



Inter-Society Color Council News

Issue 480

Fall 2017

Board of Directors Corner

Hello, my name is Tony Stanton, and this is my first year on the ISCC Board of Directors (BOD). It is an honor to work with the diverse and accomplished group of professionals that make up the BOD.



My interest in color, together with interests in photography and printmaking, began in the 1960s during my undergraduate studies. After graduation, I worked in a New York photo studio where I learned about color photographic processes and developed a strong curiosity

about color separation and reproduction.

After deciding to pursue a career in academia, I completed a Master's degree at the University of Maryland in Industrial Education specializing in graphic arts. I taught Graphic Arts and Photography at Maryland after graduating, and then went to Rochester Institute of Technology (RIT) and earned a MS in Printing Technology where I specialized in color reproduction. Both of my Master's theses involved different aspects of color.

I then taught Graphic Arts for three years in the California State University system – one year at Cal Poly and two years at Chico State.

Afterward, I worked for 12 years in Pittsburgh at Graphic Arts Technical Foundation as the Director of Process Controls. This involved designing test targets and other process control devices for all aspects of graphic reproduction. I was also tasked with conducting research related to print analysis and process control.

Simultaneously, I attended the University of Pittsburgh and completed my PhD in Instructional Design and Technology. My dissertation topic was the relationship of color discrimination and color realism in picture recognition memory. In retrospect, I realized my studies had taken me full circle from learning about image capture through color photography, to learning about color reproduction primarily from RIT and GATF, to learning about color perception in my PhD studies.

In 1996, I joined the faculty of the business school at Carnegie Mellon University as the Director of Graphic Communications Management. My 21 years at CMU have been challenging and rewarding. The program was rebranded as Graphic Media Management to reflect the convergence of media that has come about with the digital age.

I have been an active member of the Technical Association of the Graphic Arts since 1978, and it was my interaction with Danny Rich in TAGA that led me to ISCC. I enjoy the variety of color experts that one meets through ISCC, from paint and textile colorists to people from Pantone and Crayola.

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ISCC EXECUTIVE OFFICERS	
Terms end 2018	<p>President Mr. Jerald Dimas Color Communications, Inc. 4000 W. Filmore Street Chicago, IL 60624 USA 773-475-2575 jerdim@ccicolor.com</p> <p>Secretary Ms. Ann Laidlaw ACL Color Consulting LLC 136 E. Hill St Decatur, GA 30030 336-420-1998 acl99colors@yahoo.com</p> <p>Treasurer Dr. C. Cameron Miller Nat'l Inst. of Standards and Technology 100 Bureau Drive, Stop 8442 Gaithersburg, MD 20899 301-845-4767 fax: 301-975-4713 c.miller@nist.gov</p> <p>President Elect Dr. Renzo Shamey North Carolina State University College of Textiles rshamey@ncsu.edu</p> <p>Past President Mr. John Conant Aerodyne Research, Inc. 45 Manning Road Billerica, MA 01821-3976 USA 978-663-9500 fax: 978-663-4918 jconant@aerodyne.com</p>
ISCC BOARD OF DIRECTORS	
Terms end 2017	<p>Mr. Jack Ladson Color Science Consultancy 3661 Spring Hollow Lane Frederick, MD 21704 USA 267-981-7112 Jack@ColorScienceConsultancy.com</p> <p>Dr. Dave Wyble Avian Rochester, LLC dave@avianrochester.com</p>
	<p>Ms. Jodi Baker Konica Minolta Sensing Americas, Inc. 101 Williams Drive Ramsey, NJ 07446 201-749-2659 Jodi.Baker@konicaminolta.com</p>
Terms end 2018	<p>Mr. Nurhan Becidyan Retired CEO & President United Mineral & Chemical Corporation 557 Forest Avenue Paramus, NJ 07652 201-262-8262 nurhanbecidyan@gmail.com</p> <p>Dr. Paul Centore www.MunsellColourScienceForPainters.com Groton, CT paul@isletech.net</p> <p>Mr. Simon Thayil Under Armour Simonthayil09@gmail.com</p>
	<p>Mr. Steve Linberg 171 State Street Amherst, MA 01002 steve@slinberg.com</p> <p>Ms. Maggie Maggio maggiemaggio@gmail.com</p>
	<p>Dr. Anthony Stanton Carnegie Mellon University stanton@andrew.cmu.edu</p>
Terms end 2019	

Board of Director's Corner continued

My first significant activity on the BOD was to present a webinar on the subject of color in digital cinema in September. A short summary of the webinar can be found in this newsletter on page 5. I have a wide-ranging interest in graphic media and have had a sustained fascination, first with cinema, and now with digital cinema.

It was fun for me to put together and present the webinar, but I received an unexpected benefit that I can attribute directly to it being an ISCC sponsored activity.

After the seminar, I was contacted by Alex Forsythe, who is an Image Engineering Manager for the Science and Technology Council of the Academy of Motion Picture Arts and Sciences. We had a telephone conversation that was both very informative and very pleasant. For me, it was a win on two levels: I came away with a more nuanced understanding of many of the complex issues related to digital cinema, and, more important, I gained a contact to whom I can turn when future questions arise. This anecdote epitomizes the value to be gained by participating in a cross-disciplinary group bound together by a single shared passion – COLOR!

Tony Stanton, *Carnegie Mellon University*
ISCC BOD

Call for Nominations for the 2018 Macbeth Award

The Macbeth Award was established by Mr. Norman Macbeth, Jr. in honor of the memory of his father, Mr. Norman Macbeth. The award is presented biennially in even-numbered years, when deserving candidates have been nominated.

The Macbeth Award is given for one or more **recent** outstanding contributions in the field of color. **It is to be presented to a member, or former member, of the Council.** The contributions shall have advanced the field of color, interpreted broadly as in the objectives of the Council as defined in Article II of the Constitution. The merit of a candidate shall be judged by his or her **recent** contributions to any of the fields of interest related to color whether or not it is represented by a Member-Body. The **recent** contribution to color may be direct, it may be in the active practical stimulation of the application of color, or it may be an outstanding dissemination of knowledge of color by writing or lecturing. **The candidates for the Macbeth Award need not have been active in the affairs of the Council.**

Nominations should include the following information: *continued on next page*

2018 Macbeth Award Nominations continued

1. The name and full address of the nominee.
2. A sentence or two giving the specific reason for the award's bestowal. This will normally form the basis for the citation presented to the successful nominee.
3. A narrative (up to one-page) of the nominee's contribution and its significance.
4. A curriculum vitae for the nominee, as well as any other material deemed useful.
5. The name of the person or Member Body or Award Committee who prepared the nomination with appropriate contact information.

Note: Confidentiality of the nomination is of the utmost importance. The nominating individual/group must ensure that the nomination is not disclosed to the proposed nominee. If any of the above information cannot be obtained without risking disclosure, then the information should be omitted from the nominating letter.

Nominations should be submitted using the form found at:

www.iscc-archive.org/UniversalNominationForm.pdf

This form can be filled out, scanned and emailed to joanne.zwinkels@nrc-cnrc.gc.ca or printed, completed and sent to:

Joanne C. Zwinkels, ISCC Macbeth Award Chair
National Research Council Canada
1200 Montreal Road
Ottawa, ON Canada K1A 0R6

The deadline for receipt of nominations is February 15, 2018.

Note: Nominations received after February 15, 2018 will be retained for future consideration.

Call for Nominations for the 2018 Nickerson Service Award

The Nickerson Service Award is presented by the Inter-Society Color Council to honor long term contributions towards the advancement of the Council and its aims and purposes. The contribution may be in the form of organizational, clerical, technical, or other services that benefit the Council and its members. The candidates must be members of the Council and must have been active in the affairs of the Council.

Nominations should contain the same five pieces of information outlined above in the Call for Macbeth Award Nominations.

Nominations should be submitted using the form

found at:

www.iscc-archive.org/UniversalNominationForm.pdf

This form can be filled out, scanned and emailed to ACL99colors@yahoo.com or printed, completed and sent to:

Ann Laidlaw, ISCC Nickerson Service Award Chair
136 E. Hill St
Decatur GA 30030
t +1 336-420-1998

The deadline for receipt of nominations is February 15, 2018.

Note: Nominations received after February 15, 2018 will be retained for 2018. Nominations for the Nickerson Service Award may be considered to be "open" for submissions at any time. Future Nickerson Service Award committees will review nominations on hand for a given award period.

ISCC Nominating Committee Report

The ISCC Nominating Committee would like to announce candidates for Board of Director positions. Ballots for voting will go out at the beginning of December. There are three candidates for Board of Director positions: Jean Hoskin, Rachel Schwen and John Seymour. Their terms of service will go from January, 2018 until the end of the 2020 calendar year.

The first candidate, in alphabetical order, is Sharla Jean Hoskin. (She likes to be called Jean.) With color expertise that balances theory and application, art and science, Jean Hoskin retired from



Macy's Merchandising Group as Director of Color Services in 2016. Since her retirement, she has been consulting, writing, painting, and traveling. Majoring in textiles, Jean holds a BS from Iowa State University and an MA from Michigan State University. Her PhD from the University of

Tennessee included Textile Design, Testing, Dyeing and Printing combined with Aesthetic philosophy.

Jean began her career in teaching at the University of Kentucky developing courses that included

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ISCC Nominating Committee Report continued

Color Theory for apparel and interior design students. She also taught Costume and Textile History and maintains her interest in ethnic textiles as a member of the Textile Society of America. Her creative research focus was on color testing and textile art.

Sandwiched between university teaching and retail, Jean managed textile screen-printing for Kentucky Textiles responsible for design, color matching, and pre-press. Promoted to creative design, Jean managed apparel design, color and material development.

In 1995, Jean jumped from manufacturing to retail, beginning as color manager for Lane Bryant at Limited Inc. in Columbus, OH. The major responsibility was color approval of materials using instrumental color measurement and communication. Next at May Merchandising Company in St Louis, MO, she developed an international color management program that included exciting travel to manufacturing sites in Asia. In 2006, she moved to Macy's in New York, where, as Director of Color Services, she implemented a global color approval process. Jean co-managed an international team of 35 and was responsible for training, color systems and industry trends. The New York and International teams provided a variety of following functions, such as color trends, color standards development, CAD matches, pre-production and production color approval, plus results reporting for color selling.

Always a teacher, Jean is a frequent presenter on innovation and process improvement at professional meetings. She is a member of American Association of Textile Chemists and Colorists, Inter-Society Color Council, and Surface Design Association. She is the current president of International Association of Color Consultants-North America and is a former board member of Color Marketing Group. Her most recent article "Following the Creative Path of Color Theory" was published in the Fall 2017 issue of the *Surface Design Journal*.

The second candidate is Rachel Schwen. Rachel is a Color Technologist with Sherwin Williams Performance Coatings Division. She joined Sherwin Williams in June 2017 as part of the acquisition of Valspar corporation. In this role, she works with the global color group under Frank O'Donnell on all business to business coatings. She best describes her role as "all things light and matter interaction" with a heavy focus on color education, method development, and analytical color science.

Rachel started her career at Valspar in 2012 in

the consumer paint division specializing in innovation in color and interfacing with Marketing. In 2014 she became the first member of the Valspar global



corporate color team focusing on transferring best practices in color throughout the business.

Rachel has a strong curiosity about the color of natural materials derived from the realization, as a child, that sapphire and ruby are chemically almost identical.

This led her to study earth materials in a quest to understand better how things are colored in nature both chemically and physically. The coatings industry allows her to pursue both her passion of natural color and analytical expertise to guide business decisions.

Rachel is honored to be nominated to serve the ISCC. She brings expertise in the coatings industry as well as a fresh perspective on color in industry in the digital age. She hopes to help the ISCC reconnect with its member bodies and attract a new generation of color professionals to the ISCC.

Rachel is a member of Imaging Science and Technology and past member of Color Marketing Group and the Mineralogical Society of America. She studied Color Science at the Munsell Color Science Laboratory of Rochester Institute of Technology under Roy Berns where she focused on LED lighting design for museum applications. She also holds a Master of Science degree in Geological Science specializing in Mineralogy from University of Arizona.

The third Board of Directors candidate is John Seymour. John got his start in color in 1992 when he joined the research team at QuadTech, a manufacturer of control systems for printing presses. The research position at QuadTech encouraged his natural inclinations to learn, to ask "what if", and to teach.

He studied the printing process and business, and learned color science by devouring technical literature and by collaborating with experts through the Technical Association of the Graphic Arts (where he is now VP of Papers), and standards groups like the Committee for Graphic Arts Technologies Standards and ISO Technical Committee 130.

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ISCC Nominating Committee Report continued

John's creative side was encouraged right from the start with his first assignment at QuadTech, where



he developed a proof-of-concept prototype for a color register control system for a printing press that used the image, rather than special marks specifically for register control. From there he devel-

oped numerous devices for measurement and control of color for printing presses. To date, he has been awarded twenty-five patents. This "learning by doing" augmented his academic study of color.

Many great product ideas die when a research team "throws the idea over the wall" to the engineering team. John's natural inclination to teach proved to be the remedy for this potential pitfall. John worked closely with all engineers, mechanical, optical, electrical, and software, to make sure that knowledge was transferred along with the physical prototype. As part of this transfer of knowledge, John developed a basic color theory class that he taught an estimated 75 times to development and field service engineers, salespeople, customers, as well as employees of the parent company, Quad/Graphics.

John's believes in *edutainment*, which is the idea that effective teaching happens when technical information is embedded in a solid base of humor. For eight semesters, John taught a very popular Introductory Algebra class at University of Wisconsin, Milwaukee, helping hundreds of students overcome their math anxiety. His unique teaching style has made him a popular speaker at technical conferences, averaging five per year. The ISCC/AIC Munsell 2018 conference will be his sixth keynote.

In 2012, John started a consulting business under the name "John the Math Guy". As part of his outreach, he writes a blog which is described as "applied math and color science with a liberal sprinkling of goofy humor." The blog, often centered around color, has had over 100,000 views.

There are three openings on the Board of Directors and we have three candidates. Ballots for these Board of Directors candidates will go out to the voting membership at the beginning of December. Once

elected, the new Directors will begin serving their terms at the beginning of January, 2018.

Summary of September 2017 Webinar

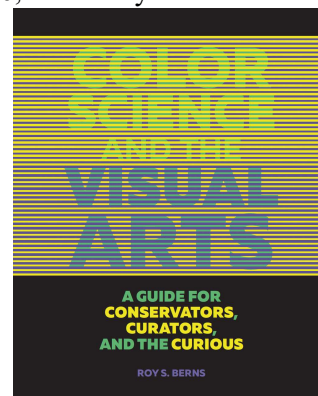
On September 27, Dr Anthony Stanton, Carnegie Mellon professor and ISCC Board Member, delivered our seventh webinar, entitled "Color in Digital Cinema." It was a great success, attracting attendees from academia and industry, as well as across the United States and Europe. Forty-two people heard the talk, and most stayed around for an extended question and answer time. Tony did a fantastic job, and it was clearly well appreciated by the audience. Thanks Tony!

January 2018 Webinar

Our first webinar of 2018 will be held on January 17th from 2 to 3 EST. This special webinar will be given by Professor Roy S. Berns from the Munsell Color Science Laboratory at the Rochester Institute of Technology.

Accompanying his mom to *plein air* (outdoor) painting classes when he was a little "Roy-boy" was the beginning of his interest in art. His first science exploration was the effect of lighting on the appearance of paintings and how this depended on the artist's palette. Today, he is a professor of Color Science at RIT and directs the Studio for Scientific Imaging and Archiving of Cultural Heritage with the Munsell Color Science Laboratory. The studio's current research focus is multi-spectral and multi-light photography for archiving two-dimensional works of art. Dr. Berns has a B.S. and M.S. in Textile Science and a Ph.D. in Chemistry with a focus on color science. Learn more about the studio: <http://www.rit.edu/cos/colorscience/mellon/index.php>

The title of Roy's webinar is "Color Science and the Visual Arts". In 2016, the Getty Conservation Institute published Roy's book, *Color Science and the Visual Arts: A Guide for Conservators, Curators, and the Curious*. His goal was to show how color science can be used in the understanding, reproduction, and conservation of artwork. Roy's main communication



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January 2018 Webinar continued

tool was images of paintings and drawings. Sometimes the art itself communicated a concept. Other times, Roy used image processing to both explain



properties of our visual system and to simulate color changes caused by ageing, illumination, and photography and printing. This webinar will use images from the book as Roy explains color and spatial vision, and how artists “exploit” our visual system to aid in mapping the real world onto canvas and paper. Prior knowledge of painting, drawing, or color science is not required to attend this webinar.



AIC LISBOA 2018

colour & human comfort

Call for Papers

This is a Call for Papers for the AIC 2018 Interim Meeting to be held in Lisbon, Portugal hosted by the Portuguese Colour Association from September 25-29. The theme of the meeting is Colour and Human Comfort. The choice of this theme acknowledges the importance of colour in the processes that deal with human comfort. Wellbeing is a fundamental condition to be achieved in all lives, and colour plays a relevant role towards fulfillment, especially when one considers the clothes we wear, the house we live in, our workspace, the environment that surrounds us, the objects that we love, etc.

Authors are invited to address the theme through multidisciplinary, interdisciplinary, or intradisciplinary knowledge of colour, and are also encouraged to consider their own colour expertise to enhance

awareness of **Colour and Human Comfort**.

Submissions will be accepted in any of the following fields:

- Colour in the Built Environment
- Colorimetry
- Colour and Design
- Colour and Lighting
- Colour and Culture
- Colour and Health
- Colour and Physiology
- Colour & Psychology
- Digital Colour
- Colour and Landscape

Authors are required to name the most relevant field with respect to their submission content.

ISCC members are encouraged to submit abstracts. In order to participate, please submit an abstract with a minimum of 400 words and a maximum of 500 words and 5 keywords, to the submission website using the template which can be accessed from the meeting website at <http://www.aic2018.org/>

The abstract submission deadline is December 31, 2017. Selection and peer review of abstracts and papers will be conducted by a panel of international scientific committee members.



Call for Papers for 2018 SPE ANTEC Conference

The Society of Plastics Engineers Color Appearance Division (SPE/CAD) is holding the ANTEC 2018 Plastics Technology Conference in Orlando, Florida from May 7 – 10 at the Orange County Convention Center.

This is a Call for Papers for the conference. ISCC members are encouraged to submit by contacting Doreen.Becker@ampacet.com or AnnSmeltzer@clariant.com

Attention ISCC Members

2018 is fast approaching. You will receive your 2018 ISCC membership invoice very soon. Please be looking for it online in your email account!

Joint ISCC - AIC Special Event



The Munsell Centennial Symposium



Celebrating the Past | Envisioning the Future
June 11-15, 2018

Massachusetts College of Art and Design
(MassArt) | Boston, MA USA

The Munsell Centennial Symposium commemorates the 100-year anniversary of Munsell's death in June of 1918 and celebrates the past 100 years since the incorporation of the Munsell Color Company in Boston in February of 1918.

The excerpt below is from the foreword written by A.E.O. Munsell, the son of Albert H. Munsell, for *A Grammar of Color: A Practical Description of the Munsell Color System with Applications for its Use* by T.M. Cleland. The excerpt below illustrates the reasons we are scheduling this special event in 2018 and describes the "threefold purpose" of the founding of the Munsell Color Company. This "threefold purpose" inspired the theme of the event – **Munsell 2018: Bridging Science, Art and Industry.**

"By 1912 his (Munsell's) work began to attract world-wide attention. In the spring of 1914, he was invited to present his invention at the meetings of the scientific societies of England, France and Germany. Although he contracted a severe cold on the voyage across, he was unwilling to cancel any of his lectures. Enthusiastic audiences greeted him in London, Paris and Berlin, large groups of ardent questioners keeping him long over the scheduled time. This proved a heavy drain upon his already weakened constitution. In spite of his retirement from active work upon his return to this country, his health steadily declined until his death, June 28, 1918."

"In February, 1918, a company bearing his name was incorporated with the threefold purpose of carrying on the scientific work which he had so ably begun, of furthering the introduction of his system into schools and colleges, and of taking the first steps in its application to the varied problems of the business world."

This special five-day conference to honor the legacy of Albert H. Munsell includes a core program of three days of general session talks by invited speakers presented in the large Tower Auditorium and two days of supplemental breakout sessions which will take place in the new classrooms of the Media Arts Center at MassArt.

Three Days of General Session Talks by Invited Speakers on Monday, Wednesday and Thursday

Each day of the General Session program will feature presentations on Munsell's history, evolution and state-of-the art topics from each side of the ISCC triangle. Monday's general sessions will focus on Science, Wednesday on Art and Thursday on Industry.

During the general session days, the attendees will be together in the auditorium during the morning for three thirty-minute talks followed by Q&A and discussion time. Following a self-serve, pay-as-you-go lunch in the MassArt Dining Hall, attendees will move to the central Atrium for talks with the presenters of contributed poster papers and then gather back together for three thirty-minute afternoon presentations in the auditorium. All General Session talks and the morning and afternoon coffee breaks are included in the basic registration fee.

For more details on the General Sessions, go to <https://munsell2018.org/program/>

Two Days of Breakout Sessions on Tuesday and Friday

All day Tuesday and on Friday morning the conference will feature breakout sessions that are designed to bring together small groups of attendees across disciplines to explore a specific topic in depth.

During the two days of breakout sessions, attendees will be able to pick and choose from a variety of tutorials, workshops, and field trips led by an outstanding group of invited presenters from around the world.

Breakout session consisting of workshops, tutorials and field trips fees are optional add-ons to the basic registration fee.

Three-Hour Workshops – Hands-on, interactive sessions:

- Introduction to the Munsell Color System with Paul Centore (United States)
- Dimensions of Color for Artists with David Briggs (Australia)
- Color Image Scale with Setsuko Horiguchi (Japan)

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ISCC/AIC Munsell Centennial Symposium continued

- Introduction to the Natural Color System with Berit Bergström (Sweden)
- Creating a Color Forecast with Leslie Harrington (United States)
- Albers' Exercises: Color is Magic with Lois Swirnoff (United States)
- Seeing Color with Paul Green-Armytage (Australia)

Ninety Minute Tutorials – Lecture plus discussion sessions

- Color Appearance, Color Order and Other Color Systems with Mark Fairchild (United States)
- An Approach to Teaching Color with Roy Osborne (United Kingdom)
- Color Naming Within and Across Languages with Dimitris Mylonas (United Kingdom)
- MassArt's Munsell Treasures with Greg Wallace (United States)
- Unwinding the Bewildering Panoply of Color Measurement Devices with John Seymour (United States)
- Archiving Your Own Artwork Photographically with Roy Berns (United States)
- Munsell Color Mixing with Graydon Parrish (United States)

Field Trips – Half-Day off-campus visits

- Harvard University – Collection of Historical Scientific Instruments
- Harvard University - The Straus Center for Conservation and Technical Studies
- MIT Museum – The Beautiful Brain: Drawings of Santiago Ramon y Cajal
- MIT Media Lab – Exhibits in the Gallery
- Boston Museum of Fine Arts
- Boston Isabella Stewart Gardner Museum

There's More!**Special Events – Additional cost.**

- Awards Banquet with Keynote John (The Math Guy) Seymour – Tuesday Night.
- Evening Excursion – Thursday Evening.
- Weekend Workshop with Graydon Parrish

Supplemental Events – Included in the basic registration fee.

- Evening Reception for Exhibit in Doran Gallery - Sunday, 6:30 – 8 :00.

- Panel Discussion: Color Education in the 21st Century - Tuesday, 12:30 – 1:30.
- ISCC Annual Meeting and Brown Bag Lunch - Friday, 12:30 – 1:30.

AIC Study Group Meetings and Colloquiums – Friday Afternoon

- Study Group on Environmental Color Design - Chair, Verena M. Schindler (Switzerland) and Yulia Griber (Russia)
- Study Group on the Language of Color - Chair, Dimitris Mylonas (United Kingdom)
- Study Group on Color Education – Chair, Robert Hirschler (Hungary and Brazil)

Early Registration Starts December 1st!

Early registration will start on December 1, 2017 and end on March 1, 2018. The advantages of early registration are a reduced cost for the basic registration fee plus guaranteed first choices in the breakout sessions. Also, early registrants will have a better chance of getting their first choice of rooms in the MassArt Treehouse Residence Hall.

The most up-to-date information on the Munsell Centennial Symposium can always be found on the website at www.munsell2018.org

We look forward to seeing you in Boston in June!

Munsell Organizing Committee**3 AIC Study Groups and their Plans for Munsell 2018**

Three AIC Study Groups (SG) will be meeting on Friday, June 15 during the Munsell 2018 Centennial Celebration.

The AIC Study Group on Environmental Colour Design is co-chaired by Verena M. Schindler (left) from Switzerland and Yulia



Griber (right) from Russia. It plays a key role in disseminating various approaches of professionals from different geographical and cultural regions. Focused around a specific interest in colour as a
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AIC Study Group Meetings Munsell 2018 continued

means of environmental design in interior and exterior space, the scope of research and study is broad and encompasses colour in the built and socio-cultural environments as well as the investigation of the effects of colour upon human emotion, cognition, and behaviour.

At present the SG ECD includes 210 members from 40 countries and the ECD mailing list has around 600 subscribers. The means of exchange include annual meetings at AIC congresses, a website (www.aic-colour.org/sgroups.htm), and publications as well as collaborations with other groups and organizations to stimulate research related to the members' key interests. An SG ECD report is published in the AIC Annual Report (Newsletter). During the last meeting at AIC 2017 Congress in Jeju, Korea, the discussion addressed the question: How do we define ECD today with respect to colour, sustainability and wellbeing?

Munsell and Environmental Colour Design

At the Munsell Centennial Celebration, the SG ECD colloquium will focus on Munsell, environmental colour, and the language of fractals and patterns.

Benoit B. Mandelbrot introduced the concept of 'fractal' in his French book *Les Objets Fractals: Forme, Hasard et Dimension* (1975). Fractals are a way to understand complexity, not just in shapes, but in systems as well. The concept of fractal is especially helpful in allowing order to be perceived in apparent disorder. It suggests that variation and fluctuation on all scales are important, and related to each other. It allows the discovery of patterns and rules in the seemingly absolute chaos. Environmental colour is no exception: complex and irregular, it is fractal in nature. The fractal approach treats particular elements of urban composition at different scales as integral parts of a whole sharing a common idea.

Extending the premise outlined in Christopher Alexander's book, *A Pattern Language: Towns, Buildings, Construction* (1977), the SG ECD colloquium will also explore environmental colour as patterns that form a language. It will look back at how the language of environmental colour design has unfolded since its inception in the 1940s. Originally the concept of 'environmental colour design' encompassed processes of human interaction with surrounding natural factors (e.g., geographical, solar, climatic). More recently, the term implies ecological and sustainable design efforts. Environmental colour design is now playing a key role in creating the in-

tended atmosphere in indoor and outdoor spaces. The aim is to improve a sense of well-being and comfort through the construction of aesthetically appealing and environmentally friendly urban and residential facilities and public infrastructures.

Over time, the goals, instrumentation and focus of colour research have changed to address the needs of contemporary environmental colour design. The SG ECD colloquium will show how the Munsell system influenced and supported the development of environmental color research. Examples of research employing the Munsell system will trace its impact over time while illustrating and discussing the ideas of fractals and patterns in environmental colour changes on all scales of urban space.

The Co-Chairs have prepared a brief anonymous survey about the use of the Munsell Color Order System in the context of ECD and your answers will be greatly appreciated. The link to the survey is: <https://goo.gl/forms/b73I9nnpfxkLRF4i2>

After the Munsell 2018 colloquium, the next meeting of the study group will take place at the AIC Interim Meeting, 25-29 September 2018, Lisbon, Portugal.

The AIC Study Group on Language of Colour is chaired by Dimitris Mylonas.

The purpose of this AIC Study Group on the Language of Colour (SGLC) is to discuss and share information on studies on (psycho)linguistics, semantics and semiotics of colour names and

relation of these to cognitive (neuro)science of colour perception. Key topics are colour cognition, colour naming, categorisation, colour memory, colour semantics and semiotics and cross-cultural differences.

The SGLC was formed in 2010 and it has currently 157 registered members from 45 countries. SGLC has its own website where news and resources are shared on the current developments of the language of colour-related areas of research and practices (available at: <http://www.language-of-color.aic-color.org/>). Their social networking platforms in Twitter (@aic_lc) and Facebook (@languageofcolour) have 440 and 814 follows respectively. You can also read about the activity of

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AIC Study Group Meetings Munsell 2018 continued

their members in the AIC Annual Reports (available at: <http://www.aic-color.org/news.htm>). Their last meeting was held at the AIC 2017 Congress, Jeju Island, S. Korea.

Naming Colours Across Cultures

At the Munsell 2018 meeting of the SGLC, there will be a discussion about their previous activities, current status and future directions, with an emphasis on cross-cultural collaborative projects between their members. Attendees will also be given an opportunity to talk about their own research interests related to the language of colour and join their international network of researchers and practitioners. Everyone is invited to contact SGLC with any questions concerning the group's activities. The meeting in Boston should last no more than one hour. All are welcome - the more the merrier!

The next SGLC meeting will take place at the AIC Interim Meeting, 25-29 September 2018, Lisbon, Portugal.

The AIC Study Group on Colour Education is chaired by Robert Hirschler.

The AIC Study Group on Colour Education (SGCE) is a large group of people (around 180) communicating through a mailing list. The SGCE members regularly receive information on forthcoming events and reports of past events

related to any aspect of colour education. Members may also share their experiences through a page of the Annual Report of the AIC, dedicated to the SGCE (available at: <http://www.aic-color.org/news.htm>). The SGCE meets at AIC Congresses, and sometimes at special midterm or interim meetings, or special events (such as Munsell 2018).

At the last meeting, during the AIC 2017 Congress in Jeju, the following topics were discussed among the 20 participants:

- Information on the new edition of the Master in Colour Design & Technology (Politecnico di Milano)
- Colour Physics for artists, designers and architects
- International survey on courses of higher education

How Much Science is Not Too Much

At the Munsell 2018 meeting of the group, the topic: *How much colour science is not too*

much shall be discussed in detail. This will be based on a poster presentation (with the same title), submitted to the meeting, in which an architect, an artist (painter), a designer and an engineer express their points. After the introductory presentation by SG Chair, Robert Hirschler, there will be some additional presentations by SG members, followed by discussion on the topic. The meeting is scheduled to last 90 minutes. All are welcome.

The next SGCE meeting will take place at the AIC Interim Meeting, 25-29 September 2018, Lisbon, Portugal.

In Memory of Calvin S. McCamy

We have lost a dear friend. Calvin Samuel McCamy departed this life at age 93 on November 12, 2017 in Frederick, MD. Most of us knew him as Cal. Cal was born on September 22, 1924 in St. Joseph, MO. He was a veteran of the U.S. Navy and served in Panama during WWII. In 1952, he joined the National Institute of Standards and Technology; from 1958 to 1970 he was Chief of the Photographic Technology Section. In 1970, he and his wife Mabel



and his wife Mabel

moved to Wappingers Falls, NY. He was employed by the Macbeth Corporation where he served as Director of Research (1970-72) and Vice President for Science and Technology (1972-89). After his retirement, he was a Consultant to Color Science (1990-2003). In 2005, he and his wife moved to Edgewater, MD to be near family. Following the death of Mabel, Cal moved to Sunrise Assisted Living in Frederick, MD in 2016, where he resided until his death. Cal is survived by three children, five grandchildren and seven great-grandchildren.

Cal's son, Carter, touched me in a special way when he said, "his color was good when he passed, something I thought was a beautiful reminder of his life in color."

In the next issue of *ISCC News*, I would like to have a special article written as a tribute to Cal's life as we knew him throughout his ISCC years. If you have any thoughts you would like to add to this tribute, please send them to me at geinhaus@frontiernet.net so that they can be included.

Paula J. Alessi, *ISCC News Editor*

A Blast from the Past: ISCC Newsletter 50 Years Ago

Number 190 – September - October 1967 on ISCC website – New Insights

I am continuing with September – October Issue #190 from the 1967 series because there are still some fascinating subjects that I would like to share with our membership. First is a discussion of the Frank C. Wright Exhibition held at the Copley Society of Boston in early 1967. It featured his oil and polymer paintings of “New England and New York landscapes, birds in flight, still lifes, figures and marines”. Below is one of his paintings that was probably shown:



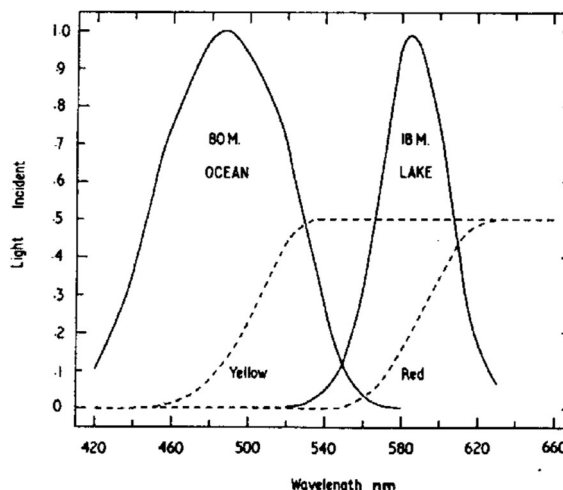
http://marthasvineyardartassociation.org/?page_id=629

If you are an artist, please enjoy reading about the ‘Rules of Three’ that Frank C. Wright uses when he teaches painting: three primaries, three binaries, three ways to neutralize, three basic harmonies, and three tones.

Next is a very interesting article called “The Hidden Dyestuff Factor”. This discusses a damask wallcovering used in a room of the White House (sadly it does not say which room) that suffered from a color change from a rose to a blue tint as it faded. Spectrophotometric analysis revealed that the damask was dyed with a two-tone dyestuff the principal component being rose-colored and the undertone having a small component of blue that was more fade resistant. The article goes on to describe how a new two-tone dye was found with both components having equal fade resistance. I tried unsuccessfully to find a picture of this damask to demonstrate the phenomenon.

If any of you have gone scuba diving and observed the colorful fish at the deeper water levels, you will appreciate the article from *Journal of the Colour Group* Number 9 March 1967 on “Color Under Water”. Dr. J. N. Lythgoe from the Vision Research Unit at the Institute discussed color conspicuity of fish. He noted that in ocean blue water,

yellow fish parts show greater color contrast against the water surroundings, whereas red fish parts show greatest color contrast in fresh water. The figure below shows that colored fish with a sharp spectral reflectance change close to the peak wavelength of maximum daylight penetration can allow higher color contrast compared to the background deep water illumination.



“Typical spectral energy curves for clear oceanic water (Jerlov type III) and water stained with the yellow products of vegetable decay (Jerlov type IX). The depths chosen are those where there remains just sufficient light for colour vision. For comparison are shown idealised spectral reflectance curves for red and yellow objects.”

Thus, in the Mediterranean Sea the yellow tails of Painted Comber and the yellow and blue bodies of young Damsel Fish are very conspicuous at depths



<http://happybubbles.com/en/photo-gallery/>



http://www.liveaquaria.com/images/categories/thumbs/th79944A_zureDamselFish.jpg

below 10 meters. In fresh water, the red fins of Rudd fish and Perch fish have the greatest color conspicuity. Please go to the article in ISCC News #190 to read more about the color characteristics of these underwater fish!

continued on next page

A Blast from the Past continued

http://glin.net/envt/flora-fauna/invasive/images/rudd_lg.jpg



<http://fishesofaustralia.net.au/images/image/PercaFluviatilisGSchmida.jpg>

If you would like any more details on these and other 1967 articles from ISCC News Issue #190, please go to:

<https://iscc22.wildapricot.org/Newsletter>

Paula J. Alessi, *ISCC News Editor*

13th AIC Congress
2017 JEJU
 Color & Health

**AIC 2017 Congress and
 50th Anniversary Celebration!**

This AIC 13th Congress was held in Jeju Island, South Korea from October 15-20, 2017. It was hosted by the Korean Society of Color Studies. About 420 people attended this Congress. Many of them were from Asian countries.

ISCC participated in the "Color and Culture Exhibit" that was part of the AIC 50th Anniversary celebration.

Many thanks to Ellen Carter and Renzo Shamey for setting up the exhibition booth. Please enjoy this picture of it courtesy of Renzo:



Dr. M. Ronnier Luo was the 2017 recipient of the coveted AIC Judd Award. Many thanks to Renzo Shamey for this photograph of Dr. Luo in front of the ISCC exhibit.



continued on page 18

refractions

seemingly random musings on color



Gray Matters How Gray Changes How We Think



Munsell neutral value scale
(image source: <http://pamalyne.com>)

Gray is not a popular color. For many, it is considered drab, boring, non-committal and 'safe' - the essence of conformity. On average only 1% of people surveyed select gray as their favorite color¹. But if we look a little closer, we will see that it is a rich, complex color that forms not only the basis of our perception of the physical world, but it can also affect *how* we think. Like an *Éminence grise* (gray eminence - a powerful authority operating 'behind the scenes') the color gray has been psychologically proven to quietly influence how we interpret and understand people, places and events.

In the human visual system, the retina communicates with the brain by means of three different channels: one achromatic signal (black-white), and two chromatic signals (red-green and yellow-blue)². The achromatic channel provides information about variations of perceived *lightness* in the visual environment. This helps us to determine the volume, shape and surface qualities of objects, as well as providing information about spatial relationships, light direction and intensity. As such, it is probably *the* most important and fundamental component of vision, one found in all vertebrates, regardless of their differing color vision capabilities. In the visual arts, the perception of lightness is referred to as *value* or *tone*, and is the key element to realistic and three-dimensional imagery. A common practice in western painting, from the Renaissance until the late 19th century was to begin a painting with a completely tonal image, known as *grisaille* (from the French: *gris*, 'gray'), after which successive layers of transparent colors (glazes) were added to complete the image.



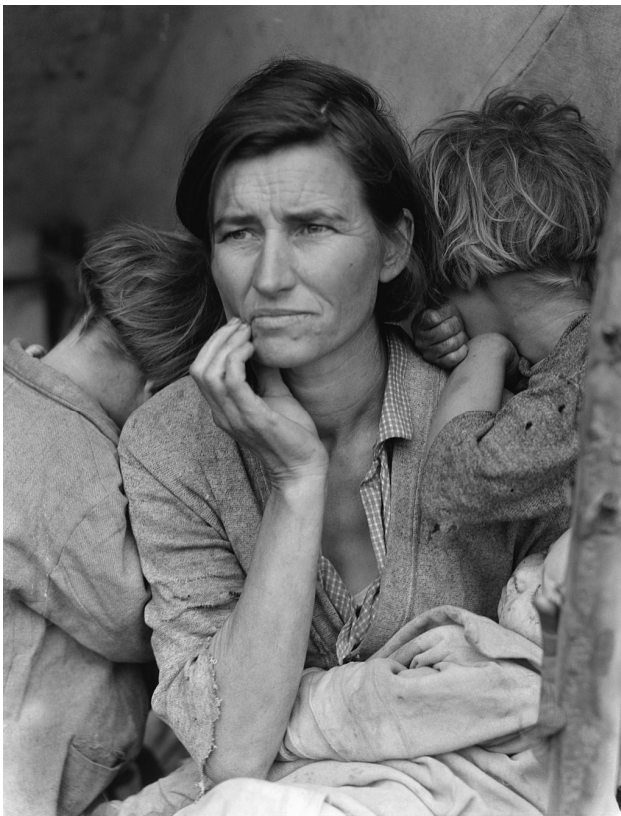
Stages of an oil painting from grisaille (left) to glazing with color (center and right). Louis Smith at <http://www.louissmithart.com>

Because of the importance of the initial tonal structure of the image, not only to indicate form and volume, but also to establish the overall compositional design, or *drawing* as these were collectively known, an aesthetic philosophy and preference for tone over color developed that sparked a centuries long debate. This rivalry between *disegno* and *colore*, or drawing and color, dominated artistic theory and practice from the Renaissance to the late 19th century. In *disegno*, tone was primary, and color secondary, as it was applied after all the hard work and decisions were made (composition and form). In *colore*, color was primary and could do all the tonal and compositional heavy lifting directly, without the need of a separate tonal layer. The powerful Art Academies of Europe, the official arbiters of taste and culture, sided with *disegno*, with their focus on drawing, perspective and anatomy. The Academies considered art to be an intellectual pursuit, based on rationality, and as such embraced classicism with its emphasis on the ideal rather than the actual, the timeless rather than the transient. Value - which revealed the underlying form or substance, became the basis of their technique. *Colore*, concerned as it was with color, was considered too emotional and sensual, focused too much on the surface and secondary qualities of an image. In fact, color (and painting) was not even taught in the Academies - that was often left to the individual art 'ateliers' (studios), whose teachers were often members of the Academy. The rationalistic/classical emphasis on the essential and the abstract, as well as the disdain for the incidental and particular, finds a similar corollary in photographers who favor black and white (gray-scale) images over color. Many well-known photo-

continued on next page

Refractions: Gray Matters continued

graphers from Ansel Adams and Henri Cartier-Bresson to Richard Avedon and Sally Mann, chose to work almost exclusively in black and white. For many, black and white photography captures the 'essence' of an image and stimulate the imagination of the viewer (to fill in the missing information). Color on the other hand, is seen to be a distraction - focusing more on the surface and the immediate impression. As the famous American photographer Eliot Erwitt once said, "Color is descriptive, black and white is interpretive". This emphasis on the abstract and essential, turns out not to be as arbitrary as it may seem.



Migrant Mother. Dorothea Lange. (1936)

Social psychologists have empirically demonstrated that tonal images, because of their 'psychological distance' from perceived reality (the *real* world of color), evoke what are known as *higher-level construals* in people³. Construals (from the verb to construe) are the ways in which we interpret and understand the world. In psychology, these are divided into higher and lower levels. Higher-level construals are psychologically more distant to us in many ways (temporal, spatial, social etc.) and therefore evoke a more distanced, 'bigger-picture' style of thinking that favors abstraction and broader, more general categories. Lower level construals on the

other hand evoke a style of thinking that is more concrete, descriptive and detail oriented. Consider Dorothea Lange's iconic image of a migrant mother: worried, hungry and desperate, but the pillar of support for her children.

Through the underlying forms of our visual world, captured in the grisaille of painters and the images of photographers, to the construals of psychology – the power of gray to shape our thought is anything but boring.

References

1. Heller, E. (2009). *Psychologie de la couleur - Effets et symboliques*. Editions Pyramyd. Paris.
2. Hunt, R.W.G, (1996). Why is Black-and-White so Important in Color? *Proceedings of the Fourth Color Imaging Conference: Color Science, Systems, and Applications*, IS&T/SID, Scottsdale, AZ
3. Lee, H., Deng, X., Unnava, H., & Fujita, K. (2014). Monochrome Forests and Colorful Trees: The Effect of Black-and-White versus Color Imagery on Construal Level. *Journal of Consumer Research*, 41(4), 1015-1032. doi:10.1086/678392

Carl Jennings

University of Hawai'i

Please visit Carl's blog at

<http://cjenning.wix.com/refractions> for comments and feedback on his articles!

GE Hardy Spectrophotometer Needs a New Home

Don Andrade, formerly of DSA Consulting, has a GE Hardy Spectrophotometer that needs a new home. It comes equipped with two sets of filters and tile standards that were measured by Henry Hemmendinger. The Hardy is about 43 years old, but it is still operational and in good working order. It also comes with an interface to a computer. It can be yours! All you have to do is cover the cost of moving and shipping it to your doorstep. If you are interested in becoming the new owner of this GE Hardy spectrophotometer, please contact:

Don Andrade

5555 Suwanee Rd.

Fairway, Kansas 66205

Tel: 913-262-9384

Email: oboodsa@aol.com

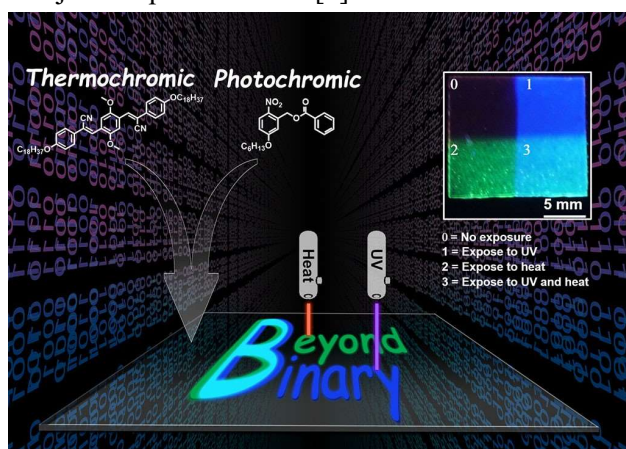
If a home cannot be found for this color-measuring instrument, it will be discarded, which would be a shame.

HUE ANGLES

(Send contributions to mbrill@datacolor.com and see <http://hueangles.blogspot.com>)

The Medium Shrinks the Message: New 4-Color Optical Data Storage

Last weekend I had a second encounter with a popular blurb about a new optical-data-storage technology originating at Case Western Reserve University (my *alma mater*). A polymer chemist, Emily Pentzer (and co-authors), discovered a way to combine a thermochromic and a photochromic chemical in a polymer film to make four possible colors depending on the stimulation. You can see the essence of the invention in the figure below [1]. The referenced-journal publication is [2].



Graphical summary of the new CWRU technology (copied from the website in Ref. 1)

The promise of the invention is to enable a two-fold shrinkage of data storage because you can extract two bits of information (four colors) where previous technologies had enabled only one bit (0 or 1) per storage location. The medium could be said to shrink the message.

The blurb's description is a bit cryptic relative to the above goal, so I began a line of investigation that began with pure imagination and ended with obtaining the paper and discussing the matter with its main author.

From [1], I learned that the invention involves a polymer layer that contains two kinds of small molecules in low concentration. Call the two additives P (photochromic, actually *o*-nitrobenzyl ester of benzoic acid) and T (thermochromic, actually cyano-substituted oligo (*p*-phenylene vinylene)). When a layer containing P and T (which is tough enough to resist even abrasion by sandpaper) is exposed to no light, it is colorless (black). When that layer is exposed to UV, it fluoresces ultramarine. When the layer is exposed to heat (perhaps via IR), it fluoresces green. Finally, when the layer is exposed to

both heat and UV, it fluoresces cyan. The colors appear in the figure shown in the left column.

To me the text doesn't describe an encoding system (to which information can be deposited and then retrieved at leisure). I imagined the following variation of the technology for writing and subsequent reading. Suppose the stimulation is always a mixture of heat and UV. If the layer contains neither T nor P, the color is black; if it contains T but not P, the color is green; if it contains P but not T, the color is blue; and if it contains both P and T, the color is light blue. In this explanation, the information is contained in whether P or T (or both or neither) is applied to the information-storage site. The stimulating radiation at the moment of retrieval is always the same, because we have no way of knowing in advance which information-laden color will be retrieved.

My departure from [1] was a bad guess, and in retrospect pasting together all those little P and T fragments would be very expensive. I was led to the original paper [2], whose abstract clarifies the mechanism for the write and read algorithms for numbers (0) to (3): "The as-prepared film is non-fluorescent (0), and can be written through a wooden or metal mask with thermal treatment (1), light treatment (2), or both (3), giving three different colours of fluorescence under UV irradiation."

This explanation still left me wondering how UV can write on the mixture of polymers and yet stops perturbing the medium during the reading process. When you are "reading" the written medium with a UV beam, how do you ensure you don't change symbol (1) into symbol (3) and symbol (0) into symbol (2)? In other words, how do you arrange for the medium to be write-once, read-many-times? Accordingly, I conducted a brief e-mail interview with Dr. Pentzer. Here was the essence of it:

Hue Angles: "Am I correct in assuming that the light treatment is UV, and that UV spectrum peaks at 365 nm?"

Pentzer: "Yes, we use a typical hand-held UV lamp like that used to visualize TLC plates."

continued on next page

Hue Angles continued

Hue Angles: “Is the thermal treatment done with a beam of IR radiation, or do you deliver localized heat with another technology?”

Pentzer: “We actually use a little heat pen. We are currently trying to start a collaboration with engineers/other scientists who can use an IR beam. We want to combine engineering approaches with our chemistry.”

Hue Angles: “When you are reading the written medium with a UV beam, how do you ensure you don’t change symbol (1) into symbol (3) and symbol (0) into symbol (2)?”

Pentzer: “It really depends on the strength of the UV source. With a hand-held lamp, we can read about 20 minutes before we start to have issues with visibility. So, if we pattern with a strong UV light source, we can read with a handheld lamp---no problem. We also have to ensure we don’t expose the patterned films to sunlight for too long...so, it’s really a game of reading it only when you need to.”

I’m sure we’ll hear more about this new technology as it develops. With all my speculations gone, the medium will shrink the message still further.

References:

- [1]. CWRU researchers find a chemical solution shrinks digital data storage, <http://thedaily.case.edu/cwru-researchers-find-chemical-solution-shrinks-digital-data-storage/> . July 5, 2017.
- [2] P. Wei, B. Li, A. de Leon, and E. Pentzer, Beyond binary: optical data storage with 0, 1, 2, and 3 in polymer films. *J. Mater. Chem. C*, 2017, **5**, 5780-5786. <http://pubs.rsc.org/en/content/articlelanding/2017/tc/c7tc00929a#!divAbstract>

Michael H. Brill, *Datacolor*

**IN THIS ISSUE, December 2017**

We open this issue with the introduction of the new color appearance model developed by Changjun

Li, Zhiqiang, Li, Zhifeng Wang, Yang Xu, M. Ronnier Luo, Guihua Cui, Manuel Melgosa Latorre, Michael H. Brill, and Michael R. Pointer. In the article, “Comprehensive colour solutions: CAM16, CAT16 and CAM16-UCS,” they present not only the color appearance model, but also a color appearance transform, and the associated uniform chromaticity space. This model was developed to repair many of the mathematical shortcomings of CIECAM02, but it also simplifies the calculations.

For our next article we move to the field of color vision. It is commonly known that we do not all see colors the same as those people around us. Numerous color vision screening tests have been developed and used for evaluation both in industry, research, and medicine. However, a number of factors can influence the outcome of these tests. One of the main issues, which can affect people of different ages, is straylight. The straylight can be the result of glare, aging, or pathologies of the eye. Margarita B Zlatkova, Elizabeth Robinson, and Raymond O. Beirne studied and compared the performance of three commonly used color vision tests as a function of the amount of intraocular straylight induced in young healthy individuals. They report their findings in our next article, Performance of the “Ishihara, D-15, and City University Colour Vision Test as a function of intraocular straylight.”

Thermochromism is the topic of our next article. By the 1980s, color researchers were aware that the spectral reading of the ceramic tiles that were used for color calibration varied by the temperature of the tile while it was being measured. Jiangning Che and Muditha Senanayake wondered whether this reversible change in color happened in other materials also. In “A statistical analysis for correlation approach to compensate the measured CIELAB colorimetric data for temperature alterations,” they report on thermochromism in textile, ceramic, plastic, paint and ink samples. Their statistical data confirmed that, for some colors studied, CIELAB colorimetric coordinates had a strong correlation to the temperature of a colored object.

Our next two articles deal with the use of icons in images. With the advent of smart phones and other small display computer devices, icons have had increasing importance as a shorthand method of communication of emotions and information when using electronic devices with small displays. First, Tsuei-Ju (Tracy) Hsieh discusses “The multiple roles of color information in the perception of icon-type images.” In her studies, Dr. Hsieh examined the influences of color for the different perceptual level of
continued on next page

CR&A In This Issue, December 2017 continued

icons by a sorting of various icons experiment; another experiment on the relationship between the known color properties of icons (e.g. hue, saturation, and brightness) and their functional meaning, effectiveness in conveying meaning, and visual attractiveness; and a third to determine if color affect the speed and accuracy of icon recognition.

Our second article about the use of icons was written by Zhiming Wu, Tao Lin, Hongyan Xu, and Ningjiu Tang. They are interested in the art of developing icons as personal agents. They noted the increasing use of virtual agents in systems such as interactive story systems, computer games, social user interfaces, and educational virtual worlds. To aid designers and respond to the challenges of designing this type of specific icon, they developed two tools: a multi-color personality index model to predict the color-personality associations of the icons and simple color-attention index to evaluate the effects of color on attention. In their article, "Predicting personality associations evoked by multi-colored appearance of virtual agents," they report on the validation and testing of these two tools.

Moving from icons to real people, we have two articles dealing with skin color. The International Commission on Illumination (CIE) established the Technical Committee: TC 1.92 Skin Colour Database, asking the committee: 1) to investigate the uncertainty in skin color measurement, 2) to recommend protocols for good measurement practice, and 3) to evaluate skin color measurements covering different skin types, genders, ages and body locations. "Spectrophotometric measurement of human skin colour" takes major steps toward these CIE TC 1.92 goals. The authors, Yuzhao Wang, M. Ronnier Luo, Mengmeng Wang, Kaida Xiao, and Michael R. Pointer, report on measurements taken with three different color measuring instruments (a tele-spectroradiometer, a $d_e:8^\circ$ and a $45^\circ:0^\circ$ spectrophotometer) of 47 subjects (Chinese, Caucasian, South-Asian and Dark) in eight locations for each subject. The instruments showed similar qualitative results and the colorimetric data calculated from the spectral measurements revealed similar patterns to describe the color distribution of each skin group. Two scales: whiteness-depth, and blackness-vividness described these distributions. However, there were systematic differences between the four ethnic groups, and also between eight body locations, as well as between genders, and between the measurements from the three instruments.

The second article on skin color looks at a spe-

cific industrial application, cosmetic colors and their fashion trends. In "An intelligent skin color captured method based on fuzzy C-means with applications," Shih-Wen Hsiao, Chih-Huang Yen, and Chu-Hsuan Lee describe a systematic method for female facial skin-color classification and an application in the makeup market using facial recognition, then fuzzy C-means theory to collect, then cluster and group the data. It is expected that this method can be used to assist an expert system in the selection of customized colours during makeup and new-product development.

In recent years we have had many articles exploring color harmony. However, there have been far fewer exploring harmony of other appearance aspects than color. In "Physical indices for judging appearance harmony of materials" Midori Tanaka and Takahiko Horiuchi explore the harmony of material with respect to texture and reflectance. They found that texture was more effective in judging the appearance harmony of static material pairs and the reflectance was more effective in the case of the tilted material pairs.

Continuing to look at materials, we next examine stone. Victor Vicente-Palacios, Adolfo Carlos Iñigo, and Jacinta Garcia-Talegon describe a new methodology to predict the effect of aging on white stone used in restoration of a cathedral and other buildings. The white stone darkens, and develops yellowing and reddening as it ages. In "Multivariate Gaussian Subspatial Regression (MGSR) applied to predict the effect of phosphate crystallization aging on the color in silicious conglomerates," the authors discern the interactions between the chromatic coordinates (L^* , a^* , b^*) at unknown cycles for a natural siliceous white conglomerate for two different treatments by analyzing the results of 25 cycles of accelerated aging and compare the results to the changes over time of the materials on the buildings to build a predictive model.

In the next few articles, we look at the materials used in earlier time to produce art work and the recreating artistic features in buildings of cities that have lasted centuries. First, let us talk about the Marcadé Collection. Housed in the Bordeaux Cathedral treasury, this collection consists, among other objects, of illuminations (14th to the 16th century) from 5 origins (France, Italy, Germany, the Netherlands, and Spain). For better knowledge of these miniatures, the pigments and dyes have been analyzed in ten illuminations chosen in order to represent the diversity of the collection. In "Pigments and dyes in a collection of medieval illuminations (14th –

continued on next page

CR&A In This Issue, December 2017 continued

16th century),” Aurelie Mounier and Floréal Daniel present a panorama of the pigments used, describe techniques found through the study of a set of manuscripts, and discuss the analytical techniques used to confirm the findings of their research.

Next Anna M. Gueli, Stefania Pasquale, and Sebastiano O. Troja take on a different project, the “Influence of vehicle on historical pigments colour.” When we look at paintings, we probably are influenced most by the visual content and the colors incorporated in them. However, there is more to the paint an artist uses. Primarily the pigment is mixed into some type of transparent, colorless solvent, called the vehicle, to contain the pigment particles and promote adherence to the surface of the artwork. Historically, artists used many variations of vehicles, including such materials as egg white, linseed oil, poppy oil, casein, or other liquids as the vehicle for their paint. Over centuries it was found that the vehicles did not remain as clear, and transparent as the artist expected, or hoped. In their study, the authors evaluated the influence of the most used historical vehicles in the color perception of artist’s hues. In restoration work on old paintings, this issue is an important consideration for diagnosis of pigments used and proper care of the artwork.

Our next article describes the award-winning project of using the color dynamic planning method, based on the Coloroid system, to propose suitable colors for rendition of façades of the buildings in the Castle district of the historic city of Buda. In “The essential characteristics of Buda City, built on a hill,” Antal Nemcsics and Jenő Takács lead the reader through the steps of developing the color plan of the Castle district.

Our final article of this issue is an examination of design education. Where does color fit into the education program for architectural and design practice? Sibel Ertez Ural, Saadet Akbay Yenigül, Burçak Altay studied the “Progression of color decision making in introductory design education. The study followed nearly 100 students through their introductory design courses with periodic questionnaires about the analysis of their design projects. The responses to the questionnaires were then analyzed according to categories where they determined the reasoning behind the use of color in the design projects. Students progressed from using primarily experiential and preferential choice of color, to also including analytical components (formal and systematic) of color decision, even before color subjects were covered in the courses. Later thematic color

decisions became a major part of the students’ design considerations.

While this concludes the discussion of the articles in this issue, we cannot stop here. Also we have two book reviews: Margot Grallert reviews *Applying Color Theory to Digital Media and Visualization* by Theresa-Marie Rhyne, and Danny Rich reviews *Optics of Life* by Sönke Johnsen. Also, the CIE announces the publication of two new technical reports on the subjects of Optical Measurement of High-Power LEDs and High-Speed Testing Methods for LEDs.

Ellen Carter

Editor, Color Research and Application

AIC 2017 Congress continued

Here is another photo of all USA participants at the ISCC booth (courtesy of Jack Ladson) :



Left to right: Jack Ladson, Virginia Cartright, Esther Hagenlocher, Ellen Carter, Rob Carter, Yoshi Ohno, and Renzo Shamey

Verena Schindler sent the following photo from the “AIC Memory Photo Exhibit” that was also part of the AIC 50th Anniversary celebration:



Left to right: Jean Dubois, Paula Alessi, Danny Rich, Romesh Kumar, Robert Hirschler, Patrick Chong, Fred Billmeyer, Jr., and Patrick Chassign

Brilliant Memories of AIC for Last 50 Years



Photo Courtesy of JinSook Lee, Chair of AIC 2017 Jeju Congress: This photo was part of the “AIC 50th Anniversary Memory Photo Exhibit” It shows locations of all AIC meetings and Presidents over its 50 years of existence.

Calendar

2018

- Jan 24-25** ASTM E-12, Sheraton, New Orleans, LA, Info: <http://www.astm.org>
- Mar 6-8** Lux Pacifica, Tokai University, Tokyo, Japan, Info: www.ieij.or.jp/english/event/Lux-pacifica2018.html
- Apr 8-10** IES Research Symposium 2018, Crowne Plaza Atlanta Midtown, Atlanta, GA, Info: ies@ies.org
- Apr 28** CIE Division 1 Meeting (in conjunction with Smart Lighting), Info: www.cie.co.at
- May 7-10** SPE ANTEC 2018 Plastics Conference, Orange County Conference Center, Orlando, FL, Info: Doreen.Becker@ampacet.com or AnnSmeltzer@clariant.com
- May 15-16** ASTM E12 Meetings, NIST, Gaithersburg, MD, Info: www.astm.org
- Jun 11-15** Joint ISCC/AIC Munsell Centennial Celebration, MassArt, Boston, MA
- Jun 13-15** CIE Division 2 Meeting, Eindhoven, The Netherlands, info: www.cie.co.at
- Aug 9-11** IES Annual Meeting, Boston, MA, Info: ies@ies.org
- Aug 13-17** CIE Tutorial & Expert Workshop on Research Methods (2 days) + LumeNet Doctoral Workshop, Copenhagen, Denmark, Info: www.cie.co.at
- Sep 11-12** XIV Color Conference, Florence, Italy, Info: www.gruppodelcolore.it
- Sep 25-29** AIC Interim Meeting, Colour and Human Comfort, Portuguese Colour Association, Lisbon, Portugal, Info: <https://www.facebook.com/apcor.org>

2019

- Jun 17-22** CIE Quadrennial Meeting, Washington, D. C., Info: www.cie.co.at

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.avianttechnologies.com	603-526-2420
Datacolor	www.datacolor.com	609-895-7432
Hallmark	www.hallmark.com	816-274-5111
Hunter Associates Laboratory, Inc.	www.hunterlab.com	703-471-6870

We could still use your help!

ISCC has positions in the organization that need filling. We can help identify a place for you depending on your skills and desires. Contact Nomination Chair John Conant, jconant@aerodyne.com

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Editor: Paula J. Alessi

(585)225-4614 geinhaus@frontiernet.net

Editor Emeritus: Prof. Gultekin Celikiz

(215)836-5729 gcelikiz@yahoo.com

ISCC Member Bodies

At its foundation, the ISCC is composed of many related societies. These societies, our Member Bodies, help the ISCC maintain 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 Pigments 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 Colour Association Environmental Colour Design Study Group (AIC – ECD)
 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)