A Note from the Editor

First let me apologize for the tardiness of this issue. Your Board of Directors has been working to complete an election ballot and we must adhere to certain policies regarding announcements, timing, etc. Enclosed with this newsletter, you should find a ballot in a separate attachment.

Second, I am excited to announce a new addition to the regular contributors of ISCC News. Help me welcome Parker Plaisted, author of the Color Imaging Blog. Parker is an RIT alumnus and longtime front of the Munsell Lab. I was catching up with him at IS&T’s Color Imaging Conference this year, and he mentioned his blog. It seems interesting, related, and likely to be useful to many ISCC readers. He will bring an image-centric view on color, one that by its nature also involve technologies sometimes not addressed in the ISCC in the past.

Annual Meeting 2012
June 19-20, Manchester, NH

The plans for the ISCC Annual Meeting are underway. A Call for Papers has been posted on the ISCC website, and is also included in this newsletter. The meeting will be held at the Radisson Hotel Manchester Downtown, near restaurants and other sights. Day one will be a traditional annual meeting with presentations from our three interest groups as well as an education session. On day two we are excited to include sessions on Green Color, meaning the use of environmentally-friendly processes in the creation of color.

Please see the full Call for Papers on page 7 of this issue.

Congratulations Cynthia!

Congratulations Cynthia J. Sturke
15 Years of ISCC Service

It is our pleasure to present to Cynthia J. Sturke an award plaque for her 15 years of tireless service to the ISCC. Cynthia has supported the ISCC in several roles: as Office Manager, as Associate Editor of the ISCC News (and contributor of some articles), and as a full ISCC Member. She has advised many Presidents and Executive Board members, whose short terms of office really benefited from her continuity of wisdom and experience. Cynthia embodies the spirit of the ISCC.

(continued on page 3)

The full text of this citation was read by Michael Brill at the 2011 Annual Meeting in San Jose.
LinkedIn Group Continues to Grow

Our online presence includes not only our traditional web page, but the added capability for communication and interactions using social networking tools. There are several groups dedicated to various aspects of color, and an ISCC group focused primarily on publicizing ISCC people, events, and resources. This link will connect you directly to the ISCC LinkedIn page: linkd.in/kxTd8G. Please use it to get (or stay) connected!

12th AIC Congress
The Sage Gateway, July 8-12, 2013

The AIC Congress is held every four years and is the only international color conference that promotes all facets of color.

AIC is a platform where interested individuals, researchers, academics, designers, architects, artists, industrialists, engineers, lighting experts, and business leaders can share ideas, interact, and learn of recent advances in the field.

The main theme of the 2013 conference will be Bringing Colour to Life, in the practical sense of color production and reproduction, in the sense of color in nature, and the ways in which color can be used sustainably now and in the future.

For the latest details and information, visit www.aic2013.org or email info@aic2013.org.

Article: Unraveling Synesthesia

Published in Science News

A sense-mixing condition in which people taste colors or see smells tends to run in families, and recent studies have homed in on a selection of genes that may contribute to the phenomenon, called synesthesia. Understanding the condition’s genetic basis might reveal why it has perpetuated in humans and help scientists develop cures for degenerative neurological diseases.

Only about 3% of the population claim to experience some form of synesthesia, but nearly half of those report having a close family member whose senses become similarly entangled.

"We know that synesthesia tends to travel in families," says experimental psychologist David Brang of the University of California, San Diego who, along with V.S. Ramachandran, discusses synesthesia genetics in an article published online November 22 in PLoS Biology.
In the last issue (# 454), Hugh Fairman reported on Henry Hemmendinger’s search for an M.C. Escher print that seemed to transform from a day-lit scene to a night scene when the illumination spectrum changed. Was this a deliberate trick from clever use of more than three colorants? As is clear from Hugh’s article, it was not, but before I learned that fact, I extrapolated Henry’s search far afield, to the heartland of Russia.

In the summer of 2008 I was in Tambov, teaching Russian college students how to use English to advance their science careers (see Issue # 435, p. 6). For three weeks I stayed in the same dorm room, and every morning and evening had the same view from the same chair of a picture on the wall. By day the picture was a sun-lit landscape with some water and green shrubbery in the foreground. By night (in tungsten light) the picture appeared instead to be moon-lit, partly because the sky around the sun/moon orb was darker, but mostly because the green of the shrubbery appeared relatively lighter. The tungsten light was evidently rendering the blue sky darkly, but was raising the lightness of the shrubbery as if to mimic the Purkinje shift (shift to rod dominance in low light levels—hence greater lightness of green). Of course, the Purkinje shift here was illusory and not real, because the light was still bright enough to render colors: my cones still ruled the night.

I thought this might be an example of the art object Henry sought that conveyed two scenes in two lights due to colorant manipulation. I considered trying to purchase the picture, but even if I got a fair deal on it the trip home would not be easy. As I sat in that same chair one evening, I thought I’d have a closer look at the picture before I made my purchase offer. So I rose from the chair. Instantly the green shrubbery darkened.

Oops! This wasn’t related to metamerism at all. The shrubbery was brighter when I sat in the chair because I was receiving a specular reflection from the tungsten light. In daylight, I didn’t get a specular reflection, so that is why the shrubbery looked darker by day.

I had to marvel at this picture, which had different gloss in different areas. The shrubbery had the greatest gloss. Do reproductions in Russian dorm rooms have such texture and gloss differentiation, or was I looking at an original painting? Later I learned that, in printing, ink overloading (hence gloss) is more likely in the green (and purple) than in other colors because more than one colorant maximizes its load. But meanwhile, I had reached the end of my skills as an art connoisseur, and the end of my time as well---I had to return home the next day.

Was this day/night trick deliberately set up? Perhaps not. Was it related to metamerism? Definitely not, unless you count the much-disparaged term, “geometric metamerism.” Alas, I couldn’t discuss the matter with Henry Hemmendinger, who by that time had gone where colors are more real and permanent.

Michael H. Brill, Datacolor

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HUE ANGLES
(Send contributions to mbrill@datacolor.com)

A Russian answer to Escher’s day/night print

The ISCC hired Cynthia as Office Manager in 1996. She was the first ISCC employee, and began right away to shine in her position. She kept all the meetings on track and closed communication gaps that occurred among the volunteers. She also was the face of the ISCC to the outside world, handling individual requests of all sorts and being the official point of contact with the AIC (the international organization of which ISCC is the US member). She also was instrumental in handling the cooperation between the ISCC and its member bodies during all phases of cooperative conferences. And she did all these tasks with commendable patience and pleasantness.

But Cynthia did much more. She became very interested in color and in color education, learning enough to write articles in the ISCC News, even as she was performing valuable editorial and production tasks for the newsletter. She helped to produce the proceedings of many ISCC conferences. This effort culminated in her co-authoring (with Ellen Carter) the 75th Anniversary CD for the 2006 meeting in Ottawa. That CD is the most authoritative single source of history of the ISCC, as well as chronicling the 2006 meeting.

It is time to recognize Cynthia for her loyalty to the ISCC, in bad times and in good, and to hope for many more years of her rejuvenating influence.

Michael H. Brill, Datacolor
Color Research and Application

IN THIS ISSUE, February 2012

It has long been known the size of the color stimulus that an observer looks at affects the color perception. Therefore, the Commission Internationale de l’Éclairage (CIE) recommended two standard observers, the 1931 2º standard observer and the 1964 10º standard observer. However, these recommendations do not cover the full range of possible color stimuli. In our first article of 2012 Kaida Xiao, M. Ronnier Luo, and Changjiong Li discuss “Colour Size Effect Modeling.” They use the data from their recent experiments on color stimuli ranging from 2º to 50º, to derive a model capable of transforming color appearance from a standard size (2º) to any larger size.

The CIE Color Rendering Index has been widely discussed both within CIE technical committee 1.69 on color rendition by white-light sources, and in several articles in this journal over the last few years. One objection to the current index is that since it assesses the color a relatively small number of samples, source designers can optimize a source to score a high index value. In this issue Lorne Whitehead and Michele Mossman propose a new method that determines the color shift of one thousand, or more, representative reflection spectra spanning the full multidimensional range of possible spectral distributions and colors. In “A Monte Carlo Method for Assessing Color Rendering Quality With Possible Application to Color Rendering Standards,” they describe their proposed system, which they say is ideally suited for analyzing, in a fair and useful manner, all types of spectral distributions, including discrete spectra arising from combinations of light emitting diodes (LEDs).

Our next article discusses an experiment conducted in eight different countries to examine the similarities and differences in emotional responses to colors. The article is entitled “A Cross-Cultural Comparison of Colour Emotion for Two-Colour Combinations,” and it has 13 authors: Li-Chen Ou, M. Ronnier Luo, Pei-Li Sun, Neng-Chung Hu, Hung-Shing Chen, Shing-Sheng Guan, André Woodcock, Jose Caivano, Rafael Huertas, Alain Tremeau, Monica Billger, Hossein Izadan, and Klaus Richter. While they found similarities across the cultures in some dimensions, in addition to cultures they found some effects of gender, professional background (design vs. non-design) and age. Based on their findings, they propose a two-level theory of colour emotion.

There have often been communication gulfs between scientists or engineers and designers or artists. Organizations such as the Inter-Society Color Council and the American Association of Textile Chemists and Colorists among others have developed special groups to try to bridge those gaps. In our next article “Quantification of Scene Appearance – A valid design tool?” John B. Hutchings, Li-Chen Ou, and M. Ronnier Luo are taking another step in that direction. Based on a personal quest of the first author, they examine the current status of the total appearance science, and how it has direct application to the work of the practical designer using a vocabulary common to both designer and scientist. It is hoped that a successful designer/scientist dialogue will assist in the optimization of consumer expectation perceptions of a space, as well as improving communication between designer and material scientist.

Our next three articles are in specific industrial applications of color science to medical and cosmetics, the pharmaceutical industry, and textiles. The article, “Optical Implementation of Spectral Filtering for the Enhancement of Skin Color Discrimination” describes the evaluation of filters especially designed for the discrimination enhancement of skin and veins. Ken Nishino, Arto Kaarna, Kanae Miyazawa, Hirofumi Oda, and Shigeki Nakauchi have developed optical filters that can be used to enhance color differences to improve the discrimination of skin and veins and bare and made-up skin. The color-difference enhancement for skin/vein discrimination was achieved using the spectral difference between oxy- and deoxyhemoglobin and worked even though subjects skin color differed.

In the past decade or so, there has been a strong movement on the part of companies toward globalization. Soon it was discovered that what had worked well in one country did not equally suit another culture. In our next article “Color-emotion associations in the pharmaceutical industry: Understanding universal and local themes” the task was selection of colors for color film coating of plain white tablets into uniquely branded ones to allow for innovative ways of distinguishing new drugs to differentiate the brand and generate emotional engagement supportive of the drug

continued on next page
personality. This in turn contributed to establishing brand identity and affinity. Anat Lechner, Leslie J. Harrington, and Jeffrey S. Simonoff report on developing and testing a performance measurement system that evaluates the impact of color language decisions on patient compliance with prescribed drugs, sales performance of drugs, and doctors’ prescription preferences.

Our last article comes from the textile industry. Once materials are dyed, they are treated with polymer resins for various reasons such as water repellency, increased softness or changes in other attributes. This finishing with polymer resins has an effect on appearance color and is an important parameter to evaluate dyed products. Aiqin Hou, Bo Chen, and Kai Zhang discuss the “Influence and evaluation of functional polysiloxane resins on the color gamut of dyed polyester.”

Finally we have a Note from Guéguen entitled “Color and Women Hitchhikers’ Attractiveness: Gentlemen Drivers Prefer Red.” The International Color Association announces their upcoming meeting “In Color We Live” to be held in Taiwan is September, and James Ferwerda talks about color science education opportunities at Rochester Institute of Technology.

Ellen Carter
Editor, Color Research and Application

Congratulations to ISCC Member Body SPE Color and Appearance Division on 50 years of Coloring Plastics! To celebrate this milestone, join them at:

RETEC 2012
Louisville Marriott Downtown, Louisville, KY
September 30-October 2, 2012

Be part of this occasion by contributing to the premier forum dedicated to the coloration of plastics. Papers covering a wide variety of color topics are welcome for consideration. Presentations are welcome from both vendors and suppliers to the color industry as well as the users and processors of color.

Deadline for Abstracts is February 15, 2012

Contact the Technical Program Co-chairs:
Johnny Suthers jchemie@aol.com or
Jeff Drusda drusdaj@silberline.com
(570)668-8321

Editor’s Note: This is the first in a regular series of columns taken from www.color-imaging.com

The Reference White in Adobe Photoshop™ Lab Mode

Posted on October 29, 2011 by Parker Plaisted
In an earlier post I explained that all CIELAB values are relative to a reference white, and one benefit of the reference white is the chromatic adaptation provided by dividing each CIE XYZ tristimulus value of the stimulus by the corresponding CIE XYZ tristimulus value for the reference white.

For this post I will focus on two example implementations of the CIELAB color space in digital color workflows and the reference white used in each example.

The first example implementation is color management with device profiles based on the International Color Consortium (ICC) specification. The reference white for every ICC profile is D50, and the corresponding CIE XYZ tristimulus values are X = 0.9642, Y = 1.0000, and Z = 0.8249. This information is provided in the description of the ICC Profile Connection Space (PCS) as guidance for interpreting PCS values that are encoded as CIELAB values. The following statement is a quote from ICC Specification ICC.1:2004-10:

So, in summary, the PCS is based on XYZ (or CIELAB) determined for a specific observer (CIE Standard 1931 Colorimetric Observer – often known colloquially as the 2 degree observer), relative to a specific illuminant (D50 – a chromatic adaptation transform is used if necessary), and measured with a specified measurement geometry (0°/45° or 45°/0°), for reflecting media.

Note that the ICC PCS values may be encoded as CIELAB values or CIE XYZ values, but the CIELAB encoding is preferred for output device profiles that characterize printing systems. The use of D50 for the reference white for CIELAB encoding in the ICC PCS makes the CIELAB values more suitable for printing systems than other white points (e.g., D65) because D50 is the standard illuminant for prepress proofing and matching press sheets to proofs. Therefore, the reference white for the ICC PCS matches the reference white universally used for evaluating color proofs and finished color prints.

Read the rest of this entry at: www.color-image.com
We move from sun to darkness (and thankfully back again) in the northern winter, so I thought it might be interesting to contemplate color in the dark.

You can't see colors at night because our visual systems are not designed to see colors when there isn't very much light in a scene. We actually have two visual systems that work in parallel to help us survive in the world. When there is plenty of light, we use our cone photoreceptors. There are three types of cones roughly sensitive to red, green, and blue light and we can compare the images captured with these three systems to perceive the colors in the scene. We can also see fine detail with our cones.

However, the ability to see colors and detail with our cone system means that the cones cannot be very sensitive to light. As the light levels decrease at night, we reach a point where our cones can no longer respond because there simply is not enough light for them to produce a response. In this situation, our visual system automatically switches to a second set of photoreceptors known as rods. There is only one type of rod receptor, so that means we can only see in shades of gray when our rods are working and our cones are not. The rods also gang up together to capture light over relatively large areas. This helps them to be very sensitive to the small amounts of light available at night, but it means that they cannot possibly allow us to resolve fine details.

The stimulus for color hasn't disappeared at night. The problem is that there simply isn't enough light for us to perceive colors. I took this picture of Yosemite Falls at night (about 11:00PM) on an early spring evening with a nearly-full moon. I set my camera exposure time to about two minutes in order to capture enough light to make the image. You can see that it was taken at night by looking at the stars in the sky and seeing that they actually moved a little bit (well actually the earth rotated a little) during the long exposure time. This full-color night-time image shows that all the colors are still there under moonlight, but we just can't see them. The sky is blue, the water white, trees green and brown, rocks gray and brown, etc. When I was in the original location, I could only see a black and white version of the scene with my naked eyes. That is because there was only enough light for my rods to function and not my cones.

Content of this column is derived from The Color Curiosity Shop, an interactive website allowing curious students from pre-school to grad-school to explore color and perhaps become interested in pursuing a science education along the way. Please send any comments or suggestions on either the column or the webpage to me at <mdf@cis.rit.edu> or use the feedback form at <whyiscolor.org>.

-Mark D. Fairchild
First Call for Papers  
ISCC’s 2012 Annual Meeting

Mark your calendar now for the 2012 ISCC Annual Meeting, to be held in Manchester, NH, tentatively at the Radisson Hotel Manchester Downtown on June 19-20. The meeting will include one day sessions of all three interest groups, an educational session and a business and awards luncheon. On day two we will present sessions related to environmentally friendly color. Papers are being accepted in for any and all of these sessions. Our requirements for submission are flexible; generally abstracts are expected to be 2-5 pages. If you have specific questions regarding your paper, please contact one of the program committee:

- IG 1: Basic and Applied Color Research, contact Ms. Ann Laidlaw, ALaidlaw@XRite.com
- IG2: Industrial Applications, contact Mr. James Roberts, jim.roberts@altanachemie.com
- IG3: Art, Design and Psychology, contact Dr. David Wyble, wyble@cis.rit.edu
- Educational Session, contact Dr. David Wyble
- Environmental color session, contact Dr Romesh Kumar, Romesh.Kumar@clariant.com

The General Co-chairs are Dr. Art Springsteen (arts@aviantechnologies.com) and Mr. John Conant (jconant@aerodyne.com). Please contact Art Springsteen if you have questions regarding this meeting. More travel information will be provided closer to the meeting date.

For latest info: iscc.org/meetings/AM2012/

Pantone Institute Announces  
Color of the Year

Tangerine tango, a vivacious and appealing reddish-orange hue, has been named the 2012 color of the year by the Pantone Color Institute. It was chosen because it can help provide the energy boost we all need to recharge and move forward.

Calling it "sophisticated but at the same time dramatic and seductive," Leatrice Eiseman, executive director of the Pantone Color Institute, says this color has much depth to it. "Reminiscent of the radiant shadings of a sunset, tangerine tango marries the vivaciousness and adrenaline rush of red with the friendliness and warmth of yellow, to form a high-visibility, magnetic hue that emanates heat and energy."

X-Rite Inc, parent company of Pantone, supports ISCC as a member body.

Munsell Color Science Laboratory  
Announces Summer Short Courses

MCSL will again hold two- or three-day short courses this summer on July 5-7, 2012. July 5-6 will be a two-day course on the Fundamentals of Color Science. On July 7, participants can choose between Advanced Topics in Color and Imaging or Instrumental-Based Color Matching.

All courses include continental breakfast, lunch, and handouts, and relevant textbooks. The schedule also allows for plenty of time for conversations with the instructors and other participants.

For details, see www.cis.rit.edu/mcsl/SSC

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January/February 2012 Calendar

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<th>Event</th>
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<tr>
<td>Feb 1 - 2</td>
<td>ASTM E12 Color and Appearance</td>
<td>Hyatt Regency Atlanta; Atlanta, GA US.</td>
<td>atm.org</td>
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<td>Apr 2 – 5</td>
<td>SPECAD ANTEC 2012</td>
<td>Orlando, FL</td>
<td><a href="http://www.specad.org">www.specad.org</a></td>
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<td>May 6 – 9</td>
<td>IS&amp;T Color in Graphics, Imaging, and Vision</td>
<td>Amsterdam, the Netherlands</td>
<td><a href="http://www.imaging.org/ist/conferences/cgiv/">www.imaging.org/ist/conferences/cgiv/</a></td>
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<td>Jun 3 – 8</td>
<td>SID Display Week</td>
<td>Boston MA</td>
<td><a href="http://www.sid.org/ConferencesExhibits.aspx">www.sid.org/ConferencesExhibits.aspx</a></td>
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<td>Jun 5 – 7</td>
<td>Munsell Color Science Lab Industrial Short Courses</td>
<td>Rochester, NY</td>
<td><a href="http://www.cis.rit.edu/mcsl/SSC">www.cis.rit.edu/mcsl/SSC</a></td>
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<tr>
<td>Jun 19 – 20</td>
<td>ISCC Annual Meeting</td>
<td>Manchester, NH</td>
<td><a href="http://www.iscc.org/meetings/AM2012/">www.iscc.org/meetings/AM2012/</a></td>
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<tr>
<td>Sep 22 – 25</td>
<td>AIC Interim Meeting</td>
<td>Taipei, Taiwan</td>
<td>“In Color We Live: Color and Environment” wwww.aic2012.org</td>
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<tr>
<td>Sep 28 – 29</td>
<td>SCAD Meeting 2012</td>
<td>W Chicago City Center Hotel, Chicago IL</td>
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[Careful observers will note that this calendar is unchanged from the previous issue. Contact the editor if you are interested in helping improve this situation for future issues.]
ISCC Sustaining Members

Sustaining Members of the ISCC are organizations who support the mission and goals of the ISCC through financial or other support. With our Member Bodies, Sustaining Members also provide a critical connection to the color community. If you feel your company or organization should support the ISCC in this way, please contact the office for more information about member benefits.

Avian Technologies  www.aviantechnologies.com  603-526-2420
BYK-Gardner USA  www.byk.com/instruments  301-483-6500
Datacolor  www.datacolor.com  609-895-7432
Hallmark  www.hallmark.com  816-274-5111
Hunter Associates Laboratory, Inc.  www.hunterlab.com  703-471-6870
IsoColor Inc.  www.isocolor.com  201-935-4494
Chester F. Carlson Center for Imaging Science  www.cis.rit.edu  585-475-5944
X-Rite Incorporated  www.xrite.com  616-803-2113

ISCC Member Bodies

At its foundation, the ISCC is composed of many related societies. These societies, our Member Bodies, help the ISCC through small annual dues as well as maintaining a relationship with each organization's individual members. We frequently hold joint meetings to further the technical cross-pollination between the organizations.

If you belong to one of our member body organizations, we encourage you to work with ISCC and your society to further the connection. Contacting the ISCC President is a good place to start. If your organization is not on this list and you think it should be, the ISCC office can provide you with details about membership.

Or use our new online application: www.iscc.org/applicationForm.php

American Association of Textile Chemists and Colorists (AATCC)
American Society for Testing and Materials International (ASTM)
American Society for Photogrammetry & Remote Sensing (ASPRS)
The Color Association of the United States, Inc. (CAUS)
   Color Marketing Group (CMG)
   Color Pigmants Manufacturing Association (CPMA)
   Council on Optical Radiation Measurements (CORM)
Detroit Colour Council (DCC)
Gemological Institute of America (GIA)
Illumination Engineering Society of North America (IESNA)
International Color Consortium (ICC)
National Association of Printing Ink Manufacturers (NAPIM)
   Optical Society of America (OSA)
The Society for Color and Appearance in Dentistry (SCAD)
   Society for Information Display (SID)
   Society for Imaging Science and Technology (IS&T)
   Society of Plastics Engineers Color and Appearance Division (SPE/CAD)