Inter-Society Color Council *News*

Issue 396 Contents

March/April 2002

Register now for the ISCC/DCC Symposium Pontiac, MI April 21-23, 2002

Appearance and Color

ISCC President's Report

This is my eighth and last President's column. Before I depart from office at the Detroit meeting, I would like to share some thoughts, some of which I have been saving for a long time.

It has been the honor of my life to be your President. Many of you have written me recently with compliments, and now it's time for me to thank *you* for your commitment to the ISCC, the world's most prestigious color society. Thanks also to those of you who have offered suggestions along the way; as you may have seen, the ISCC has adopted many of these suggestions, and I think has improved as a result.

My wife asked me how I felt about completing my term of office, and I quoted Shakespeare's Romeo and Juliet saying, "Parting is such sweet sorrow," and so it is for me.

A lot has changed since I took office two years ago. AIC 2001 in Rochester brought us together in international collaboration: amazingly diverse people engaged in constructive dialogue to the betterment of all. But then came September 11, a severe jolt to our view that international collaboration is a general rule. Our role as Americans rebuilding and trying to understand then came to the fore.

And how is the ISCC today? Morally and financially healthy, thank you (and this is no mean feat now). Also, more squarely in the hands of its membership than it has been for a long time. We have successfully met the challenge of education through the Internet, and persevered through the crisis of the dot-coms. My friends, we have done it!

Now, the ISCC is poised and ready to move forward into the 21st century, a beacon to all interested in color. If you want to participate in shaping the future ISCC, I recommend attending future ISCC Conferences as a way to make the ISCC what you want it to be, and also what the 21st Century needs.

I've been asked if I have any regrets. Well I do. The scholarship program is one. Now is not a time for arguments, so I will hold my tongue after one observation: we need action and financial support to complete the job. Soon "Jack's scholarship program" will become "Danny's scholarship program," and he will need your help as much as I did.

The last two years have been a great time for me and the ISCC. And I'm sure that the next two will be a great time for my good friend and colleague Dr. Danny Rich, who becomes our new President on April 21. Danny has an excellent background in volunteering, business, and heavy involvement in the color community. He has contributed a lot during his term as President-Elect. It makes it easier for me to pass the baton, knowing this society will be in the best of hands.

In the meantime, I will be your Past-President. I'll see you in Detroit - "not just a town but an adventure," and "Home of the Big Three, and the DCC! April 20th – 23rd. Thank you, goodbye, and may God bless you.

Jack A. Ladson
ISCC President 2000-2002

PRIME-COLOR, INC. BECOMES ISCC SUSTAINING MEMBER

Prime-Color, Inc. is delighted indeed to become a Sustaining Member of the Inter-Society Color Council. PCI president Bill Thornton was a Director of ISCC in 1980-83. In the intervening twenty years, Prime-Color, Inc. has been primarily concerned with improving the conceptualization, the practice, and the equipment of general lighting. This has led to practical improvements in lamplights and in the instruments used to evaluate both the lamplights and lighting installations.

Important among such improvements are: (1) Instrumental measurement of what the human sees as "brightness." (2) Instrumental measurement of how the human ranks the pleasantness of illumination, particularly of those familiar and crucially important *identifiable* objects such as complexions, fruits, vegetables, meat, bread, foliage, and the like. (3) Instrumental measurement of

how gently or harshly a certain illumination is going to treat hard-won, carefully-chosen color schemes, in homes or large public places. (4) Instrumental measurement of ease-of-seeing in different natural or artificial lighting. (5) Instrumental measurement of the gamut of coloration in a certain illumination: a measure of the range of colors one can see, without regard to the naturalness or the pleasantness of the rendered coloration.

This growing understanding, of how the spectral composition of the varying illumination by which we see affects what we see, has gradually led Prime-Color, Inc. to introduce two basic advances in the conceptualization of human vision:

I. The role of the "prime colors" themselves. These are the three spectral colors, near 450nm in the blue-violet, near 530nm in the green, and near 610nm in the orange-red, to which the normal human visual system responds most strongly, and which mark the peaks of the three spectral sensitivities of that system. The prime colors turn out to be (a) well defined, (b) common to all normal human visual systems, (c) innate (for example, not usefully transformable), and (d) enormously basic and applicable. The prime colors embody the prescription by the visual system for the best in illumination, color printing, color photography, color television, color imaging, and general good-seeing.

II. New sets of color-matching functions much more closely matching those operative in the normal human cortex. Metamerism (spectral difference between two visually-matching lights) is becoming steadily stronger, in the field of coloration, as colors become steadily brighter. The CIE color-matching functions make errors in mediating a visual match. The errors are always present, and are sometimes huge. The new color-matching functions reduce even the largest of such errors by 98%.

This begins the third decade in which Prime-Color, Inc. and its President have strongly and consistently supported the Inter-Society Color Council in its Constitution-prescribed effort to "promote the practical application of this work to color problems arising in science, art and industry, for the benefit of the public at large." May this new role as Sustaining Member bring us closer to that goal.

William Thornton, Prime-Color, Inc.

ISCC/DCC Symposium on Appearance and Color

April 21-23, 2002
Pontiac, Michigan

The **ISCC** will hold a joint meeting with the **Detroit Colour Council** at the Centerpoint Marriott Hotel in Pontiac, Michigan, USA, on April 21-23, 2002. All three ISCC Interest Groups will cover various aspects of **Appearance & Color.** Topics will range from the philosophical to the technical ramifications of appearance and color.

Peter Maier, noted artist/designer, will be one of the invited speakers for Interest Group III (Art, Design and Psychology). He will detail the unique techniques he uses in producing fine art. Interest Group I (Fundamental and Applied Research), will cover the latest research in the areas of gonio- spectrophotometery, instrumentation and appearance measurement, while Interest Group II (Industrial Application of Color) will deal with the practical application of the various techniques involving appearance and color.

The DCC program, **AutoDesign Tech II**, will feature a number of prestigious speakers from automotive companies relating to the impact of Appearance and Color on Design. An update on SAE J1545 (Instrumental Color Difference Measurement for Exterior Finishes, Textiles and Colored Trim) will also be presented, followed by a panel discussion. The luncheon speaker will be Jack Lewis, Vice President and General Manager, Dupont Performance Coatings (Europe and Asia).

This highly educational symposium will go a long way in providing guidance around appearance and color tolerancing for the OEMs, insight on automotive needs, wants for styling, and updates on fundamental and applied research with regard to appearance.

*****See enclosed agenda for more details.*****

ASTM Goes Global

ASTM, one of the largest voluntary standards development organizations in the world, has announced a change in its name. The change to ASTM International reinforces the openness of the ASTM standards development process to worldwide input as well as reflecting the global application and use of ASTM standards.

"From its inception, the ASTM method of developing standards has been based on consensus without borders," notes J. A. Thomas, President of ASTM International. "Our process ensures that interested individuals and organizations representing industry, academia, consumers, and governments alike, all have an equal vote in determining a standard's content."

Charles Ludolph, former Deputy Assistant Secretary for Europe in the United States Department of Commerce, commented, "ASTM standards play a vital role in international trade. ASTM's open process welcomes individuals throughout the world. As a result, ASTM facilitates the development of standards that can be used on a worldwide basis and play a vital role in aiding global trade."

The founding principles of openness have contributed greatly to the acceptance and use of the ASTM standard the world over. Known for their high technical quality and market relevance, forty percent of the ASTM standards distributed go outside the United States.

To facilitate global input, ASTM International uses online technologies that further encourage open participation and responsiveness to industry needs. Theyinclude Internet-based Standards Development Forums enabling 24/7 access worldwide, on-line balloting, electronic minutes and templates, and state-of-the-art distribution methods.

ASTM International hosted a two-day Open House on November 29 and 30 with leaders of the National Standards Bodies of some 22 Latin American and Caribbean countries, as well as Canada. "ASTM is highly engaged throughout all parts of the world. By hosting the standards leadership of these regions, we hope to collaborate even further in the future," explains Kathleen (Kitty) Kono, ASTM Vice President, Global Cooperation.

In October, ASTM signed a memorandum of understanding (MOU) with the national standards body of Colombia, Instituto Colombiano de Normas Tecnicas y Certificacion (ICONTEC). The document enhances the ability of ASTM and ICONTEC standards to support the needs of the Colombian people, and aid in the development of Colombian national standards for health, safety, and the environment.

An agreement between ASTM and the Uruguayan national standards organization, The Instituto Uruguayo de Normas Tecnicas (UNIT), was signed on November 14 by UNIT's Director, Pablo Benia and ASTM's Jim Thomas. The MOU will promote communication between the two organization, promote knowledge of the standards development activities of each organization, and strengthen the Uruguayan national standards system. During ASTM's visit to UNIT in Montevideo, Uruguay, Jim Thomas addressed a conference with a presentation titled ASTM Standards and Their Importance in the Commerce of the Americas.

Most recently, Committee D01 on Paint and Related Coatings, Materials and Applications signed an MOU with the International Organization for Standardization (ISO) highlighting the acceptance and use of globally accepted standards , such as those of D01, to meet the needs of all stakeholders in the paint and coatings industry.

Meanwhile, global activity in several other ASTM committees continues to strengthen. Committees experiencing increased global participation are: A01 on Steel, Stainless Steel and Related Alloys, D02 on Petroleum Products and Lubricants, D24 on Carbon Black, D30 on Composite Materials, E28 on Mechanical Testing, and F24 on Amusement Rides.

Along with a name clarification, the ASTM International logo is enhanced graphically to underscore the international message. In addition, the tag line "Standards Worldwide" is incorporated into the revised logo, offering continuity and reinforcement to the organization's image.

ASTM International is a not-for-profit organization that provides a global forum for the development and publication of voluntary consensus standards for materials,

products systems and services. ASTM standards are accepted and used in research and development, product testing, quality systems, and commercial transactions around the globe.

For more information on the globe activities of ASTM International contact:

Kitty Kono, Vice President
Global Cooperation
tel: 610-832-9687 fax: 610-832-9599

Submitted by Harry Hammond III

ASTM and AATCC Sign Memorandum of Understanding

On Oct. 29, 2001, the American Association of Textile Chemists and Colorists(AATCC) and ASTM International issued a Memorandum of Understanding (MOU) listing mutual cooperation in certain areas. John Y. Daniels, AATCC executive director, and Kay M. Villa, chairman of ASTM Committee D13 on Textiles, signed the understanding.

AATCC and ASTM International initiated a program of mutual cooperation that will coordinate the development of textile standards from fiber to finished product. "This MOU formalized a long, rich history of cooperation between the two organizations," said Villa, "It will serve as a road map to guide our activities and coordinate areas of mutual interest so that we may expeditiously bring new standards and products to meet our users needs."

A joint AATCC/ASTM Advisory Committee will:

1. Co-sponsor exploratory meetings for the development of new standards of mutual interest.
2. Review new standards activities and programs and advise on the appropriate organization to develop new standards of mutual interest.
3. Offer non-members the opportunity to review draft standards in the initial stages of develop ment and submit comments, in areas of mutual interest where members may be materially af fected by the proposed standard.
4. Coordinate terminology of mutual interest to AATCC and ASTM.
5. Promote awareness of the textile standard-development process in the fiber, textile, finished product, retail, fabricare, and consumer sectors.
6. Focus on improved access and linkages between AATCC and ASTM websites, and textile stan dards on those sites.
7. Collaborate with the U.S. TAG administrator for ISO/IEC/ITU to explore ways to "better leverage" the interests of U.S. textile standards.

For further information on ASTM Committee D13, contact: Maxine Topping, Mgr.
ASTM Technical Comm. Operations
Tel: 610-832-9737 *mtopping@astm.org.*

AATCC Research Committees next meet on May 7-9 in Research Triangle Park, NC.

For meeting information contact:
Tricia Day 919-549-3534
dayt@aatcc.org.

SDC and AATCC Sign Memorandum of Understanding

The U.K.-based Society of Dyers and Colourists (SDC) and the U.S.-based American Association of Textile Chemists and Colorists (AATCC), the world's two leading professional bodies specializing in textile coloration, have signed a memorandum of understanding to formally recognize the common aims of both organizations. The agreement initiates the process of exploring new areas in color science and the chemistry of textiles to mutual advantage.

The two organizations also undertake to explore mutually supportive initiatives to promote education, training, and the publication of scientific information in these specialist fields.
They also agree to continue with the joint development, promotion and maintenance of the Colour Index, the internationally recognized classification system for dyes, on which they have successfully collaborated since the early 1950's.

Finally they will continue to administer the co-secretariat

for ISO/TC38/SC1 Textiles-Tests for coloured textiles and colorants on behalf of ANSI and BSI, whilst mutually respecting each other's technical position and continuing to liaise on the relevant technical committees.

Sherri A. Satterwhite
Editorial Director, AATCC

Society for Imaging Display Symposium and Show (SID)

Display technology event to feature OLEDs, less expensive projection displays, displays for portable devices, display interfaces, plasma display panels, really big LCDs, and much more.

January 18, 2002 – After four years on the West Coast, The Society for Information Display's Annual Symposium, Seminar, and Exhibition returns to Boston's Hynes Convention Center from May 19 to 24 for its 33rd incarnation. The symposium is recognized as the international display industry's leading event. With well over 500 booths reserved to date, the SID 2002 exhibition promises to be the largest display show ever held in North America.

Display Week will kick off with half-day short courses on Sunday May 19 and a program of 90-minute seminars on Monday May 20, which will continue the successful format that stresses tracks keyed to hot industry trends, including OLEDs, projection technology, plasma, and LCDs. The seminars, which continue on Friday May 24, are being taught by an impressive group of instructors, including David Mentley (Stanford Resources), who leads off with a display technology and market overview, Tatsuo Uchida on reflective displays, Nobuki Ibaraki on polysilicon TFTs for active-matrix displays, Larry Weber on color plasma displays, Bob Meyers on digital interfaces, Terry Scheffer and Juergen Nehring on STN-LCDs, Kimberly Allen on microdisplays, Mark Leadbeater on OLED technology, and many others.

A rich multi-track menu of technical symposium papers, vendor exhibits, application tutorials, and special events held from Tuesday May 21 to Thursday May 23 will provide designers, manufacturers, marketers, integrators, and end users of displays with rewarding choices, whatever their technical interests. The technical sessions, which are likely to contain over 300 papers, will be anchored with 25 invited papers.

At the Wednesday luncheon, the Seventh Annual SID/ *Information Display* Display of the Year Awards will be presented. The winners of this year's Gold Awards are Rainbow Displays' large tiled LCD display, Minolta's DiMAGE 7 digital still camera with microdisplay viewfinder, and Alien Technology's fluidic self-assembly process.

The Society for Information Display is an international society devoted to the advancement of display technology, manufacturing, and applications, with headquarters at 610 South Second Street, San Jose, California 95112; website www.sid.org.

For registration information contact:

Mark Goldfarb,
Palisades Convention Management
411 Lafayette Street, 2nd Floor
New York, NY 10003
Tel (212) 460-8090, ext. 202
fax (212) 460-5460;
mgoldfarb@pcm411.com
or www.sid.org.

ISCC Ballot Update

Due to the late arrival of the previous newsletter the voting deadline for the ISCC new Officers and Board of Directors ballot (enclosed in the previous ISCC newsletter) has been extended through March.

Please return your ISCC ballot either by mail or by fax asap to the ISCC Office:

Fax: 703-318-0514

Inter-Society Color Council
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Reston, VA 20165

Detroit Colour Council Meeting News

The Detroit Colour Council held its winter meeting on February 20th at the Northfield Hilton Hotel in Troy, MI. Following the social hour and dinner, President Terese Schroeder (DaimlerChrysler Design) introduced the new officers and members of the Board of Directors for 2002 and announced upcoming DCC programs, including the ISCC-DCC Joint Meeting to be held in April.

Program Chair Joseph Campbell (DuPont Performance Coatings) then introduced our speaker, George Moon of George Moon Design. Mr. Moon has deep roots in the automotive community, having worked at BMW and Opel before coming to GM, where he worked for many years as a designer of automotive interiors and finally as Design Executive.

Mr. Moon's remarks focused on emerging trends in automotive exterior design. He linked these to exterior color and design trends, using video clips which he shot at the recent Chicago Motor Show and interior design theme boards containing collages of interior materials grouped in a variety of color themes. He drew on his long career to offer illuminating examples of good and bad design along with anecdotes about some of the 'movers and shakers' in the industry. He stated that the current heavy emphasis on neutral interior colors will shift toward the use of more chromatic shades, offering a rich coppery brown as one example of a versatile hue which would work well with the exterior silver shades which are presently so popular. His collages offered exciting new prospects for interior color, including dynamic red and bright yellow-green concepts for sport and sport utility vehicles. A lively question and answer period followed his presentation, in which Mr. Moon's deep love of and respect for the power of both exterior and interior design were evident. The audience was most appreciative of his remarks.

The Detroit Colour Council's next meeting, "Auto Design Tech II", will be held on April 23, 2002, at the Centerpoint Marriott Hotel in Pontiac, MI as part of the ISCC-DCC Joint Conference/Symposium on Appearance and Color.

James G. King, Vice-Pres.
Detroit Colour Council

Annual Vision Research Conference Retinal Cell Rescue

The Sixth Annual Vision Research Conference "Retinal Cell Rescue" will take place May 3-4, 2002 in Fort Lauderdale, USA prior to the 2002 ARVO Annual Meeting.

Full details of the invited oral program are now available via the conference website at http://www.visres-interactivemeeting.com/program.htm The deadline for submission of abstracts for posters to supplement the oral program is February 8, 2002. Guidelines on how to submit an abstract are available at http://www.visres-interactivemeeting.com/call.htm.

The conference will provide an overview of the different types of rescue from a basic as well as a clinical perspective. Particular emphasis will be given to the mechanisms of rescue of neuronal function in the retina and to the strategies of cellular replacement, beginning with the molecular basis of cell differentiation to the potential for clinical application in degenerative eye diseases and physical implants. The advantages, disadvantages and limitations of the various strategies of protection, rescue and replacement will be discussed as well as future perspectives.

Session topics: Gene based therapies; Retinal remodeling in disease; Retinal regeneration; Photoreceptor cell rescue by survival factors; Progenitor cells and differentiation; Anti-apoptotic strategies; Cell replacement and prosthesis; Stem cell transplantation.

For full conference details, including information on registration and accommodations, please visit http://www.visres-interactivemeeting.com or contact a.williams@elsevier.co.uk for a copy of the program and registration brochure.

For information on using CVNet, contact majordomo@mail.ewind.com. In the body of the message, enter: info cvnet.

Yet Further Improvements to the ICC Specification

International Color Consortium (ICC)

The ICC specification has recently undergone a major revision. The new version of the specification is designated ICC-1:2001.12 and is available for free download from the ICC website (www.color.org). The previous specification has been widely adopted by the colour imaging community and proved very important in achieving and maintaining colour fidelity of images. However, despite its successful usage in many situations this widespread use has also identified ways in which it can be even further improved. That has been the main driving force behind this revision - in particular ways to improve interoperability. Certain ambiguities in the previous versions of the specification have occasionally permitted producers of profiles to misinterpret the reference colour space and also the information they need to provide in the profile. Thus profiles could be produced that were inconsistent with those produced by other vendors and when two such profiles are used together can give rise to unexpected results. Furthermore, these ambiguities permitted ICC compliant profiles to be produced that were interpreted slightly differently when used with different Colour Management Modules (CMMs). This meant that different CMMs could produce slightly different results to each other, even when using the same pair of profiles. Although for many applications these problems were often small enough not to be an issue there are other situations where high levels of consistency are particularly important. It was therefore necessary for ICC to identify the major areas where ambiguities could permit poor interoperability and attempt to resolve those in the specification.

Before summarising the main amendments to the specification it is important to put these in context. The changes are designed to ensure that profile builders understand the reference colour space precisely, and exactly what is required of the profile. They also ensure that CMM producers are able to provide CMMs that ensure that any ICC compliant profile is interpreted unambiguously by any ICC compliant CMM, and that different CMMs processing the same pair of profiles to produce a colour transformation provide a similar transformation. This improvement has largely been attained by removing ambiguities from the specification, rather than by imposing specific additional requirements on profile building or CMM developers – though there are some additional mandatory requirements.

Thus this revision certainly does not mean that all profiles built for a specific device will be identical. There is still the need in many markets for profile building vendors to be able to differentiate their products and for users to select those products that best suit their needs. There is still no 'one size fits all' in colour reproduction and ICC has not attempted to impose one. However, what it does mean is that when a user's preferred profiles are used they should be produced in such a way that they are made to a common reference so that when combined with other profiles any results are predictable. It also means that when pairs of profiles are used they should always produce the same result – regardless of which CMM is used. There is still a small risk that different CMMs could produce small differences due to differing interpolation procedures but the more major errors of interpretation have been removed.

Thus users will still need to select and build profiles that suit their reproduction needs – and ensure that they process the individual images to give their preferred reproduction within the context of those profiles. How this is done will be workflow dependent. ICC is not proposing specific workflows and control procedures – that is the responsibility of the user and/or specific industry standardisation groups to recommend. What we do believe is that this version of the ICC specification provides users with the correct tools for communicating the colour rendering associated with devices to implement in their workflows. This does not mean that ICC sees its work as complete. The subject of colour reproduction is not a trivial one and there are important issues still to address. Many users would like to see the ICC ensure conformance of profiles and CMMs to the specification. Others have workflow needs that cannot easily be met with the existing architecture. In order to address these issues ICC is working on developing recommended workflows to achieve desired results using ICC profiles conforming to the existing specification and following this will review the need for conformance testing. An Architecture working group is considering what fundamental changes are needed to a future specification to meet ever more complex workflows.

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Color Research & Application In This Issue April 2002

How often have you looked at a slide, where the presenter was trying to add information or interest by using color, only to discover that is was nearly impossible to see the data at all because the color was too close to the background, for example yellow on white? People need help to do a good job selecting color schemes for data presentation. We open this issue on this very practical topic. Most guidelines agree that the main objective of color placement is to clarify the design, make it easier to read, and easier to use. There have been suggestions that designers know a good color scheme when they see it, but it is clear that novice designers of visualizations need support to find color schemes for visualizations that are easy to use. In "A Study of Color Conspicuity for Ease-of-Visualization," Eric W. Cooper and Katsuari Kamei outline a new conspicuity inference system.

For our next three articles we move to methods of producing, measuring, and controlling color in several diverse industrial applications. First, effect pigments, second developing reflectance curves from tristimulus data, and third in textiles color formation by fiber blending.

Industrial quality control and formulation of materials using conventional pigments have been employed for a number of years. However, particularly in the automotive industry materials containing special effect pigments, which look different when viewed at different angles, have been developed for greater "eye appeal". There are several ways to produce these goniochromatic effects. Flat flakes of metals such as aluminum were the first to be used and studied as an effect pigment. These metallic flakes produce mirror-like highlights at angles close to the specular resulting in interesting variations in lightness. Another group of effect pigments use interference phenomena to change the color at different angles. In "Color Control of Interference Pigments Dispersed in Translucent Media," Yelena Kann and Alexei Maznev discuss the evaluation and interpretation of pearlescent and interference color measurements. They present a method of calculation eliminating the thickness dependence by combining measurements against white and black backgrounds. This method makes it possible to include pearlescent/ interference /aluminum pigments in color matching databases.

The reflectance curve provides the essential data from which colorimetric characteristics may be calculated for any observer and illuminant combination. It is useful for non-metameric colorant formulation. However sometimes the material has been characterized with a filter colorimeter, or the data comes from RGB values, or from color atlases specified with only colorimetric values. In our next article, "Study of the Reconstruction of Reflectance Curves based on Tristimulus Values: Comparison of Methods of Optimization," Daniel Dupont presents and compares different methods to calculate or synthesize a reflectance curve from tristimulus data.

In the textile industry, blending of different colored fibers produces solid colors, mottled appearances, and some special non-solid effects. Predicting the color of such blends is complicated. In the 1940s, Duntley suggested a simple additive calculation, but this proved inadequate. Kubelka-Munk type calculations are also not adequate because the coloration is a product of both subtractive and partative mixing. Also in the 1940s Stearns-Noechel published an article using an empirical additive formula for wool blends. In "Description of Color Formation in Fiber Blends by Stearns-Noechel Model" Bernadette Philips-Invernizzi, Daniel Dupont, Anne-Marie Jolly-Desodt and Claude Cazé discuss the use and limitations of the Stearns-Noechel formula for cotton blends. They suggest a new function that depends on wavelength that improves the results of the Stearns-Noechel formula and also may be used as an approach for fluorescent materials. The newer color difference, or perhaps I should say color tolerance metrics, have been optimized for certain reference conditions. This was true of CIE94 and also is true of the CIEDE2000 that was introduced in this journal three issues ago. While the metric may have been developed using defined reference conditions, it can be used in other circumstances. Lewis D. Griffin and Arsalan Sepehri investigate the "Performance of CIE94 for Non-Reference Conditions." In particular they collected data with chromatic illuminants, textured samples, and large color differences. The measured subjective differences were compared to the predicted differences.

Our final two articles deal with neural networks. In Issue #6, December 2000 John H. Xin, Shao Sijie, and Korris Chung presented a method for predicting color appearance from colorimetric values by using neural networks. Now in this issue, the same authors tackle the reverse problem. They use the same neural network design methodology to find the colorimetric values from the color appearance attribute. By combining "Colour-Appearance Modeling using Feedforward Networks with Bayesian Regularization Method – Part II: Reverse Model" with "Colour-Appearance Modeling using Feedforward Networks with Bayesian Regularization Method – Part I: Forward Model" an integrated color appearance model based on the Bayesian neural network could easily be built.

While neural networks can be an easy "black-box" solution, they are not without their pitfalls. In our last article of this issue, "Over-Training in Backproagation Neural Networks: A CRT Color Calibration Example," David H. Alman and Liao Ningfang illustrate a condition of over-training when excessive model degrees of freedom are used. A CRT color calibration experiment is used to illustrate methods to avoid an over-trained condition. In particular, they explain and advocate the practice of cross validation. Our Communications and Comments Sections includes two views on the new CIE Color Tolerance Metric for Industrial Applications. Mr. Rolf Kuehni asks "CIEDE2000: Milestone or Final Answer." Then M. Ronnier Luo, Guihua Cui and Bryan Rigg respond with more information about the new metric.

Ellen C. Carter
CR&A Editor

From the ISCC Office.....

Are you are current on your ISCC Membership dues?

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If you are a current paid member of the ISCC, you are entitled to subscribe to the Color Research and Application at a greatly reduced price.

For more information (or a form), please call the ISCC Office. (703-318-0263)

CAUS Internship Program

The CAUS (The Color Association of the United States) Internship program welcomes students from around the world to experience and to train in color at America's oldest color forecasting organization. Past interns have come from Argentina, Brazil, Canada, France, Korea, and all over the United States.

The CAUS Internship Program is comprised of three segments: original research in the CAUS color archives, a color marketing campaign, and color research in New York City museums, galleries and retail spaces.

Each intern completes an original piece of research utilizing a decade's worth of CAUS archival color materials. This research is related to an aspect of fashion and/or design by creating a "color story board", a swatched visual typically created and employed by designers and colorists. Past projects have been: "1950's Kitchen Colors", "The 1990's: A Collage of Recycled Fashion Images from the Decades of this Century", and "Asian Candy Colors". Interns also learn to "curate" the colors in the archives.

Each intern creates and organizes a complete marketing campaign. This involves the development of a mailing list, creating a direct mail piece and handling the mailing's distribution.

Every week interns are directed to a museum exhibition in Manhattan (example: The Whitney Biennial) and given an assignment in connection with it. Interns learn how to interpret color forecasts, fill swatch orders, carry on correspondence with CAUS members, critique the colors used in members' catalogs and product lines, and answer color questions on the CAUS hotline.

Applications are reviewed throughout the year. To apply, please include a one page essay on color, along with your resume and cover letter. Please submit all resumes and inquiries to the attention:

Karyn Valino
CAUS Associate Director

Book Review

-First in a series of reviews of instrument manufacturers' booklets on color.-

The Language of Light
(Minolta Co. booklet, 28 pages)
Precise Color Communication: Color Control from Perception to Light
(Copyright 1998, Minolta Co. booklet, 64 pages)

This is an unusual book review, because the books are not for sale. They can be obtained free of charge through the following address (email inquiries preferred): Minolta Corporation, Instrument Systems Division, 101 Williams Drive, Ramsey, NJ 07446; phone 888-473-2656, ext. 6055; fax 201-429-6061; email: isdcolor@minolta.com . The web site is www.minoltainstruments.com.

Though the illustrations often feature Minolta instruments, the books greatly transcend advertisement. During the ISCC Board meeting hosted by Minolta last October, each visitor received a copy of each book. Upon looking at them, I feel they are an exemplary introduction to color technology at an elementary level. The concepts are lucidly presented, with ample color graphics and a simplicity that does not compromise correctness. I think that in works such as these we can find hope for technical and artistic minds to meet in the field of color.

Both *The Language of Light* (LL) and *Precise Color Communication* (PCC) deal with color, but LL concentrates on the production and measurement of light, and PCC brings in material properties of reflectances, and also some nuances of color appearance to humans. Of the two, PCC is more technical, though it starts more slowly to engage the reader. (For example, Part I starts with the two-page subsections: "What color is this apple?" and "Two red balls. How would you describe the differences between their colors to someone?") PCC's apt description of spectrophotometers and colorimeters is helped by comparisons of their functions. An Appendix gives a verbal, mathematical, and diagrammatic comparison between object color and source color. Measurements with specular component included vs. excluded are described very well (though, seeing the nomenclature SCI/SCE, I remember nostalgically the more playful abbreviations Sin/Sex). A two-page section on metamerism is second to none, including a cartoon of how metamerism can interfere with our lives, reflectance plots of two metamers under Source D65 that do not match under Source A, plots of the illuminant spectra, and color patches that simulate the D65 match and its breakdown under source A. PCC even contains defining equations for various uniform-color and color-difference systems (in a gently titled four-page section called "Color Terms"). The figures in PCC include the following: (1) CIELAB-annotated printed photographs (which are true enough in color to show how appearance relates to CIELAB and what articles might have particular CIELAB notations); (2) cartoons of conundrums in industrial and consumer environments, and how color measurement can resolved them; and (3) color-annotated color-space diagrams (in the mode of the xy diagram illustrated by Louis Condax for Kodak), for spaces ranging from Munsell to u'v'.

LL is slightly less technical than PC, but shines in its own way. Whereas PCC was published in Japan (with contributions from American authors), LL was published in Singapore. Both are written in flawless English (from different sides of the "Pond"— PCC uses "color" and LL uses "colour"). There is some overlap (both address basic colorimetry), but LL emphasizes radiometry. LL gives care to the units of the various radiometric quantities, and even shows a diagram of a Lambertian light emission as a function of angle (it is a sphere tangent to the emitting plane). There is less motivation of industrial need than in PPC (application areas are simply listed), but the technical discussion of radiometers and photometers is clear and cogent. Reading both books causes reinforcement and no confusion. The one point at which I was not entirely satisfied concerned Helmholtz coordinates (p. 11). Here LL attributes colorimetric purity to the relative distance (in CIE xy space) between a color and white, compared to the distance between white and the spectrum locus along the same line. Because CIE xy coordinates are arbitrary (having neither metric nor affine connection to tristimulus space or human vision), one cannot attach the stated significance to these coordinates in any but a loose anecdotal way.

Once again, I praise both Minolta books, and recommend them to anyone who wants either a refresher on color, or a motivation on what makes color difficult and significant. I am still astounded by how much is written so correctly and lucidly in such a small space. And, need I say again, the books are FREE, while supplies last!

Michael H. Brill
ISCC Past-President

European Conference on Colour in Imaging, Graphics and Vision (CGIV)

The Society for Imaging Science and Technology, in conjuction with several other European color and imaging societies and groups will be hosting CGIV 2002: The First European Conference on Colour in Imaging, Graphics, and Vision is coming very shortly. This new conference will fill a key niche in the colour and imaging communities. Some of the key points of interest on the program include Colorimetry & Colour Management, Colour Vision and Image Understanding, Colour Image Processing & Analysis, and Colour Synthesis.

CGIV seeks to create a new cycle of conferences with a distinctly European flair, in which the specific program is complimentary to the programs of the International Conference on Image Processing (ICIP) and the Color Imaging Conference (CIC). CGIV will feature a number of basic and advanced seminars on color science, color vision, and color processing, with Tutorials planned on many similar topics.

The members of the Technical Committee, both from industry and academia, have ensured a very interesting program of over 55 oral and 70 poster presentations for Wednesday through Friday. The topics, which will be covered in the conference have been positioned in the following sessions: Colour Science, Vision, Image Filtering, Image Classification, Image Rendering, Device Technology, Media, Multispectral Imaging, and Fuzzy Logic. Interactive poster sessions will take place each day and will provide opportunities to talk with researchers and to meet new colleagues. The conference language is English, with the exception of 4 tutorials taught in French.

The conference will be held from April 2-5, 2002 at the University of Poitiers in Poitiers, France. Poitiers is a beautiful medieval city in the Poitiers-Charentes region southwest of Paris. It is easily accessible by public transportation (1 hours by train from Paris). Poitiers is near the Chateaux de la Loire and Bordeaux. In the northwest of Poitiers, the Futuroscope Park is dedicated to new technologies in imaging.

Participants from all over Europe, America, and Asia are expected to attend the conference, and we hope you will want to be among them. The CGIV conference will fill a key niche in the imaging community, and with its many social events it is an excellent opportunity to renew old friendships and build new contacts. So, please do not delay in sending in your registration. We invite you to join us in Poitiers.

Registration may be made via several different routes, you may access the preliminary program of the conference and register via IS&T's website at : http://www.imaging.org/conferences/cgiv/index.cfm or you may call or email the IS&T headquarters office at 1-703-642-9090 or cgiv@imaging.org.

Hotel and tours reservations may be secured by contacting Elise Blanchard at Antipodes Evenements. Email: info@antipodes-evenements.com, (33) 05 49 88 81 81, Website: http://www.antipodes-evenements.com. The deadline for hotel pre-reservation is March 1, 2002.

For further information:

The Society for Imaging Science & Technology
7003 Kilworth La., Springfield, VA 22151
703-642-9090;Fax:703-642-9094
info@imaging.org

Cooperating Societies: Comoie Espanol de Color, European Federation of the Scientific Image, French Color Group, German Color Group, German Society for Color Science, Hungarian National Colour Committee, Swedish Colour Centre Foundation, The Colour Group of the South African Optical Society, The International Association of Patter Recognition, The Royal Photographic Society of Great Britain, and The Flemish Innovation Centre for Graphic Communication (VIGC).

Drs. Christine Fernandez-Maloigne
University of Poiters

Raimondo Schettini
ITIM CNR, Italy
CGIV General Co-Chairs

Colour and Appearance of Foods

Expectations of a product are set by its total appearance. If product, pack, store or restaurant do not pass the appearance test food will not be purchased or eaten and the premises will not be visited. Hence, it is surprising that colour and appearance of food are among the least studied and understood sensory properties. Indicators of this sad state of affairs include the fact that the last three-day symposium on the subject was held in 1977. Also, when you consult the sensory textbooks, if appearance is mentioned at all, you are normally referred to a description of instrumental colour *measurement*.

The total appearance of a scene consists of the physical properties of the scene and the characteristics of the person viewing the scene. When we face an object, a place or a person, its total appearance generates five types of expectation. These concern visual assessments of identification, safety, usefulness, pleasantness, and an assessment of how satisfied we will be when we have completed our business with the object, place or person. Sight of a food also generates the two specific expectations of visually assessed flavour and visually assessed texture.

Existence of these expectations plays a large part in causing many of the colour and appearance problems facing developer, producer and marketer in the global food business. Concerns involve a wide range of topics including disciplined sensory assessment, colour and appearance measurement, packaging, additives and store lighting.

There are signs in the literature that some authors are addressing the problem. Hence it is timely that a symposium on the broad subject of appearance will be held at the Colour and Imaging Institute of the University of Derby on July 1-3, 2002.

At this meeting there will be presentations from international authorities on colour and appearance of food and their assessment and measurement.

Speakers and subjects include:

R.W.G Hunt, Mike Pointer, Ronnier Luo, Arthur Tarrant, *Colour, Its Demonstration, Theory and Measurement*

Hal Macfie, *Colour and Appearance in Packaging*

Janet Turner, *Store Lighting For Foods*

John Hutchings, *Expectations And Sensory Panelling*

Sarah Bee, *Colour And Shape Monitoring of Food Materials*

Richard Harold, *Use of Colorimeters for Crop Valuation*

Pallavi Joshi, *Colour Measurement For Process Control*

Nick Barnes, *Commercial Applications of Tintometers for Beer and Food Materials.*

Bruce Moss, *Meat Product Appearance and Consumer Selection*

Douglas Macdougall, *Roles of Structure in Colour and Appearance of Foods.*

Jim Nobbs, *Characterisation of the Reflectance Properties of Turbid Liquids*

Ronnier Luo, *Digital Colour Measurement and the Digieye*

John Hutchings, *Appearance Measurement of Foods, Conventional and Digital*

Mike Pointer, *On-screen Sensory Aspects of Digital Technology*

Simon Tudor, *Food Colour Additive Legislation, History and Future*

Susanne Nielsen, *Natural Colorants, Present and Future*

Vince Martin, *Synthetic Colour Additives, Present and Future*

There will also be demonstrations of new equipment designed at the institute for the measurement of colour and appearance of three-dimensional materials.

Details of the symposium can be obtained from

Linda Marshall,
lmmarshall@compuserve.com
tel: 0115 9376070
fax: 0115 9375271
http:/colour.derby.ac.uk/food

Annual Meeting of the Society for Mathematical Psychology

July 25-28, 2002
Miami University, Oxford OH
Call for Papers (Abstracts due: April 15, 2002)

The 35th annual meeting of the Society for Mathematical Psychology will be held at Miami University in Oxford OH. This year's plenary speakers are Ehtibar Dzafarov (Purdue University), Hugh R. Wilson (York University), and David Huber (New Investigator, U. Colorado - Boulder). A web site for more details of the meeting can be found at http://www.muohio.edu/~thomasrd/mp2002.html

There will be a special symposium on multidimensional models of visual perception chaired by Lynn Olzak (Miami U.) and Tom Wickens (UCLA).Papers for the meetings may be submitted by regular members, student members, and non-members. Any one person may present only one paper, but may be a co-author of other papers, or may be an invited speaker or symposium participant. Papers will be limited to those in which mathematical, statistical, or simulation methods play a significant role in the development of psychological hypotheses or the interpretation of results. Purely theoretical developments should clearly relate to substantive issues or contribute to methodologies of obvious use in psychology, cognitive science, cognitive neuroscience, and related areas. Experimental results should bear directly on some mathematical or simulation model. For oral papers, presentation time will be limited to a maximum of 25 minutes including five minutes for discussion. Sessions will be strictly timed. As was the case in past years, we are considering adding a poster session. If there are sufficient submissions, we will do so.

Programs of past meetings appear in the Journal of Mathematical Psychology, are available on the web at the Society's web site http://aris.ss.uci.edu/smp/. All members of the society are welcome to make suggestions for symposia. Contact Robin Thomas (thomasrd@muohio.edu) as soon as possible for symposium suggestions. Submissions should be prepared as ASCII text files and sent via e-mail to Robin Thomas (thomasrd@muohio.edu).

Submissions must include the following information:

1. Title of the presentation
2. Authorship: for all authors and co-authors provide:
   a. Name
   b. Institutional affiliation
   c. Mailing address
   d. e-mail address
   e. Telephone and fax numbers
   f. Membership status in Society for Mathematical Psychology (member, student member, or nonmember)
3. Specification of which co-author will be responsible for presenting at the meeting
4. Format preference:
   a. Only wish to present a spoken paper
   b. Prefer spoken paper, willing to give a poster
   c. No preference; either spoken or poster
   d. Prefer poster, willing to give a spoken paper
   e. Only willing to present a poster
5. Category of the presentation
   a. neuroscience and cognitive neuroscience
   b. psychophysics
   c. sensation and perception
   d. measurement and scaling
   e. information processing and performance
   f. learning and memory
   g. cognition and language
   h. categorization
   i. judgment, decision, and choice
   j. social psychology
   k. methodology and statistics
   l. teaching
   m. other (please specify)
6. Abstract: 150-250 words

Contact: Robin Thomas, Ph.D., Director
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Dr. Lynn A. Olzak, Department of Psychology
Miami University of Ohio, Oxford, OH 45056
Tel: 513-529-1754 Fax: 513-529-2420

ASTM Celebrates 100th Anniversary of D01 Committee

Symposium on New Directions in Coatings Performance Technology
June 19-21, 2002
Philadelphia, Pennsylvania

This symposium commemorates the 100th anniversary of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications. The changes that have occurred in paint technology in the last 100 years have transformed the industry from an artistic craft based on natural products to a high-tech industry based on cutting-edge chemistry, physics, and engineering.

The purposes of the symposium are to:
- Present the state of the art in measurement of the properties of coatings and coating materials.
- Present trends in coatings regulations.
- Commemorate 100 years of standardization through Committee D01

Prominent speakers have been invited to present the state of the art in evaluation of the durability of coatings, measurement of the color and appearance of coatings, analysis of coatings and coating materials, measurement of the physical attributes of paints, and trends in regulations, particularly those that involve working with standardization organizations such as ASTM International.

This symposium will be held in conjunction with the June 16-19, 2002 standards development meetings of Committee D01, the symposium sponsor. All symposium attendees are welcome to participate in these meetings.

REGISTRATION INFORMATION These fees include the Thursday evening reception (cash bar) and banquet, and symposium-related expenses.

Fees:	ASTM Member	$285.00
	Non-member	$310.00
	Student	waived*

*Note: The waived fee for students does not include the reception and banquet.

You may access the symposium information and register online at http://www.astm.org/SYMPOSIA/upcomingsymp.htm For registration questions, please contact Hannah Sparks at Tel: 610/832-9677, Fax: 610/832-9667, hsparks@astm.org.

Continuing Education Units Available

Headquarters Hotel And Transportation

The symposium and the standards development meetings will be held at the Wyndham Philadelphia at Franklin Plaza, 2 Franklin Plaza, 17th and Race Streets, Philadelphia, PA 19103, located approximately 7 miles/15 minutes from Philadelphia International Airport. Their phone number is 215/448-2000 and their guest fax number is 215/448-2853. Their website is ww.wyndham.com/FranklinPlaza/default.cfm

Symposium Chairman Contact Information

Additional information about the symposium is available from: William C. Golton, Consultant
509 Beatty Road
Springfield, PA 19064,
Tel: 610-543-0395
wgolton@aol.com.

Wednesday, June 19, 2002

Session 1: Plenary 1:30P to 4:00P

Thursday June 20, 2002 Concurent Sessions

8:30am – 12:00 Session 2a:
Weathering and Durability
Session Chair: Warren Ketola
3M Company Saint Paul, MN

Session 2b:
Regulatory Issues That Affect The Coatings Industry
Session Chair: James Berry
Environmental Consultant
Raleigh, NC

1:30-5:00pm Session 3a:
Color and Appearance
Session Chair: Alan Kravetz
New Windsor, NY

1:30P The Need for New Standard Observer and Color Matching Functions
W. A. Thornton, Prime-Color, Inc.
Cranford, NJ
W. N. Hale, Hale Color Consultants, Inc.,
Naples, FL
R. Stanziola, Industrial Color Technology,
Neshanic Station, NJ
H. Fairman, Princeton, NJ

2:10P Present State of Appearance Measurement
A. Rutkiewic, Consultant
Tijeras, NM
P. Tannenbaum, DuPont
Wilmington, DE
N. Hale, Hale Color Consultants, Inc.
Naples, FL

3:05P Latest Developments in Interference Pigments
M. Nofi, Flex Products Incorporated
Santa Rosa, Ca

3:45P Global Management of Color Standards
W. Laughlin and S. Sturdevant
PPG, Springdale, PA

4:25P The DuPont Herberts Fingerprint Analysis System
G. L. Jepsen
DuPont Herberts Automotive System
Troy, MI

6:00P Reception (Cash Bar)

6:45P Centennial Banquet

Concurent Sessions

1:30-5:00pm

Session 3a:
On Color and Apperance
Session 3b:
Activities on the Frontier of Analytical Paint Chemistry
Session Chair: Hiro Fujimoto
BASF Corp. Southfield, MI

Friday, June 21, 2002

8:30am –12:00

Session 4: Paint Film Physical Properties
Session Chair: Paul R. Guevin
P. R. Guevin Associates
Westerville, Ohio, USA

RIT's Munsell Color Science Laboratory

Summer School of Industrial Short Courses June 4-7, 2002

This summer's offerings begin with our two-day introductory colorimetry course that is an educational asset to anyone in the field of color as well as a great refresher. This is followed by a selection of courses designed to provide detailed material about specific topics. Each course features laboratory sessions. These hands-on courses take advantage of the Munsell Color Science Laboratory's unique and outstanding facilities.

Fundamental Course (Tues. and Wed.)

June 4-5 ***Principles of Color Technology,*** Roy S. Berns and Mark D. Fairchild

This course introduces basic colorimetry through derivation of the CIE system of tristimulus values, color spaces such as CIELAB, and color difference equations such as CIE94 and CMC. It also describes instrumentation for colorimetry and the evaluation of measurement accuracy and precision. Colorimetry is used in a variety of industries including coatings, textiles, automobiles, plastics, and image reproduction. It is safe to assume that any colored product has undergone some form of colorimetric evaluation during its manufacture or use.

Choice of Advanced Courses (Thurs. and Fri.)

June 6-7 ***Optimization Techniques for Color Reproduction,*** Noboru Ohta

High quality color imaging systems such as television, printing and photography require optimal spectral characteristics for each system component. This course introduces the use of numerical optimization for determining these characteristics. Optimization techniques currently employed in the industry are explored through interactive discussions and intensive in-class programming assignments, plus one "homework."

June 6-7 *Vision and Psychophysics*
Ethan D. Montag

This course provides an overview of the structure, function, and performance of the human visual system as well as providing a detailed introduction to visual psychophysics. Virtually every application of color or imaging produces an object to be viewed and evaluated by human observers. Understanding of human vision and the psychophysical techniques used to measure human visual performance provides significant insight into a variety of problems. Psychophysical experiments allow quantitative measurement of visual perceptions and have applications in areas such as color tolerances, image quality, algorithm evaluation, *etc.* insight into a variety of problems.

June 6-7 *Instrumental-Based Color Matching*
Roy S. Berns

Instrumental-based color matching exploits colorimetry, color physics, and computer science, resulting in systems that aid colorists in matching existing and new colors. Color mixing "laws", such as Kubelka-Munk theory for complex subtractive mixing, are used to determine colorants and their amounts in order to match a standard. This course will cover the basic concepts of color mixing for transparent and opaque materials, colorant identification, spectral matching, and colorimetric matching. Through hands-on laboratories, participants will learn the importance of the colorant database and attaining the least metameric match.

June 6-7 *Color Appearance Models*
Mark D. Fairchild

This course provides a detailed overview of the CIECAM97s color appearance model and recent improvements. The fundamental phenomena and techniques of color appearance modeling are also covered. Color appearance extends basic colorimetry to meaningful descriptions of color across large changes in viewing conditions such as changes across media and viewing environments in imaging systems.

June 6-7 *Device Profiles for Color Management*
Mitchell R. Rosen

This course focuses on techniques for incorporating device characterization into ICC-compatible device profiles. Various profiling techniques and options are explored. Students will prepare and encode characterization data generated from various methods ranging from direct measurement to analytical modeling. Laboratory exercises will provide experience in building profiles for a variety of input and output devices.

June 6-7 *Halftone Theory and Practice*
Jonathan S. Arney

Participants will learn the optical and physical principles that govern tone and color reproduction in printed halftone images. Strategies for designing halftone algorithms based on these optical and physical principles, as well as the characteristics of human vision, will be reviewed. Participants will perform hands-on experiments to characterize different classes of halftones with different printing technologies. Experiments will include video-microscopic analysis of the physical and optical behavior of these halftone systems. The experiments will focus on analytical techniques that provide guidance to the design and optimization of materials and processes of halftone systems through understanding the mechanistic principles of the materials, processes, and optics of halftone imaging.

For more information: *www.cis.rit.edu/mcsl*

"Color and Light"
by Fred W. Billmeyer Jr. & Harry K.Hammond,III.
Authorized reprint from:
ASTM Manual 17, Copyright 1996
American Society for Testing and Materials
100 Bar Harbor Dr., W. Conshahocken, PA 19428

"Demystifying Color"
by Bob Chung
11 pages (color)
Discusses and explains ten myths about color.

Either publication ($5 ea. or 20 copies/$50.00) can be ordered by contacting the ISCC office (if pre-paid, s&h will be included):

Inter-Society Color Council
Cynthia J. Sturke, Office Manager
11491 Sunset Hills Rd.
Reston, VA 20190

Argencolor 2002

6th Argentine Color Congress

September 9-12, 2002, Rosario, Argentina

The congress will be held at the School of Architecture, Planning and Design of Rosario National University. A wide thematic spectrum is proposed, where all kinds of color research, reflections and experiences, both general and particular, are to be included. A call is made to present proposals for papers or posters classified in the following four areas, according to their main approach, even if they follow interdisciplinary paths: 1) Color science and technology, 2) Color and the arts, 3) Color and design, 4) Color education. Abstract deadline is March 1, 2002.

Registration fees are reduced before July 1, 2002 (General $50, Student $25 and after July 1, 2002 are General - $60 and Student $30. Members of Grupo Argentino del Color and participants living outside Argentina may pay the reduced fees until the date of the congress, directly in cash at the registration desk.

Info: ArgenColor 2002, Prof. Enzo Grivarello
Inst. Diseno Industrial, Fac. Ciencias Exactas UNR
Av. Pellegrini 250, 2000 Rosario, Santa Fe, Argentina
54-341 480-2649, fax 54-341 480-2654
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Tel/fax 54-11 4702-6009, *jcaivano@fadu.uba.ar*

ABSTRACT SUBMISSION FORM
(Send to Grupo Argentino del Color)

Author's name, title .....
Affiliation .....
Address .....
Tel/fax .....E-mail .....
Title of paper or poster .....
Check preference: Oral presentation .....
Poster .....
Equipment required for oral presentation
.....
Subject area of choice:
1. Color science and technology ....
2. Color and the arts ....
3. Color and design ....
4. Color education ....

Brazilian Color Symbolism: A-One-of-a-Kind-Mix

Deborah Franco Vaz, a designer and color consultant in Rio de Janeiro, conducted a CAUS workshop in New York earlier last year in which she talked about the colors of her native Brazil. What she described was so unusual, I asked her to write it up for the members who were not there. To give a taste of Brazil, she distributed, as souvenirs, some "Lord of Bonfim" colored ribbons, strips from the most pale to strong colored cotton. Their significance is described in the following extracts.

Margaret Walch

Brazil is a cultural melting pot where the mixture of many races and traditions—principally European, native Indian and African— has been a never-ending source of inspiration for its literature, theater, festivals and the popular arts. Additionally, the coming together of these diverse populations has led to paradoxical and complex religious whole, s syncretism where Roman Catholicism has become interwined with the mystical African polytheism that survives today in the popular religious faith known in Brazil as Candomblé.

The syncretism s seen mot powerfully in the tropical seaport city of Salvador, capital of the state of Bahia, whose most important church, the 256-year of Church of San Bonfim, is known as the Church of Oxalá—Jesus Christ. When, in January the major festival of the Lavagem do Bonfim takes place. Cardomblé priestesses lead the festivities together with Catholic priests.

The fita do Sr. do Bonfim or Lord of Bonfim colored ribbons, are the worshipper's link to the orixas who in Candomblé are the intermediate deities between the supreme god and the terrestial world. Endowed with almost human sentiments, the orixas love, hate, benefit, punish and cure and are believed to communicate with men. In the syncretism, as well be seen below, many of the orixas have come to be associated with major figures in the Roman Catholic pantheon.

Having made a petition to an orixa, as Christian might petition a saint, he worshipper takes a ribbon from the box of Lord Bonfirm colored ribbons and ties it around

his wrist, where it will serve to remind the worshipper of any promises he has made to the orixa. Each orixa has its own color and because most people don't know what those colors are, the selection of a ribbon depends on an intuitive attraction between the worshipper and the ribbon. It is said that you don't choose the ribbon, the ribbon chooses you. But in order for the orixa to make your petition a reality, you must let the ribbon fall off your wrist from natural wear and tear. Cutting it off is said to bring bad luck.

WHITE-OXALÁ The color symbolism of the orixas begins with white. Oxalá in Cardomblé and Jesus Christ in the syncretism. The deity with the highest energy in Cardomblé, he is the great Celestial Father. He bestows happiness, progress and peace.

WHITE can also be IEMANJÁ, the female aspect. She can take the light blue or silver as her color as well. The great mother of water and home, she is maternal, protective, competent, dedicated. She protects from confusion, creates harmony in the family, and helps people to progress in life. In the syncretism, she is our Lady of Light.

BLACK is EXÚ, which can also be dark red. Exú is the devil or Hermes, the messenger of the Greek gods, and Saint Benedict in the syncretism. He brings the gods' messages to earth. He means activity, he helps to solve problems outside the home, and to protect against danger and enemies. He is passionate, smart, creative persistent, impulsive jokey and sexual.

BACK & WHITE - OBALUIÈ or OMULÚ Saint Lazaro in the syncretism, he purifies, brings cures, health and knowledge ad protects animals.

RED-XANGÚ dark red, almost bordeaux in Candomblé. Saint Jerome in the syncretism. He is the lawyer of the poor, the justice, the truth. His domain is the celestial fire, thunderstorms, and meteorites. Violent, fair and bold, he corrects injustices and protects from catastrophes.

ORANGE-IANSÃ. Her other colors are coral and orange red. She is the orixa of passions and adventures. She herself is passionate and daring, bold, excited, vain. She gives courage and impetus and protects against disasters and accidents. Saint Barbara is the ayncretism.

YELLOW-OXUM. Also gold. Beautiful, elegant, charming and sweet. She is the coquette mother of richness, magic and love. She gives wealthy love and fertility, protects the childbirth and the baby, brings good luck and wisdom. In the syncretism, she is Our Lady of Conception.

GREEN-OXÚSSI. He is the healer, the magician, the lord of the force in vegetables. He is intuitive and deferential, directed to research and science, and gives curative force to the medicinal herbs. His domain is the virgin forests.

DARK BLUE-OGUM in Candomblé ogum is also the indigo blue of the incandescent iron from the furnace. A warrior, his domain is the straight line of the ways, the struggles, the work. The patron of the military, he is brave and adventurous, explosive but with a great heart and no sophistication. In the syncretism he is Saint George (or Saint Sebastian).

LILAC (light violet)-NANÃ, the orixas' grandmother. Saint Anna in the syncretism. She protects against enchantment and death dangers, she has knowledge of the most occult things, and is also associated with maternity. Her domain is the swamps ands death.

LIGHT BLUE (pale blue) and LIGHT ROSE. Theses are twin infantile deities who represent Cosme and Dimião, the children of the Nile. They represent children, the spring of a river, the germination of vegetation. They attract love and protect doctors and medicine. Their domain is birth and the growth of human beings and oxias.

Deborah Franco Vas
Rio de Janeiro
Brazilian color expert

From: The Color Association of the United States (CAUS) News, Jan. 2002

TAGA EXTENDS ANNUAL TECHNICAL CONFERENCE

Rochester, NY — The Technical Association of the Graphic Arts (TAGA) today announced the agenda for the TAGA 2002 Asheville conference has been extended to allow for two additional sessions. The TAGA 2002 Asheville conference, which will be held April 14-17, 2002 at the Asheville Renaissance Hotel in Asheville, North Carolina, will begin earlier on Tuesday to make room for the two sessions. A session titled, "Describing Device Capabilities in JDF" will be presented by Dr. Rainer Prosi of Heidelberger Druckmaschinen AG. "This session is particularly important," says TAGA President Bruce Blom of Mead Westvaco. "The JDF specification is due for a major new release concurrent with the TAGA conference, and this addition meets the demand for a better understanding of JDF."

The CIP4's Job Definition Format (JDF) specification provides a method for exchanging data descriptions of print jobs. A print job can be described from a customer's point of view as the description of a product or a set of products and can be described from a printer's point of view as a set of process steps that are executed to produce a product. By describing the capabilities of the devices that produce the job, JDF enables systems to combine these two views of a job in a consistent way. Dr. Prosi will present a device-description syntax based on JDF.

The other new session titled "Evaluation of Ink Transfer Theory" will be presented by Seppo Särelä of UPM-Kymmene Corp. and Hannu Paulapuro of Helsinki University of Technology. Ink transfer process has been a subject of interest for many years, but during last few years some researchers have argued against prevailing theories. Some visual observations have created criticism of the prevailing theories, but by analyzing some study results, Särelä and Paulapuro will provide an explanation to known contradictories.

This session provides some hard science in support of one of the conference's major underlying themes: arriving at a better understanding of press management. The conference includes a special daylong, three-part session titled, "How to Find the Sweet Spot on a Press". This session led by Miles Southworth, RIT Professor Emeritus, will include technical papers, an expert panel discussion, and a technical focus group discussion that will explore questions such as:

- How can a press be controlled so that it remains in its sweet spot?
- Which print attributes must be controlled for the least variability?
- What effect does each variable have on the print quality?
- Can we improve a press's sweet spot to produce a better product?
- Can a press be trimmed and trained to always run at its sweet spot?
- How can we increase the speed and accuracy of measurements?

The complete TAGA Asheville 2002 Conference agenda and registration information is available at http://www.taga.org/events/asheville2002/index.html, or call TAGA at (585) 475-7470 to request a printed brochure. About TAGA: Organized in 1948, TAGA is the only global professional technical association for the graphic arts industries. TAGA, which has over 900 individual members worldwide, also maintains the industry'sbest permanent set of technical papers and abstracts. TAGA serves the CTO, CIO, and R&D management personnel of printers, publishers, and pre-media companies, as well as engineers and scientists employed by graphic arts systems and equipment providers, ink manufacturers, and paper manufacturers. TAGA focuses on graphic arts systems, software, and computer technology developments, as well as the more traditional areas of press, ink, and paper engineering applications. The association also provides guidance and support to its 15 active student chapters around the world.

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CALENDAR

Please send any information on Member-Body and other organization meetings involving color and appearance functions to: **Ms. Cynthia Sturke, ISCC Office**
11491 Sunset Hills Road, Reston, VA 20190
703-318-0263 tel 703-318-0514 fax
iscc@compuserve.com **website:** *http://www.iscc.org*

2002

Rescheduled **ISCC Williamsburg Conference,** Solutions for Industrial Color Problems, Chair: Ralph Stanziola, *rascolor@juno.com* **Changed to March 2003**

March 24-26 CMG's Spring International Conference, New York, NY, USA www.colormarketing.org 703-329-8500 Fax 703-329-0155 jhood@colormarketing.org

April 1-5 AeroSense, SPIE's 16th Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls, Gaylord Palms Resort and Convention Ctr., Orlando, FL http://spie.org/info/ Register by March 15 and save $100

Apr 2-5 **CGIV'2002 First European Conference on Color in graphics Imaging and Vision,** University of Poitiers, France Contact: Society for Imaging Science and Technology, 703-642-9090, 703-642-9094 fax, *info@imaging.org* or *www.imaging.org*

Apr 7-10 **IS&T's PICS 2002 International Technical Conference on Digital Imaging**, *Portland, OR* *http://www/imaging.org/conferences/pics2002/authors.cfm*

Apr 14-17 **TAGA 2002,** Asheville Renaissance Hotel, Asheville, NC

April 16 **ASTM Intl. Regulatory Compliance for the Flammability of Wearing Apparel,** Greenville, SC www.astm.org/TRAIN, Marsha Firman, mfirman@astm .org 610-832-9612

April 17 **Regulatory Compliance for the Flammability of Children's Sleepwear**, Greenville, SC Marsha Firman, mfirman@astm .org 610-832-9612

Apr 20-23 **ISCC/Detroit Colour Council Joint Meeting, Troy, MI**
Chair: Jim Keiser,*james.r.keiser@usa.dupont.com*

Apr 22-26 **2002 ASPRS-American Congress on Surveying and Mapping Annual Conference and FIG (International Federation of Surveyors)Congress** , Washington, DC *www.fig2002.com/*

May 3-5 **IACC/NA, International Association of Color Consultants/Designers,** N. America, Santa Fe, NM (USA). Annual Conference. Contact Pres. Laura Mercurio: IDMERCURIO@aol.com

May 6-8 **CORM Annual Meeting,** Sheraton Westport, St. Louis, MO

May 21	**ASTM Intl. Regulatory Compliance for the Flammability of Wearing Apparel** New York, NY www.astm.org/TRAIN, Marsha Firman, mfirman@astm .org 610-832-9612
May 22	**Regulatory Compliance for the Flammability of Children's Sleepwear,** Greenville, SC Marsha Firman, mfirman@astm .org 610-832-9612
June 9-13	**Fourth Oxford Conference on Spectrometry,** Davidson College, Davidson, N.C. Info: Art Springsteen *arts@aviantechnologies.com* Teresa Goodman *tmg@npl.co.uk*
June 16-20	**ASTM D-1 on Paints** - Meeting and Centennial Symposium, Philadelphia, PA
June 26-28	**ASTM E-12 on Color and Appearance,** Little America Hotel & Towers, Salt Lake City, UT
July 1-3	**Colour and Appearance of Foods.** The Colour and Imaging Institute, University of Derby, England Linda Marshall lmmarshall@compuserve.com http://colour.derby.ac.uk/food
July 10-12	**Intl Conference on Information Visualisation-IV02**-London, England Contact: Ebad Banissi, REF: IV02, Visualisation & Graphics Research Unit, South Bank Univ., 103 Borough Rd London SE1 0AA. UK. +44 171.815.7476, Fax: +44 171.815.7499 *banisse@sbu.ac.uk www.graphicslink.demon.co.uk/IV02/* Sponsored by: Information Visualisation Society
Aug 29-31	**Interim Meeting: AIC Color 2002,** "Color & Textiles" Maribor, Slovenia Contact: *vanja.kokol@uni-mb.si or www.dks-drustvo.si*
Oct 1-4	**AATCC International Conference and Exhibition, Charlotte Convention Ctr, Charlotte, NC** Contact: Shirley Clifton 919-549-8141 919-549-8933 fax
Oct 13-15	**CMG's Fall International Conference, San Diego, CA,** USA www.colormarketing.org 703.329.8500 Fax 703.329.0155 jhood@colormarketing.org
Nov 8-15	**Integrating Remote Sensing at the Global, Regional and Local Scale.** The 15th William T. Pecora Memorial Remote Sensing Symposium/Land Satellite Information IV Conference and ISPRS Commission I (Platforms and Sensors) Symposium, Denver, CO *www.asprs.org/Pecora-ISPRS-2002.* For ISPRS information: *www.isprs.org*

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March 9-11	**ISCC Williamsburg Conference,** Solutions for Industrial Color Problems, Chair: Ralph Stanziola, *rascolor@juno.com* Philadelphia
May 3-9	**ASPRS Annual Conference,** Anchorage, AK
Aug 4-6	**Midterm Meeting: AIC Color 2003, "Color Communication & Management"** Bangkok, Thailand Contact: *aran@sc.chula.ac.th*

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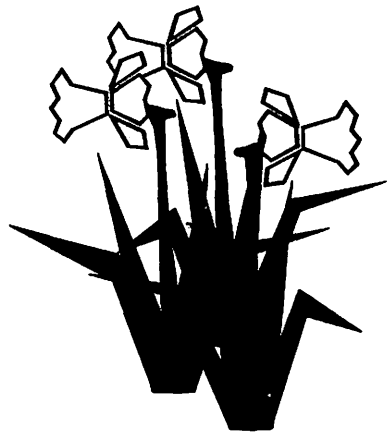

Advertising Policy

The ISCC advertising policy for the Inter-Society Color Council News is as follows Pre-paid color-related advertising will be accepted thirty days in advance of the publishing date.

The rates are:	$ 100	business card-size ad
	$ 250	1/4 page ad
	$ 500	1/2 page ad
	$1,000	full page ad

Artwork must be publisher ready and will be returned within 30 days after publication. The publishers reserve the right to determine the acceptability of the advertising. A 20% discount is offered for a yearly contract.

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Associate Editor: Cynthia J. Sturke

All submissions must be in English.
Please submit May/June 2002 articles by April 1st.

ISCC Sustaining Members

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BYK-Gardner USA	*www.bykgardner.com*	301-483-6500
Chromatics Color Sciences Intl, Inc.		212-717-6544
Ciba Specialty Chemicals	*www.cibasc.com*	302-633-2042
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Flex Products, Inc.	*www.colorshift.com*	707-525-7337
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***Prime-Color, Inc.	*watprime@hotmail.com*	908-272-5759
SPC Software	*www.spc-software.com*	+33-1-4784-0066

***New Sustaining Member**

ISCC Member-Bodies

American Association of Textile Chemists and Colorists (AATCC)
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American Society for Photogrammetry & Remote Sensing (ASPRS)
The Color Association of the United States, Inc. (CAUS)
Color Marketing Group (CMG)
Color Pigments Manufacturing Association (CPMA)
Council on Optical Radiation Measurements (CORM)
Detroit Colour Council (DCC)
Federation of Societies for Coatings Technology (FSCT)
Gemological Institute of America (GIA)
Graphic Arts Technical Foundation (GATF)
Graphic Communications Association (GCA)
Illumination Engineering Society of N. America (IESNA)
National Association of Printing Ink Manufacturers (NAPIM)
Optical Society of America (OSA)
Society for Information Display (SID)
Society of Plastics Engineers, Color & Appearance Div.(SPE)
Society for Imaging Science and Technology (IS&T)
Technical Association of the Graphic Arts (TAGA)
Technical Association of the Pulp and Paper Industry (TAPPI)

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