ganzfeld Haploscopic Viewing Technique for Color Appearance Research," the various methods of quantitative evaluation are reviewed, the new technique is presented, and advantages and disadvantages of the methods are discussed.

This month's Color Forum features an article by Edward Zalec. The concern is that electronic color, such as color displayed on televisions, computer monitors, and CRT projections, does not have a permanent form in the same way that a painting does. Thus there is a need for a preferred color order for the tuning of a composition of color in space and time. In "Orphics: Computer Graphics and the Feasibility of a Preferred Color Order," color vision theories, structural compatibility between color orders and the well-tempered musical scale, and the works of two artists are examined for possible clues to defining such a color scale.

*Ellen Carter, Editor,*
*Color Research & Application*

*It's spring!*

# NEW MEMBERS

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

Mr. Sharam Gharaei
Dept of Computer Science
University of Hamburg
Kleine Holl 18
Hamburg 22115
Germany

Ms. Susan Highnote
11248 Oakcreek Drive
Lakeside CA 92040
USA

Ms. Mary Hinton
H. B. Fuller Company
Industrial Coatings Div.
3200 LaBore Road
Vadnais Heights MN 55110
USA

Dr. Robert Hirschler
SENAI/CETIQT — UNIDO
Rua Dr. Manual Cotrim
195 — Riachuelo
Rio de Janeiro RJ 20961-040
Brazil

Mr. John Ingraham
Iris Graphics
6 Crosby Drive
Bedford MA 01730
USA

Ms. Kaleene Kenning
ShopKo Stores
700 Pilgrim Way
PO Box 19060
Green Bay WI 54307-9060
USA

Mr. Greg Martin
Eastman Kodak Co.
11633 Sorrento Valley Rd
San Diego CA 92121
USA

Mr. Eric Saul
MacBeth Company
405 Little Britain Road
New Windsor NY 12550
USA

Mr. Michael J. Schmit
H. B. Fuller Company
3200 LaBore Road
Vadnais Heights MN 55110
USA

Mr. Gary Schoonover
Keith Clark Co.
101 O'Neil Road
Sidney NY 13838
USA

Mr. Jeffrey F. Scott
Uniroyal Engineered Products
501 S. Water Street
Stoughton WI 53589
USA

Mr. Ching-Wen Sun
Visual Sciences Center
University of Chicago
939 E. 57th Street
Chicago IL 60637
USA

Ms. Brenda J. Swafford
Hewlett Packard
2330 Norcrest Drive
Boise ID 83705
USA

Mr. Daniel S. Walton
Color & Appearance Technology, Inc.
PO Box 3709
Princeton NJ 08543-3709
USA

# NEWS FROM MEMBER BODIES

## CAUS

Dr. Diethard Stelzl will speak on Light and Color-Aspects of the effects on their Cosmic Energy on Life at the CAUS offices, 409 West 44th Street, New York. This talk will take place at 1:00 PM Thursday July 8, 1994. A light luncheon of mixed greens will be served at 12:15 PM for those attending the presentation.

Telephone (212) 582-6884 for more information and reservations.

### New York City Note:

"Latin American Artists of the Twentieth Century" Until September 7 at the Museum of Modern Art. Outstanding Fun. Very colorful. Among the better known artists shown are Jose Orozco, Tarsila do Amaral, Diego Rivera And Frida Kahlo.

(If you're going to be in New York, why not see both!)

### Quotables:

"Colors came from the greens and browns of the Tuscan hills and the terracotta colors of its buildings. The men's costumes were all influenced by military styles. The men's jackets are of cream cotton doeskin with blue or black trim...."

Costume Designer Phyllis Dalton for Kenneth Branaugh's film "Much Ado About Nothing" (As reported in Women's Wear Daily, May 18, 1993).

### Car Color

According to Bob Daily at duPont Automotive Products, white was the most popular color (for the second year in a row) in 1992 in luxury, full sports and light truck and van categories. Interestingly enough a medium red was as is among the top five colors in all these categories and bright red achieved second and fourth place in the category of sport/compact and light truck/van. According to duPont's research, greens are "enjoying their greatest popularity since the 1960's and 1970's."

Looking toward the future, specifically to 1996, dark blued greens (read teal) are projected to be favored while yellowed ones are forecasted as fashion items. Daily believes "Chromatic yellows (read bright ones) are emerging, but should be limited to smaller vehicles."

Blues and beiges seem noticeably absent in his projection. Wee asked him why. He pointed out that (light and dark) and light browns and metallics (which are selling well now) do well to show up in the top ten colors. Beiges, he noted, have not been of great importance for the past six to eight years.

## COLOR MARKETING GROUP

The Color Marketing Group, (CMG), a ISCC Member Body, based in Alexandria, Virginia, is a 32 year old international non-profit association of 1,400 design and color professionals who forecast Color Directions(TM) on to three years out for all industries, manufactured products and services. These include: Residential, Commercial and Consumer Products, Transportation, Architectural/ Building Products, Communications/ Graphics, Fashion, Recreational, Retail, Hospitality, Office and Health Care Environments.

For More Information, please call (703) 329,8500 or write: Color Marketing Group, 5904 Richmond Highway, Suite 408, Alexandria, VA 22303 USA

## ASTM

ASTM, an ISCC Member Body, has introduced a new publication on "Durability Testing of Nonmetallic Materials". Contains 82 ASTM standards on durability testing and evaluation of paints, plastics, textiles, and other nonmetallic materials. Compiled from 21 volumes of the Annual Book of ASTM Standards, the volume presents a hierarchy of standards dealing with service life and durability: from the generic (such as E-632 Practice for Developing Accelerated Tests to Aid Prediction of the Service Life of Building Components and Materials); to the more specific (such as tests for characterizing environment for exposure, material to be exposed, degradation component); to product-specific tests (for moisture, UV, etc.).

$77 List; $69 ASTM Members

To order call: ASTM Customer Service (215) 299-5585 or FAX (215) 977-9679

ASTM 1916 Race Street, Philadelphia, PA 19103

### Activities of ASTM Committee E12 on Appearance

ASTM Committee E12 on Appearance is one of several ASTM Committees dealing with various aspects of Color and Appearance. Related committees include D-1 on Paint, D-20 on Plastics, G-3 on Durability and D-4 on Road Materials. Each of these technical committees is responsible for the production and revision of documentary standards, many of which are related to the color and appearance of materials. Committee E-12 activities are divided into 11 subcommittees, namely Terminology, Spectrophotometry and Colorimeter, Geometry, and Appearance Analysis, Fluorescence, Appearance of Displays, Color Order Systems, High Visibility Materials,

Optical Techniques, Retroreflection and Visual Methods.

Two new subcommittees were activated at the 1994 winter meetings, one on Color and Appearance Analysis and one on Fluorescence. The Color and Appearance Analysis subcommittee is revising the tables of weights for tristimulus colorimetry, which have been under development for several years through the colorimetry and spectrophotometry subcommittee. Those involved in CIE colorimetry will need a copy of this revised standard E-308 when it is issued. The new fluorescence subcommittee will address measurement problems such as those discussed at the 1994 ISCC Williamsburg Conference on Colorimetry of Fluorescence Materials. These measurement issues include the draft of a two-monochromator standard and study of the uncertainties in existing methods, especially as they related to instrument light sources.

The Terminology subcommittee provides continuing revisions to stand E-284, an excellent reference of color and appearance terms. The subcommittee on Color Order Systems also serves as the US Technical Advisory Group (TAG) to ISO/TC-187 on Color Order Systems. This committee is responsible for three standards on color order, the Color Curve system, the OSA system, and the Munsell system. The Munsell system standard is currently being updated. The Visual Methods subcommittee includes the drafting of standards on color difference tolerancing and on how to screen visual observers. The geometry subcommittee task group E-12.03.02 is doing visual studies of effect materials, especially metallic coatings, in order to standardize measurement methods.

Those involved in retroreflection will be glad to know that three methods have been revised in 1993. They can be found in the 1994 Annual Book of ASTM Standards, Volume 06.01. The recently issued standard E-1501, for the first time specifies requirements to insure nighttime visibility of reflective clothing. The Optical Techniques subcommittee has produced a standard on bidirectional reflectance which defines the necessary parameters for testing a multitude of surface characteristics, and it is currently working on a surface roughness standard. The Displays subcommittee has a standard for spectral measurements of CRT and other types of displays. In summary, the broad range of ASTM E-12 activities include many of interest to ISCC members.

The Scope of ASTM Committee E-12 On Appearance is:

To promote knowledge of appearance properties and characteristics, and to encourage the improvement and development of standards for describing and evaluating the appearance properties (such as color, gloss, opacity, and texture) of engineering materials by

1. The stimulation and sponsoring research into appearance problems.
2. Formulating terms, nomenclature, and definitions generally applicable to describing the appearance of engineering materials.
3. Developing, or coordinating with technical committees, standards methods, recommended practices, for measurement of fundamental and general appearance properties.
4. Assisting the technical committees to improve appearance standards by advice, suggestions, and dissemination of information.
5. Reviewing and recommending approval or revision of ASTM standards, existing or proposed, involving appearance factors.
6. Serving, with the approval of the ASTM Board of Directors, as liaison agent between the Society and other organizations in matters concerned with factors of appearance.

## The Technical Subcommittees of ASTM Committee E-12 On Appearance:

E-12.01 on Editorial and Terminology
E-12.02 on Spectrophotometry and Colorimetry
E-12.03 on Geometry
E-12.04 on Color and Appearance Analysis
E-12.05 on Fluorescence
E-12.06 on Appearance of Displays
E-12.07 on Color Order Systems US TAG TC 187

E-12.08 on High Visibility Materials
E-12.09 on Optical Techniques
E-12.10 on Retroreflection
E-12.11 on Visual Methods

*Harry Hammond and Norbert Johnson*

# DCC

The Detroit Colour Council (host of this year's ISCC Annual Meeting in Troy, Michigan), announces their Annual DCC Golf Outing. It will be held June 28, 1994 at the "Links of Pinewood" Meadowbrook Country Club. Also plan on attending their Christmas Dinner Dance on Saturday December 10, 1994.

For more information on both functions or to inquire about membership in the DCC, contact:

Detroit Colour Council
945 Stephenson Highway
P.O. Box 2802
Troy, MI 48007-2802

# AMERICAN SOCIETY FOR PHOTOGRAMMETRY & REMOTE SENSING (ASPRS)

"Mapping & Remote Sensing Tools for the 21st Century" is a new meeting that focuses on the rapidly growing integration of digital-spatial and remotely sensed data. It will cover:

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## ASPRS, continued

Softcopy Photogrammetry, Image Registration, Digital Orthophoto Databases, and Airborne GPS, with a feature emphasis on Public/Private Interaction. The conference, scheduled for 26-29 August 1994 at the Sheraton Washington Hotel, Washington, DC, is sponsored by the American Society for Photogrammetry & Remote Sensing (ASPRS) and co-sponsored by the Management Association for Private Photogrammetric Surveyors (MAPPS).

This first-of-its-kind event features a single-session format so that attendees don't miss a single talk. For those who have difficulty getting away to conferences during the week, the conference is scheduled over a weekend, which also reduces the cost to attend. All presenters will be invited to participate, ensuring the presence of the leading experts in the many topics to be covered. The sessions will follow the softcopy process from data acquision, enhancement, and compilation through output for many applications.

The exhibition hall, open 27-29 August, will showcase the latest products and services in the field. A separate Learning Forum, where exhibitors will be able to hold private, uninterrupted demonstrations, will allow attendees to get hands-on experience with the various products on display.

For further information, contact:
ASPRS, Dept. DP
5410 Grosvenor Lane, Suite 210
Bethesda, MD 20814-2160
Telephone 301-493-0290
FAX 301-493-0208
email e7g4hem@toe.towson.edu

# AATCC ACTIVITY

AATCC Research Committee RA36 met Tuesday, February 15 in Charlotte, NC. The meeting was chaired by Mr. Bill Vogel. Subcommittees reported on the following items:

Publications: Roland Connelly reported that guidelines for authors for the revised edition of Color Technology in the Textile Industry have been drafted, and will be circulated to authors. Expected publication date of the new edition is summer 1995.

Test Method 153: Robert Willis reported that revisions of Test Method 153: Instrumental Color Measurement are nearly complete. The subcommittee will submit the draft to committee letter ballot before May meeting. Revised text includes sections explicitly dealing with spectral reflectance, spectral transmittance, and colorimetric reflectance and transmittance methods.

Color Terminology. Fred Simon showed several possible schemes for labeling areas of CIEL*a*b* color space with color names. Several software providers polled currently use a simple method of dividing the hue circle into uniformly-sized wedges for each color. Simon's proposals included using names such as "orange," "brown," "gray," and "purple." Simon is continuing work on these schemes, and welcomed contributions from committee members.

Connelly reported that AATCC held a Color Measurement Workshop in January. The course sold out, and participants reported that the lectures and exercises were valuable and informative.

Ann Laidlaw reported that AATCC will cosponsor ISCC's annual meeting in 1995. The meeting is scheduled for April 23-25, 1995, in Greensboro, NC, and will focus on color and textiles.

RA36 will meet again during the spring AATCC committee meetings May 10-12, 1994, in Baltimore, MD.

*Ann Laidlaw*

## Color and Appearance Division
# SOCIETY OF PLASTIC ENGINEERS

The Color and Appearance Division (CAD) held a joint Regional Technical Conference (RETEC) with the Polymer Modifiers and Additives Divisions (PMMD) for the Society of Plastics Engineering in October 1993 at the Stouffer Hotel in Orlando, Florida. The conference title was "Weathering Well with Colorants and Additives". 476 people attended. There were 24 technical papers presented and 25 tabletop exhibits. The following is a list of papers presented:

"The Design of Cost Effective, High Performance Light Stabilizer Systems for Automotive Applications"
S. B. Samuels and D. C. Hogdahl - American Cyanamid

"The Impact of Variability of Accelerated Weathering Results"
Richard M. Fisher, 3M Weathering Resource Center

"The Right Choice in a Weathering Program Will Save Money and Let You Sleep Better at Night"
South Florida Test Service

"Aqueous Additive Delivery Systems and Their Application in Weather-Resident Polymers"
W. C. Gose - Eastman Chemical

"The Effect of Carbon Black Properties and Dispersion on Color Tone"
Dr. Rodney Taylor - Columbus Chemicals

"Lubricant Systems for Improved Weatherability in Rigid PVC"
J. Falter and K. S. Geick - Lonza

"Automotive Production Color Match Certification"
William Longley - Ford Motor Company

"Paradigm Shift in UV Protection Technology"
H. R. Razaui and G. D. Rawlings - Monsanto

"Weathering Resistant Coloration of

Polyolefins Using Organic Pigments"
Grahm Johnson - Ciba Geigy
"Rheological Properties of Acrylic-Modified Polymer Blends for Weathering Applications"
Steve Driscol - University of Massachusetts
"Mathematical Polymer Blends for Weathering Applications"
Brian Lewis and William R. Matthew - Americhem, Inc.
"Accelerated Aging Outdoor & Instrumentation"
Plastics Compounding Editorial Staff
"Non-Discoloring Stabilizer Systems for Polypropylene Fiber"
D. Horsey - Ciba Geigy
"Outdoor Weathering of Vinyl Siding Samples Containing Different Rutile Ti02 Pigments"
Marty Paisner - SCM Chemical
"Stabilization and Color Enhancement of Virgin and Reprocessed PET"
Peter Solera - Ciba Geigy
"A Visually Adjusted Weather Rating System"
John Copp - Dow Chemical Company
"High Irradiance UV Exposures for Faster Accelerated Weathering Tests"
P. Brennan - Q-Panel
"Rigid PVC Siding Colors - Weathering & Infrared Reflectance"
Frank Waksmunski - Engelhard Corporation
"UV Resistance of Adipate-Based Polymeric Plasticizers in PVC"
William Eldridge - Huls America
"Weatherable Heavy-Metal Free Colorants for Acrylic Films"
Vijay Desai and Robert Zeller - Wilson Color, Inc.
"Advances in the UV Stabilization of Polypropylene"
F. Gratani - EniChem America, Inc.
"The Application of Yellow Praseodymium Doped Zircon Pigment in Plastics"
Robert Blonski - Ferro Corporation
"Flame Retardant Polypropylene Stabilization and Colorant Considerations"
Abe Mor & Brian West Techmer PM
"Weatherability of Pre-Colored TPO"
E.K.L. Lau and B. Collins - D & S Plastics
"Outdoor Durability of Tedlar PVF Products"
Sina Ebnesajjad - DuPont Company
"Photostabilization of Polymers using UV Check AM-340, an Hydroxyl Benzoate Stabilizer, in conjunction with HALS."
Steve Phillips - Ferro Corporation

The Annual Technical Conference (ANTEC) of the SPE will be in San Francisco. The Color and Appearance Division will have both a morning and afternoon session on May 3 (Tuesday).

The new officers of the CAD will be Tom Pfeiffer - Chairman, Earl Sexton - Chairman Elect, George Rangos - Treasurer, Gary Beebe - Secretary and Brian West - Past Chairman.

*Gary E. Beebe*
*Technical Program Chairman*
*CAD-SPE*

# OTHER NEWS

## GRAPHIC ARTS MARKETING INFORMATION SERVICE (GAMIS)

### 28th Annual Meeting

### GAMIS will host their Annual Meeting In Williamsburg, Virginia June 19-22, 1994.

*On the program will be:*
"The Impact of Electronic Publishing on Traditional Prepress and Printing Service", Fran Trocki, BIS Strategic Decisions
"Emerging Interactive Media Technologies Impact on Existing Printing, Publishing and Related Industries", Tom Mandel, SRI International
"Bridging to a Digital Future" (discussion of the findings), Tom Mandel, SRI International
and a Panel discussion on "Non-Impact Printing Applications"

Plus a host of task force and ad hoc committee meetings, social gatherings (many of which will be held jointly with the PIA Sales and Marketing Executives who are also meeting in Williamsburg), and the annual golf tournament.

The GAMIS Mission is to provide GAMIS member companies with timely, relevant market information on graphic arts and related fields through member-directed, cost-effective research, education, and industry contacts. GAMIS is a special industry group of the Printing Industries of America (PIA). PIA is in the business of promoting programs, services and an environment which help its members operate profitably.

For more information contact:
GAMIS, 100 Dalngerfield Road
Alexandria, VA 22314
Telephone (703) 519-8179

## GRUPO ARGENTINO DEL COLOR

### (Argentine Color Group)

The Argentine Color Group held their first Congress on Color, October 20-22, 1992 at the School of Architecture, Design, and Town-planning of Buenos Aires University. A number of papers were presented including:

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## Argentine Color Group, continued

Development of Color and Designs of Ceramic Tiles

Color and other visual aspects: COlor and form

Color and Sound: Relations on physical and psychophysical bases

Essay on the esthetics of light

Dictionary of popular names of color in Argentina

Psychophysical study of preferences of white in semifinished leather

Study of preferences in show cases illuminated with fluorescent lamps

An effective range of gray samples

Appearance (cesia): generation of scales through spinning disks

Color in a plastic surgery clinic building

*In addition there were two round table discussions:*

Color control and formulation and

Color in the artistic and design disciplines

The meetings were attended by around 100 persons coming from different fields which included: architects, psychologists, physicist, chemical and biochemical, engineering, textile and graphic designers, decorators, art professors, plastic artists, and many more.

At present, the Color group is working on the publication of the proceedings, as well as on the preparation of the Second Argentine congress on Color which will be held at the National University of La Plata this year (1994)

For more information, contact:

Grupo Argentino del Color, C. de Correo 157, 1650 San Martin (Bs.As.), Republica Argentina

*From AIC 1993 Annual Report, Submitted by: Paul Green-Armytage*

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Call for Papers

# 23RD SESSION OF THE CIE

Prospective contributors are invited to submit papers dealing with new results in the field of light and lighting. The subjects of the papers should be relevant to the work and the terms of reference of the seven CIE Divisions and their Technical Committees. (For detailed information on domains of interest, Section 2 of the CIE Roster should be consulted.) Contributions published before will not be accepted. Papers dealing with questions of direct concern to the work of the Divisions will get priority.

## Procedure for submission of papers:

Prospective contributors should submit a summary of their contribution in triplicate to the National Committee of their country. The application form may also be obtained from their country's National Committee. (In countries without a National Committee the submission should be made directly to the Central Bureau of the CIE: Kegelgasse 27, A-1030 Wien, Austria.)

The summary should be submitted in English with a minimum of 400 and a maximum of 600 words. It should be sufficiently specific and informative and should make clear the novelty the author wishes to describe, referring to results and practical applications. Based on this information the Board of Administration will make decision on the acceptance of the paper and on whether it will be given orally in a paper or presented poster session, or as a poster presented at the stand.

Each National Committee should set a deadline for receiving such submissions from contributors within their country so that the National Committee may scrutinize and preselect suitable papers.

The submissions accepted by the National Committees must be forwarded by the National Committees (or by the authors in countries without a National Committee) to arrive at the Central Bureau By 30 September 1994.

# USNC/CIE NEWS

- Indonesia has applied for CIE Membership.
- Croatia, Czech and Slovak Republics have become members to the CIE.
- CIE President and Mrs Robin Aldworth visited the Washington D.C. area late last year. They dined with USNC members Belinda Collins, Harry Hammond, Jonathan Hardis, Jack Hsia, Klaus Mielenz, Albert Parr, and David Sliney and spouses.
- CIE treasurer Ken Scotts' new address and telephone numbers are: 13 Heatherbrow Road, Welwyn, Herts. AL6 0QG, UK, +0438 715108 (Voice), +0438 814066(Fax)
- Dr Sliney, Director of CIE Division 6 has moved to a different office. His fax number has changed to (410) 671-5411. All other numbers remain the same.

## New Publications from the CIE

PUB-CIE#102 Recommended File Format For Electronic Transfer of Luminaire Photometric Data

PUB-CIE#104 Automobile Daytime Running Lights

PUB-CIE#105 Spectroradiometric Measurement of Pulsed Optical Radiation

PUB-CIE#D004 CIE Publications (Published Archival Material)

PUB-CIE#X007 Proceedings of the CIE Symposium '93 On Advanced Colorimetery

PUB-CIE#XXX AIC Colour'93

*(OTHER NEWS continues on page 11)*

# NRC CANADA

## Tutorial Seminar to be held October 24 and 25, 1994

A tutorial seminar of Photometry, Radiometry, and Colorimetry will be held at the laboratories of the National Research Council of Canada in Ottawa, Ontario, Canada on October 24 and 25, 1994.

For further information contact
Heather Matchett, Institute for National Measurment Standards, NRC
Telephone: (613) 993-2197
FAX: (613) 952-9865
e-mail: heather@m36.sci.lan.nrc.ca

# AN INDUSTRIAL SHORT COURSE ON "COLOR CONTROL FOR SURFACE COLOUR INDUSTRIES"

## Organized by the University of Derby, UK

Color physics systems are widely used in surface color industries such as textile, paint, plastic, and printing. Each system comprises a color measurement instrument driven by a computer. These systems provide a wide range of applications including colorant formulation, color difference evaluation, quantification of metamerism, and shade sorting. This three-day course, August 30 to September 1, 1994, organized by Dr. Ronnier Luo, will provide state of the art theory on these aspects of color science. Problems in applying these technologies will also be identified and suggestions will be made as to their solutions.

This course is divided into six sessions: Colorimetry I, Colorimetry II, Color constancy and metamerism, Color tolerance control, Color communication, and Colorant formulation. Nineteen lectures are assembled and will be given by experts from industry and academia. Basic course notes will be provided. This course will be particularly suitable for color technologists, colorant manufacturers, fashion color designers, retailers, students, and researchers in the field of color science.

For further information, contact Mrs. Rita Malpass, Marketing Department, University of Derby, Kedleston Road, Derby UK DE22 1GB; Tel +44 (0)332- 622222 or Fax +44 (0)332-294861.

# C A L E N D A R

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

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

## 1994

TAGA ANNUAL CONFERENCE, May 1-4
Technical Association of the Graphic Arts Annual Technical Conference, Baltimore, Maryland. Information: Karen Lawrence (716) 475-7470.

CMG - CONFERENCE, May 8-10
Color Marketing Group International Color Directions Conference, Sheraton New York Hotel & Towers, New York, New York. Information: Katie Register (703) 329-8500, Fax (703) 329-0155.

PRINCIPLES OF INDUSTRIAL COLOR MEASUREMENT, May 10-12
RIT Short Course, Munsell Color Science Laboratory, Rochester Institute of Technology, Rochester, New York. Information: Colleen Desimone (716) 475-7189, Fax (716) 475-5988.

AATCC NATIONAL COMMITTEE MEETINGS, May 10-12
Marriott Inner Harbor, Baltimore, Maryland. Information: AATCC (919) 549-8141.

FATIPEC CONGRESS, May 15-19
Development of the Lacquer and Paint Industry, Budapest. Information: Fatipec Congress Sectretariat, Hungarian Chemical Society (36-1) 201 6883, Fax (36-1) 156 1215.

IS&T 47th ANNUAL CONFERENCE, May 15-20
International Committee on the Science of Photography, ICPS '94: The Physics and Chemistry of Imaging Systems, and IS&T's 47th Annual Conference, Stouffer Rochester Plaza Hotel, Rochester, N.Y. Information: IS&T (703) 642-9090, Fax (703) 642-9094

CORM 94, ANNUAL MEETING, May 24-26
Optical Radiation Metrology and Accreditation. Council for Optical Radiation Measurement, National Institute for Standards and Technology, Gaithersburg, Maryland. Information: Chris Cromer, NIST (301) 975-3216, Fax (301) 840-8551.

SID '94, Jun. 12-17
Society for Information Display, International Symposium, Seminar, and Exhibition, San Jose Convention Center, San Jose, California. Information: Joyce Farrell, Conference Chair (415) 857-2807, Fax (415) 857-4320, E-mail "farrell@hplabs.hp.com".

de Ridder, P.O. Box 513, 5600 MB Eindhoven, The Netherlands.

JOHN DALTON CONFERENCE, Sep. 9-13
An International Color Vision Meeting to commemorate the 200th anniversary of Dalton's first description of his own color vision defect, UMIST, Manchester. Information: Dr. C. Dickinson, UMIST, P.O. Box 88, Machester

COLOR COMMUNICATION, Sep. 12-13
Jointly organized by The Colour Measurement Committee of the Society of Dyers and Colourists, The National Physical Laboratory, Spectrophotometry and Colorimetry Club, and The Department of Textiles, UMIST, Manchester, UK.

IS&T PHOTOFINSIHING TECHNOLOGY, Sep. 19-21
IS&T Minilabs and Photokina, Cologne Germany. Information: IS&T (703) 642-9090, Fax (703) 642-9094

CMG - CONFERENCE, Sep. 25-27
Color Marketing Group International Color Directions Conference, Sheraton Bal Harbour, Bal Harbour, Florida. Information: Katie Register (703) 329-8500, Fax (703) 329-0155.

COLOR AND COLORIMETRY, Sep. 29-Oct. 1
Fourth International Symposium of Colour and Colorimetry, Slovene Centre for Color, University of Maribor, Maribor, Slovenia. Information: (+3862) 25 461, Fax (+3862) 255 013.

OSA - ANNUAL MEETING, Oct. 2-7
Optical Society of America Annual Meeting, Dallas, Texas. Information: OSA Meetings Department (202) 416-1980.

INTERNATIONAL DISPLAY RESEARCH CONFERENCE, Oct. 10-13
Society for Information Display, Advisory Group on Electron Devices, and IEEE Electron Devices Society, Hyatt Regency Hotel, Monterey, California. Information: Thomas Credelle, General Chair (408) 862-7271.

AATCC - CONFERENCE AND EXHIBITION, Oct. 11-14
International Conference and Exhibition, American Asssociation of Textile Chemists and Colorists, Convention Center, Charlotte, North Carolina. Information: AATCC (919) 549-8141.

USNC/CIE ANNUAL MEETING, Oct. 16-18
United States National Committee of CIE, San Diego, California. Information: Jonathin Hardis, NIST (301) 975-2373, Fax (301) 840-8551.

GATF/NSTF ANNUAL CONFERENCE, Oct. 16-19
Graphic Arts Technical Foundation, Saddlebrook Resort, Tampa, Flordia. Information: (412) 621-6941, Fax (412) 621-3049.

10th INTERNATIONAL CONGRESS ON ADVANCES IN NON-IMPACT PRINTING TECHNOLOGIES, Oct. 30- Nov. 4
IS&T, Sheraton Hotel, New Orleans, LA. Information: IS&T (703) 642-9090, Fax (703) 642-9094.

ASTM COMMITTEE D-20 ON PLASTICS, Nov. 14-17
Phoenix, Arizona. Information: Katharine Schaaf (215) 299-5529.

IS&T/SID COLOR CONFERENCE, Nov. 15-18
Soc., 2nd Color Imaging Conference: Color Science, Systems, and Applications, The Registry, Scottsdale, Arizona. Information: IS&T (703) 642-9094; SID (310) 305-1502.

ADVANCES IN PHOTOMETRY, Dec. 1-3
CIE Expert Symposium on Advances in Photometry, Lighting Quality and Energy Conservation, CIE Central Bureau, Vienna, Austria. Information: CIE (+43-1) 714-3187, Fax (+43-1) 713-0838.

1995

ASTM COMMITTEE D-1 ON PAINT, Jan. 22-24
San Antonio, Texas. Information: Scott Orthey (215) 299-5507.

ASTM COMMITTEE E-12 ON APPEARANCE, Jan. 26-27
Phoenix, Arizona. Information: Bode Buckley (215) 299-5599.

ISCC WILLIAMSBURG CONFERENCE, Feb. 12-15
Inter-Society Color Council Williamsburg Conference, Williamsburg, Virginia. Information: Michael Brill (703) 734-4027.

ASTM COMMITTEE D-20 ON PLASTICS, Mar. 12-16
Denver, Colorado. Information: Katharine Schaaf (215) 299-5529.

TAGA ANNUAL CONFERENCE, Apr. 2-5
Technical Association of the Graphic Arts Annual Technical Conference, Orlando, Florida. Information: Karen Lawrence (716) 475-7470.

ISCC ANNUAL MEETING, Apr. 23-25
Color And Textiles, Inter-Society Color Council with American Association of Textile Chemists and Colorists, Holiday Inn Four Seasons, Greensboro, North Carolina. Information: Ann Laidlaw (919) 274-1963.

CMG - CONFERENCE, May 14-16
Color Marketing Group International Color Directions Conference, Fairmont Hotel, Dallas, Texas. Information: Katie Register (703) 329-8500, Fax (703) 329-0155.

CORM 95, ANNUAL MEETING, May 15-17
Council for Optical Radiation Measurements, Ottawa, Ontario, Canada. Information: Norbert Johnson (612) 733-5939, Fax (612) 733-6211.

ASTM COMMITTEE E-12 ON APPEARANCE, Jun. 19-21
Denver, Colorado. Information: Bode Buckley (215) 299-5599.

ASTM COMMITTEE D-20 ON PLASTICS, Jul. 9-13
Lake Como, Wisconsin. Information: Katharine Schaaf (215) 299-5529.

OSA - ANNUAL MEETING, Sep. 10-15
Optical Society of America Annual Meeting, Portland, Oregon. Information: OSA Meetings Department (202) 416-1980.

AATCC - CONFERENCE AND EXHIBITION, Oct. 8-11
American Asssociation of Textile Chemists and Colorists, Hyatt Regency, Atlanta, Georgia. Information: AATCC (919) 549-8141.

CIE 23rd QUADRENNIAL MEETING, Nov. 1-3
Division Meetings, Nov. 6-8
International Commission on Illumination (CIE), Vigyan Bhavan Conference Complex, New Delhi, India. Information: Jonathin Hardis, Secretary USNC/CIE (301) 975-2373, Fax (301) 840-8551, E-mail "hardis@onyx.nist.gov"

CMG - CONFERENCE, Nov. 5-7
Color Marketing Group International Color Directions Conference, Phoenix, Arizona. Information: Katie Register (703) 329-8500, Fax (703) 329-0155.

ASTM COMMITTEE D-20 ON PLASTICS, Nov. 13-16
Norfolk, Virginia. Information: Katharine Schaaf (215) 299-5529.

1996

ASTM COMMITEE D-1 ON PAINT, Jan.
Fort Lauderdale, Florida. Information: Scott Orthey (215) 299-5507.

ASTM COMMITTEE E-12 ON APPEARANCE, Jan.
Fort Lauderdale, Florida. Information: Bode Buckley (215) 299-5599.

ASTM COMMITTEE D-20 ON PLASTICS, Mar. 18-21
Orlando, Florida. Information: Katharine Schaaf (215) 299-5529.

ISCC ANNUAL MEETING, Apr. 21-23
Orlando, Florida. Information: Ann Laidlaw (919) 274-1963.

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

ASTM COMMITTEE E-12 ON APPEARANCE, Jun.
San Fransisco, California. Information: Bode Buckley (215) 299-5599.

AATCC - CONFERENCE AND EXHIBITION, Oct. 8-11
American Asssociation of Textile Chemists and Colorists, Oprtkabd Hotel, Nashville, Tennessee. Information: AATCC (919) 549-8141.

ASTM COMMITTEE D-20 ON PLASTICS, Nov. 18-21
New Orleans, Louisiana. Information: Katharine Schaaf (215) 299-5529.

1997

TAGA ANNUAL CONFERENCE, May 4-7
Technical Association of the Graphic Arts Annual Technical Conference, Montreal or Quebec City, Canada. Information: Karen Lawrence, (716) 475-7470.

COLOUR '97, May 26-30
8th AIC Quadrennial Meeting, Colour '97, Executive Committee Meeting on 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, Rhode Island. Information: Ann Laidlaw (919) 274-1963.

AATCC - CONFERENCE AND EXHIBITION, Sep. 28- Oct. 1
American Asssociation of Textile Chemists and Colorists, Marriot Marquis, Atlanta, Georgia. Information: AATCC, (919) 549-8141.

1998

TAGA ANNUAL CONFERENCE, May 3-6
Technical Association of the Graphic Arts Annual Technical Conference, Chicago, Illinois. Information: Karen Lawrence, (716) 475-7470.

AATCC - CONFERENCE AND EXHIBITION, Oct. 4-7
American Asssociation of Textile Chemists and Colorists, Philadelphia, Pennsylvania. Information: AATCC, (919) 549-8141.

1999

TAGA ANNUAL CONFERENCE, May 2-5
Technical Association of the Graphic Arts Annual Technical Conference, Philadelphia, Pennsylvania. Information: Karen Lawrence, (716) 475-7470

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

NEWSLETTER EDITOR Michael A. Hammel
ASSOCIATE EDITOR Karen M. Braun

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

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Please send all other materials on diskette as follows to the above address:

**MS DOS**-ASCII, Q&A, Word Star, Word Perfect (5.25"-1.2 Meg, or 360K) (3.5"- 1.44 Meg or 730K). **MACINTOSH**–Word, Macwrite, MS Works (3.5"–1.44 Meg, 800K or 400K).

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**Please note: the deadline for submission of materialis the 1st of each <u>even</u> numbered month. Material not received by the 1st will not be printed until the following issue.**

meeting reports

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American Society for Photogrammetry and Remote Sensing (ASPRS)
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Gemological Institute of America (GIA)
Graphic Arts Technical Foundation (GATF)
The Human Factors & Ergonomics Society
Illuminating Engineering Society of North America (IESNA)
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National Association of Printing Ink Manufacturers (NAPIM)
Optical Society of America (OSA)
Society for Information Display (SID)
Society of Plastics Engineers, Color & Appearance Division
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