Inter-Society Color Council *News*

NUMBER 257 NOVEMBER-DECEMBER 1978

VIGNETTES FROM THE PRESIDENT'S DESK

A number of items have come to my attention which may be of interest and hence I want to share them with you.

1. You may be interested to know that the CIE has issued a publication titled "Recommendations on Uniform Color Spaces-Color Difference Equations-Psychometric Color Terms." This document is available from the Secretary of USNC, Dr. Jack Tech, at the National Bureau of Standards, Gaithersburg, Maryland.

Other items from the CIE of interest to ISCC members are three forthcoming CIE reports on:

a) "A Review of Publications on Properties and Reflection Values of Material Reflection Standards"

b) "Methods for Absolute Reflectance Measurement"

c) "Methods of Specifying the Performance of Radiometers (Photometers)"

d) "Evaluation of Methods for Predicting the Spectral Radiance Factors of Fluorescent Samples under Standard Illuminants . . . . . ."

From the minutes of the TAPPI Optical Methods Committee of October 18, 1978, it is noted that the committee plans to prepare a compilation of all TAPPI standards and useful methods relating to the optical properties of papers. It is nice to see that the communication between TAPPI and ISCC is flowing very well.

Two items of interest from the AIC are: 1) the formation of a study group on color education to collect information on the ways in which color is taught in different countries, including content, methodologies and demonstrations. It is intended to collect and assemble this information to be helpful to teachers of color. The chairman of this study group is Dr. J. Schanda.

2. Judd-AIC Award: The award for 1979 will be presented to Dr. G. Wyszecki during the midterm AIC Symposium in Tokyo in 1979. The 1981 award goes to Professor Dr. Ing M. Richter, the well known editor of Die Farbe and former head of the Colorimetry Department of BAM.

I take this opportunity to thank you all for your contributions in 1978 and to wish to all members and their families a prosperous and healthy year in 1979.

Franc Grum

NEWS OF SUBCOMMITTEES

Problem 37, Artist's Materials

Artists Equity Association, American Artists Professional League, manufacturers, and technical experts have begun a program to develop a new artists' paint standard, to gather further information on artists' paints and other materials, and to publish such information for the benefit of artists. The effort is receiving the cooperation and assistance of the National Bureau of Standards (NBS), the Inter-Society Color Council (ISCC), and the American Society for Testing and Materials (ASTM).

The NBS has solicited and received comments from interested companies and individuals on TS 205, the proposed new Voluntary Product Standard written by Henry W. Levison of Colorlab. C. W. Devereux, NBS Standards Coordinator, will appoint new members of the NBS Standing Committee on Artists' Paints representing producers, distributors, users and technical advisors; and then call a meeting to reach a consensus on what should be in a new artists' paint standard.

A provisional ASTM subcommittee, D-1.57, is being formed with Carl W. Fuller as ad hoc chairman to write the test methods necessary to meet the requirements determined by the NBS Standing Committee. These individual ASTM standards can be referenced where appropriate in the new NBS Artists' Paint Standard. In a meeting with Jack Bystrom, ASTM Staff Liaison, on September 29 at ASTM Headquarters representatives of Permanent Pigments, Inc., M. Grumbacher, Inc., F. Weber Co., Artists Equity and technical advisors Carl Foss, Henry Levison, Dr. Treva Pamer and Mary Virginia Orna agreed that the guidance of the ASTM staff and advice from other ASTM subcommittees already working on similar problems is vital to the NBS standard and to the broader scope of ISCC Problems Subcommittee 37, Artists' Materials.

ISCC Subcommittee 37 is working toward dissemination of information about artists' materials, including but not limited to paints, gathered from manufacturers and from testing when necessary. Information beyond that to be used in the NBS product standard will be needed. It is planned that test procedures will be worked out by ASTM Subcommittee D-1.57 and then ISCC Subcommittee 37 will conduct the tests and publish the results.

By working through these three organizations accurate information is assured while manufacturers are protected against charges of anti-trust violations and the artists groups sponsoring publication of the information will also receive protection from lawsuits.

All interested persons are urged to attend organizational and working meetings of provisional D-1.57 to be held during the D-1 meeting in Atlanta, January 22-25, 1979. For further information contact Carl W. Fuller, Cities Service Co., Mapico Iron Oxides Operations, 601 Cass St., Trenton, N.J. 08611; or Joy Turner Luke, Studio 231, Box 18, Route 1, Sperryville, Va. 22740.

SIDNEY M. NEWHALL DIES AT CAPE CORAL

Word has come from Cape Coral, Florida that Sidney M. Newhall, active member representing the American Psychological Association in the early ISCC years, died in his sleep at the Cape Coral Hospital on October 9th, 1978. He had been ill for only a short time. His age – 82 – was something that had seemed to weigh heavily on his spirits in recent years, particularly since his wife's death some years ago.

The last time many of us saw him was in Hollywood,

Florida, on September 30, 1970 when he attended one of the last meetings of the Optical Society's Committee on Uniform Color Spacing. Even at that time he appeared frail, and his interest was more that of an onlooker than a participant. Since then we had corresponded about the new set of OSA-UCS colors; he returned his set to me for use where I thought it might do the most good.

When I first knew him, Sidney was in the Psychology Department of Johns Hopkins. In the late 30's and early 40's he spent all the time he could on the work and reports of the OSA's subcommittee on the Spacing of the Munsell Color System, a committee of which he was chairman. He would come to Washington to work in our U.S.D.A. color laboratory with me at least one or two days a week. (Our lab was equipped with artificial daylighting under which we could work regardless of time of day, or kind of weather.) Together we worked over the statistics of the tables and diagrams published in his 1940 preliminary report of the committee. Even more work was involved in preparation of the final report published in 1943, adopted by Munsell as its own standard and now known throughout the world as the standard basis for the Munsell renotation system.

Its tables I and II are published as a Japanese standard.

This work was hardly finished when, during the war, he joined Harry Helson at the Foxboro Company. Meanwhile, Ralph Evans at Kodak had his eye on Sidney, and at the end of the war, invited him to join his staff at the Color Control Department of Kodak.

During his years at Kodak, where he stayed until his retirement in September 1961, he was an active member of the very remarkable group Evans gathered around him to study in detail many aspects of psycho-physical importance in the field of color and vision.

In the Journal of the Optical Society he first published in 1935 on the resolution threshold of the continuously open eye, then on blue arc phenomena, the colorimetry of Purkinje and Hering images.

His work as Chairman of the OSA subcommittee on Spacing of the Munsell colors began to appear in his reports of 1939 to to 1943, when he wrote papers with Bellamy, Nickerson, and Judd. By 1948 he was at Kodak, where he published with Brennan. In 1952 came the first of a series of 8 papers with Burnham and Evans, one with Stark, the last one in 1959. In 1965 he reviewed the Hering book for JOSA. These cover only his papers in JOSA. Other papers were published in the psychological literature (to which I have no instant access), but this seems enough to show the important work in the field of color to which Sidney Newhall contributed.

In those early days we had, in the ISCC, a group of psychologists – Dimmick, Helson, Newhall, Zigler – active in the work of several of subcommittees of the Problems committee. With the death of Sidney Newhall, the chapter that included their help is closed. Problems of psycho-physical interest remain – but we seem today to have no one of their background and interest to carry on in studies that remain – in studies, for example, such as that of verifying the recently published work of the OSA-UGS committee. It cries out for further study.

Dorothy Nickerson

COLOR 77, A YEAR LATER

(Concluded from previous issue)

As a relative newcomer to the field of color, (this was my first contact with other people in this area) I had no preconceived ideas of what to expect. After having more than a year to assimilate the heterogeneous collection of ideas that were presented, I find that the Third Congress of the International Color Association proved itself to be invaluable and eye-opening.

First and foremost, I met many people who had heretofore just been names to me; Saltzman, Billmeyer, Thornton, Allen, Wright, Hunt, Hemmendinger, and Little are just a few of the people who took the time to answer my questions and who in the long run convinced me that I was in the right place at the right time.

My background is in chemistry, physics, and mathematics, and I had just introduced a course in Color and Light at the Fashion Institute of Technology, primarily a Community College under the program of the State University of New York, where one half of the students major in Art and Design.

The most obvious talks to listen to were those that appeared to relate the Science of Color to design areas. Allen's paper dealt with the theory and use of the computers used in colorant formulant and shading. Berger pointed up the need for further development of objective controls in color in her talk on "Color and Quality Control in Industry." Minato, in "Color in Industrial Design," showed the need to achieve harmonious color combinations that are functional as well as aesthetically pleasing.

His experimental formula relating an individual's response to the Munsell values demonstrated the need for further Investigation. Possibly this could lead to a systematic relationship.

The difficulty (one that I am personally experiencing) in introducing art students to the use of scientific theory was discussed in Wright's "The Spectrophotometer as a Tool in Art Technology." The use of this instrument to obtain a spectral measurement of the original painting so that the restorer, scientists, or copier could identify the original pigment used was also discussed in Saltzman's "The Analyses of Dyes in Ancient American Textiles." Garrett, in "Designing for Iridescence," indicated how the knowledge of absorption, reflection, refraction, diffraction, and interference of light led him to experiment with hand made Japanese papers with the result being a rather unique work of art.

The works of Cherreul, Goethe, Harris, and Rood were introduced to me via Birren in his paper on "Color Systems, Theories and the Artist." Thornton's new prime color-lamp was described in "Characterizing Prime-Color Illuminants" and was on display to further emphasize the points made in his talk.

It is difficult to say which papers influenced me the most. Each paper that I heard (and the above is just an extremely brief sampling) broadened my horizons and left me more convinced than ever that "Color" was the field that I would concentrate on in both future studies and, hopefully, some research.

Evelyn Stephens

COLOR RESEARCH AND APPLICATION

Color Research and Application is completing its third year of publication. The Board of Directors of the ISCC recently voted to continue the Council's endorsement of the journal, commenting favorably on its outstanding coverage of all aspects of color. This periodical now reaches more subscribers

than any other publication devoted entirely to color.

The editors of *Color Research and Application* continue to seek new and better ways to serve all who are interested in color. In the first of a series of new appointments, Dr. James G. Davidson, Special Editor for Industrial Applications, has been designated to seek valuable "how-to" papers on the use of color in industry and business. And the journal will carry more tutorial articles, to aid in familiarizing readers with aspects of color outside their own spheres.

As you know, members of societies which endorse the journal are eligible to obtain it at a lower member rate. The personal subscription price for individuals who are members of the ISCC or of its member-body societies is $20.00 per year. Institution and non-member subscriptions cost $35.00 per year.

To enter your personal subscription to *Color Research and Application,* Volume 4, 1979, send your check for $20.00 to Subscription Department, John Wiley & Sons, 605 Third Avenue, New York, N.Y. 10016. (Outside U.S. add $5.00 for postage and handling.)

NEWS OF MEMBER-BODIES

DELEGATION UPDATE

The following changes in Member-Body Delegations have been reported to the Secretary since the 1978 Membership List issued:

American Artists Professional League. Angelo John Grado replaced Frank C. Wright as Chairman.

American Association of Textile Chemists and Colorists. Mary B. Spicer resigned.

American Psychological Association. Revised Delegation: Sidney Stecher (C), Leo M. Hurvich (V), Jo Ann S. Kinney (V), William R. Biersdorf, Robert M. Boynton, Sherman L. Guth, Dorothea Hurvich.

Association of Professional Color Laboratories. Ken Gazdag (V) added.

Dry Color Manufacturers Association. Revised Delegation: A. M. Keay (C), J. L. Robinson (V,L), Alfred Schneid (V), M. De Maio, John Ignatius, S. M. Malaga, A. E. Medas, James Owen.

Federation of Societies for Coatings Technology. Revised Delegation: Robert T. Marcus (C), Ruth M. Johnston-Feller (V), Dennis Osmer (V), S. Leonard Davidson (V*), James A. Cave, Joyce Davenport, Sam J. Huey, George Jensen, Douglas Mogler, P. J. Sotorrio.

Graphic Arts Technical Foundation. Revised Delegation: Richard D. Warner (C), William D. Schaeffer (V), G. W. Jorgensen (V), Charles Gramlich, A. D. Hannah, Fred Higgins, Leonard J. Holzinger, Dennis H. Kaliser, William H. Smith.

THE AMERICAN COLLEGE OF PROSTHODONTISTS

This is a report of the meeting of the Color and Color Matching Committee. The meeting was held on Wednesday, October 18, 1978 from 2:15 P.M. to 3:00 P.M. Present at the meeting was Stephen Bergen, Chairman, Jack Preston, Gene King, Jim Holtan, and two guests, Robert Sproull and Ronald Blackman. The following items were discussed:

1. Unitek Corporation has shown a willingness to correct their color and staining manual. Each of the members of the committee made suggestions and these will be turned over to Unitek. We all hope it is the first step in finally correcting some commerical literature. Members of the committee were thanked for their remarks.

2. The Dvorine Pseudoisochromic color test was produced in slide form for the College by the Psychological Corporation of America. This committee will undertake the validity testing of the system in the hope that the test will become available to dental schools. The results of this test will be reported at a later date. On Tuesday, October 17, 1978, during the annual meeting of the College, the test was administered to the entire membership present, approximately 350 people. Final results of that testing will also be available in the near future. Nine additional tests will be distributed to other groups to test large numbers of individuals and aid in the evaluation of this system. Included will be universities, industry and research centers.

3. Through contacts of Dr. Preston a series of color questions, designed for undergraduates have been submitted to the National Board for consideration for use in the Dental Board tests. Members of the committee all submitted possible questions. Enclosed is the list of the 10 that were submitted.

4. A suggestion was made that these questions also be submitted to the American Board of Prosthodontics for use in their written test.

5. There is nothing new to report on Sterngold's Chromascan instrument.

6. Dr. Gene King has proposed and organized a study of the amount of illumination that is best for seeing colors, especially within the dental range. The color of the dental operatory may also be studied and considered. This work will take place at the Bethesda Naval Base.

7. Polarized lighting panels are still being evaluated.

8. U.S.C. has shown a willingness to cooperate on a grant to develop a spectrophotometer to measure the color of teeth intraorally. Dr. Preston will head this project.

9. The Mosby Corporation may publish a book on Color and Staining for the Dental Profession to be authored by Dr. Preston and Dr. Bergen.

10. The Munsell Foundation has requested that the College donate monies to their scholarship and research funds. The Foundation will be informed that the College may not support other organizations, funds or grants.

11. Dr. Robert Sproull's and Dr. Bergen's articles that were published in American journals have been recently published in the French Prosthodontic Journal.

The members of the committee were thanked for their attendance and the assistance given over the past year. The Chairman of the committee appreciates all the work that the committee does, which makes the job of Chairman easy.

The next meeting of this Committee will be held in Chicago at the Mid-Winter Dental meeting. The precise date has not been set, however, it will be during the week of February 11, 1979.

Stephen F. Bergen, DDS
Chairman, Color and Color
Matching Committee

The questions referred to in item 3 follow:

1. The mixing of colors for shade alteration of metal ceramic restorations follows the principles of

a. Polarization
→ b. Subtractive Color
c. Spectral Mergence
d. Additive Color

2. The three dimensions of color are
a. Hue, Brightness & Value
b. Brightness, Chroma & Saturation
c. Hue, Chroma & Saturation
→ d. Value, Chroma & Hue

3. In choosing ambient lighting for a shade matching area, which of the following factors should be considered:
1. Spectral Energy Distribution
2. Color Rendering Index (CRI)
3. Apparent Color temperature

a. 1 & 3 but not 2
b. 2 & 3 but not 1
→ c. 1, 2, & 3
d. none of these factors relate to shade selection

4. Pairs of objects that appear to be the same color in a given light but have different spectral curves are termed
a. Spectral Pairs
b. Non-spectral Pairs
c. Spectral Homoloques
→ d. Metamers

5. Color is not the property of an object but rather
a. the property of the light incident upon the object
b. the property of the pigment the body contains
c. the property of the density of the body in relation to light wave lengths
→ d. the property of the light reflected from the object.

6. The color temperature considered necessary for proper shade matching in a dental operatory is
a. 3000°K – 5000°K
→ b. 5000°K – 7000°K
c. 1000°K – 3000°K
d. 7000°K – 9000°K

7. The additive primary colors are
→ a. Red, green & blue
b. Magenta, green & yellow
c. Red, yellow & blue
d. Blue, green & yellow

8. The combining of the three primary subtractive colors will result in
a. white
b. belge
→ c. black
d. blue

9. Which of the following offer the most information about color?
a. tri-stimulus values
→ b. Spectrophotometric Curves
c. Newtonian values
d. Visual observation

10. In the Munsell color order system value is
a. the concentration of the color
b. the amount of grey in a color
→ c. the brightness of the color
d. the color name (i.e. yellow, red, etc.)

AMERICAN SOCIETY OF INTERIOR DESIGNERS (ASID)

ASID Announces Fourth International Product Design Awards Program

The American Society of Interior Designers (ASID) is sponsoring its Fourth Annual International Product Design Awards, open to all manufacturers of products used in commercial or residential interior environments.

Products will be judged by a committee of professional designers on the basis of design excellence, creativity, innovative research and application, and practicality. A maximum number of 10 awards will be presented at ASID's 1979 National Conference in Seattle, Washington (August 3-6).

The deadline for entering the competition is April 30, 1979. Registration forms are available to manufacturers through ASID National Headquarters, 730 Fifth Avenue, New York, NY 10019.

The American Society of Interior Designers, the largest organization of professional interior designers in the world, is a non-profit association dedicated to maintaining the highest standards of design and professional practice.

TV Program Will Educate Public on Selection of Interior Designer

"Consumer Survival Kit," a PBS television presentation to educate the public in the selection of interior designers will be aired on some 200 educational channels the week of March 3, 1979. Information provided by ASID on what to look for in a professional interior designer will be included in the consumer-oriented program. Two brochures on residential and contract design outlining the advantages of using ASID members will be discussed. Check local listings for exact time and date.

Art Deco Exhibit to Travel Country

The Radio City Music Hall Art Deco Exhibit, which was displayed in Washington, D.C. at the Pension Building during the 1978 National Conference, is now being scheduled for use by chapters in local art museums and other facilities. The exhibit is comprised of photographs by Bo Parker and furnishings from the historic New York landmark. Partial funding for the exhibit was provided by the National Endowment for the Arts. If you wish to bring this fine presentation of one of the current design trends into your community, contact Ed Gips, Director, Chapter Services, ASID Headquarters, 730 Fifth Avenue, New York, NY 10019, (212) 586-7111.)

DRY COLOR MANUFACTURERS' ASSOCIATION (DCMA)

Iron Oxide Pigments Subcommittee Formed By DCMA

The Dry Color Manufacturers' Association has established a new Subcommittee to provide manufacturers of iron oxide pigments with a forum to discuss technical areas of common interest.

The Subcommittee, which is a part of the Inorganic Section of the DCMA Ecology Committee, plans to conduct an extensive literature search on the safety of iron oxide, to obtain an interpretation of the literature by an expert in the field of toxicology, to submit documentation to the government supporting the position of the Subcommittee that iron oxide does not constitute a carcinogen, to conduct animal and epidemiology studies if necessary, and to issue a position paper to the industry on the safety of iron oxide.

The Subcommittee is now in its formative stage and would welcome participation by both DCMA members and those manufacturers of iron oxide pigments that are not members of

the Association. The Subcommittee is also considering including others who may be interested in participating in its work. DCMA President Michael Pisetzner of Sun Chemical Corporation has appointed Kenneth W. Kramer of Pfizer to be Chairman of the Subcommittee.

The Dry Color Manufacturers' Association is an industry trade association representing large, medium, and small pigment color manufacturers throughout the United States and Canada, accounting for approximately 95% of the production of color pigments in this country. Foreign pigment manufacturers with sales in the United States and Canada and domestic suppliers of intermediates to the pigments industry are also members of the Association.

Persons or firms interested in taking part in the activities of the Subcommittee are invited to contact DCMA offices at Suite 100, 1117 North 19th Street, Arlington, Virginia 22209. The telephone number is 703/525-9483.

COLOR MARKETING GROUP (CMG)

Detroit, capitol of the automotive industry, was CMG's choice for their fall meeting. Our members who are directly involved with the many facets of automotive styling wanted to share their business life style with their Color Marketing Group associates.

Jon Hall (PPG Industries), Aimo Palosaari (Chrysler Corporation) and Lois Zolliker (Lois Zolliker Associates) were the program chairmen. They are to be warmly congratulated for a superb choice of speakers and topics.

The meeting was held at the Detroit Plaza on November 12th to 14th, 1978. It was the associations largest attended fall meeting to date. Long after the reservations had been closed the phones were ringing from all areas of the industry and the public requesting tickets to attend.

The after dinner speaker on Sunday evening was George Moon, executive director – automotive interior design for General Motors, Inc. Mr. Moon's topic was "Cars, Colors and Consumers," a five screen presentation of 1800 slides, tracing the growth of color importance on GMC cars and trucks and predicting greater color impact in the future. It was presentation to be remembered.

Monday morning began with the three new directions committee programs.

Education Committee – chaired by Daisy Goldsmith (Fashions Communications) worked on a program of future publicity programs and communication tools.

Marketing Committee chaired by Joseph Abelson (ICI United States) assigned four workshops to prepare various international marketing techniques.

Technical Committee chaired by Joyce S. Davenport (DeSoto, Inc.) presented two lectures.

"Inorganic Pigments – to know them is to respect them."

"A technique for Color Communication," Hank Bateman kindly substituting for his colleague, Ralph Besney, (ICI United States, Inc.). This technique is currently being used by ICI to predict dyeing parameters.

The program continued with an excellent panel presentation entitled, "A Year's Program Design, Promotion and Production."

"The Development of the Designer Series Mark V. Conception to Production". The Ford Motor Company is in tune with fashion trends:

John P. Aiken, Director, Interior Design Office, Ford Motor Company.

"Success From Bottom to Top". Selling upper management begins on the ground floor.

Vincent J. Geraci, Director of Interiors, American Motor Company.

"Why A Mastering Program". A look at the critical final phase in realizing colors for automobiles.

Royden Axe, Executive Director, Design Office, Chrysler Corporation.

The presentation stimulated a long and interesting question and answer period.

Luncheon speaker was a countyman of mine, Mr. Roy Slade, President of Cranbrook Academy of Art who presented "A Creative Community Advances Art and Design." Tuesday morning Mr. L. V. Marchetti presented "Chrysler Puts Color and Trim Material to the Test." The title is self explanatory, to an indepth explanation of the numerous quality control methods performed on raw materials. Mr. Marchetti, who is Manager, Organic Materials/Engineering for Chrysler Corporation was most informative, as was the excellent slide presentation.

The last presentation on the program would have made many a television station green with envy. In fact, I almost felt (as others agreed) as though I were actually in a TV studio; with an eight man crew to monitor sound, music, screen, etc. Mr. Don Doherty, vice president and executive producer of Wilding Division, Bell & Howell, made a multi-media presentation. It began as a "fireside chat" ending in a crescendo of sound and visual staging, with even the use of lasers. "Color in Marketing Communication," as the title was called, left a breathtaking impression which CMG members will long remember.

Color Marketing Group usually spends some time at a museum and Detroit was no exception. The Henry Ford Museum, Dearborn, was of course on the list for the reception, dinner, and tour.

Joyce S. Davenport
Chairman

CMG Elects Officers from Range of Industries Represented in Membership

Color Marketing Group, a multi-industry association of designers, marketing and technical specialists, has elected its 1979 officers from the Paint, Chemical, Ceramic, and Houseware industries.

New officers for 1979 are:

President: Kenneth X. Charbonneau, Design and Communication Manager, Benjamin Moore & Co., Montvale, NJ;

Vice-President: Robert W. Miracle, Director of Design, Franciscan Products, Interpace Corp., Los Angeles, CA;

Treasurer: William C. Capehart, Director of Marketing, Colorant Group, Organic, Polymer Div., Tenneco Chemical Co., Piscataway, NJ;

Secretary: Joyce S. Davenport, Supervisor of Industrial Color, DeSoto, Inc., Des Plaines, IL.

Elected to the Board of Directors are:

Joseph Albelson, Director of Marketing, Dyes & Textile Chemical Div., ICI America, Inc., Wilmington, DE;

Everett R. Call, Management Information, National Paints and Coatings Association, Washington, D.C.;

Estelle Rothstein, Senior Product Designer, Corning Glass Works, Corning NY;

and the officers named above.

Color Marketing Group was established in 1962 to provide a forum for the exchange of information and ideas on all phases of marketing with color including trends, coordination, styling, design and technical research. Election of new officers took place at CMG's fall meeting at the Detroit Renaissance Center, November 14, 1978.

FEDERATION OF SOCIETIES FOR COATINGS TECHNOLOGY

Representatives from Six International Organizations Meet During Federation Annual Meeting in Chicago

Representatives of six international coatings industry organizations met on November 2, during the Federation of Societies for Coatings Technology Annual Meeting and Paint Industries' Show in Chicago.

The organizations are:

(1) Federation of Societies for Coatings Technology (IFSCT).

(2) Federation of Associations of Technicians in the Paint, Varnish, Lacquer and Printing Ink Industries of Continental Europe (FATIPEC).

(3) Oil and Colour Chemists' Association – United Kingdom (OCCA-UK).

(4) Federation of Scandinavian Federation of Paint and Varnish Technologists (SLF).

(5) Japan Society of Colour Material (JSCM).

(6) Oil and Colour Chemists' Association – Australia.

The luncheon meeting was hosted by the FSCT and followed a similar meeting among the first four groups during the FATIPEC Congress on June 9, in Budapest, Hungary.

The principal business was to reach a decision on the previous FATIPEC proposal that a Secretariat be established to serve the member organizations. At the outset, the initial responsibilities of the office of Secretariat will be to exchange organizational and pertinent industry information.

The formal motion to establish a Secretariat at the FATIPEC headquarters in Paris, France on a temporary basis was made by FATIPEC and was approved by the other five members. It was also agreed that a Coordinating Committee of the member groups will decide the permanent location in two to three years.

An organizational meeting of the Coordinating Committee will be held in Paris during the spring or summer of 1979. FATIPEC will handle all meeting arrangements.

Armin J. Bruning Award

Established in 1962 in honor of Armin "Joe" Bruning, pioneer in the application of color science to the paint industry, this award is for "the most outstanding contribution to the science of color in the field of coatings technology."

The 1978 award plaque was presented to William D. Ross, Research Fellow in the Pigments Department of E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., for his work in colorant formulation and his study of the optics of pigmented coatings.

Mr. Ross joined du Pont in 1938 after being graduated from Columbia University where he received both B.A. and B.S. degrees in Chemical Engineering. He is a two-time Roon Award winner, having placed first in both the 1969 and 1971 competition.

Mr. Ross is a member of the Philadelphia Society for Coatings Technology, the American Chemical Society, and the American Institute of Chemical Engineering.

Committee Appointments. Robert T. Marcus of PPG Industries, Inc. has been appointed chairman of the Inter-Society Color Council Committee. Ruth M. Johnston-Feller has been re-appointed to the Bruning Award Committee, and S. Leonard Davidson has been re-appointed to the Environmental Control Committee.

GRAPHIC ARTS TECHNICAL FOUNDATION (GATF)

John Yule Named Recipient of Robert Reed Technology Medal

John A. C. Yule is the 1978 recipient of the Robert F. Reed Technology Medal. Presentation of the award was made at the 55th Annual Meetings of the Graphic Arts Technical Foundation held last month in La Quinta, Calif.

The Reed Medal is sponsored and presented by the GATF Society of Fellows, an honorary group formed in 1969 to recognize graphic communications leaders who have made "outstanding or unusual contributions to GATF's research, education, and technological efforts and to the graphic communications industries as well."

The award is given to an industry figure who has exhibited an "outstanding record of technological and scientific achievement and has measurably aided the scientific development of the graphic communications industries."

The award is named in honor of the late Robert F. Reed, first research director of the Lithographic Technical Foundation, predecessor of GATF. Mr. Reed made major contributions to the development of the lithographic process and was often referred to as the "Dean of Lithography."

Dr. Yule, who resides in Ramona, Calif., retired in 1974 after a long and distinguished career in graphic arts research. Prior to his retirement, he was with the Graphic Arts Research Center at the Rochester Institute of Technology where he had served since 1967. Dr. Yule began his career as a research chemist in 1932 for Fleetwings, Inc., Bristol, Pa. In 1936, he became a research associate for the Eastman Kodak Company, Rochester, N.Y., and served for more than thirty years at Kodak before assuming his duties at RIT.

Many of Dr. Yule's contributions to the graphic communications industries have been in the field of color reproduction. His most noteworthy contribution was the book *Principles of Color Reproduction,* which he wrote and which was published in 1967 by John Wiley, Dr. Yule has written countless technical articles on the theory of color and color reproduction, as well as being the author and coauthor of numerous Kodak data books. During his years at Kodak, Dr. Yule also obtained numerous patents for his work dealing with color films, masking procedures, color scanners, and contact screens.

Dr. Yule received his doctorate from London University, London, England, and also holds a bachelor's degree in chemistry from the Royal College of Science, London, England.

NEW JAPANESE COLOR SYSTEM

CHROMA COSMOS 5000

To celebrate the 50th anniversary of the founding of the Japan Color Research Institute (1928-1978), a remarkable color system has been developed. It probably is – and will remain for some time – the most elaborate collection of mounted color samples ever put together in orderly fashion: 5000 individually coated and individually mounted chips!

In explanation of the name Chroma Cosmos 5000, an introduction to the System states, "Cosmos means the universe as a complete system; it is the antonym of chaos . . . . We have confidence that it will be an ideal system of color which brings order and harmony into its abundance of various colors."

The Munsell System of notations has been followed for the most part, and the ISCC-NBS Method of Designating Colors has been used (in transparent overlays) to name colors and groups of colors in simple English terms.

Let me describe the physical format of Chroma Cosmos 5000.

There are 23 double charts measuring 10¼ x 29 inches (26 x 74cm), or 10¼ x 14½ inches folded (26 x 37cm). Plus a 24th chart having an introduction and explanation. The charts are bound in blue plastic and are contained in a blue, cloth-bound case.

5,000 individually mounted chips measure about ½ x 1 inch (11 x 22mm) each.

In organization there are 18 value steps, 1.0 to 9.5, having intervals of 0.5.

There are 14 chroma steps, 1 to 14, with intervals of 1.0.

Each chart (or double chart) contains a full array of colors of different value but *equal chroma.*

In general 48 key hues are represented. Chart 1, of weak chroma, however, has 20 key hues; chart 2 has 40. Most other charts have 48 key hues. Then as chromas grow stronger, the number of key hues diminishes as blue-greens, greens and blues are dropped. The last chart, devoted to red, orange, yellow, of vivid chroma, has 16 key hues.

All these steps and sequences are subtly and beautifully ordered, and perceptable differences are remarkably uniform in any direction – up or down in value, across in chroma, or around in hue.

How does Chroma Cosmos 5000 compare with other well known systems? Among those having individual chips (not printing ink screens or halftone overlaps), Munsell in the gloss edition has about 1,550. Ostwald in the Container Corporation edition had about 900. Plochere has about 1,250; the Muller Swiss Atlas has about 1,300.

Where printing inks are involved in which a minimum number of basic impressions are used and these combined in halftone screens, large numbers are possible, but never precise or distinct. The Maerz and Paul Dictionary of Color has about 7,000 such tones; the Villalobos Color Atlas has about 7,300; but in neither system are the individual colors clearly defined.

To this writer, the new Japanese Chroma Cosmos 5000 system has a number of excellent merits.

Those who designed and executed it under the direction of Takashi Hosono, Chairman of the Board of Directors of the Japan Color Research Institute, were quite knowledgable of previous efforts in the field of color organization. In a comprehensive introduction, references are made to Munsell Renotations, the efforts of the Optical Society of America, The Inter-Society Color Council, the U. S. National Bureau of Standards, the CIE. As mentioned, all notations are in Munsell designations, and the English terms on the overlays respect the widely accepted ISCC-NBS method. All this holds international interest and gives the System international application.

The visual organization of Chroma Cosmos 5000 is beautiful to behold. Whereas the charts of most color systems feature variations of individual hues, their tints, shades, tones, the charts of Chroma Cosmos 5000 run the full gamut of the spectrum from red to violet and purple, but on each chart chroma is uniform.

The new Japanese System thus lends itself to infinite color harmonies of ideal balance.

It allows for the accurate designations (numbers and letters only) to identify 5000 different colors, and all these in Munsell terms so well known and highly regarded in the world of color.

For further information about the System and its cost in any currency, write Japan Color Research Institute, 1-19, Nishiazabu 3 Chome, Minato-Ku, Tokyo 106, Japan.

Faber Birren

CIE

Color Difference Research

The Color-Difference Subcommittee of CIE Technical Committee TC-1.3 (Colorimetry) has produced a document "Guidelines for Coordinated Research on Colour Difference Evaluation." The document describes a program of research which the subcommittee believes will lead to a better understanding of the many factors involved in the evaluation of both small and large color-differences.

The guidelines have been developed in the hope that all researchers in the field will design their experiments to contribute in a coordinated way to the goal of the subcommittee by carrying out one or more of the proposed investigations and making their results available to the subcommittee.

Workers in the field are invited to contact the subcommittee so that plans can be coordinated and duplication of effort avoided. The subcommittee believes that only by a concerted effort of this kind can progress be made within a reasonable period of time.

Copies of the document may be obtained from the Chairman of the Subcommittee, Dr. Alan R. Robertson, Division of Physics, National Research Council, Ottawa, Ontario, Canada K1A OR6 (613-993-2478).

DURO-TEST SPONSORS PHOTOBIOLOGY FELLOWSHIP

The Duro-Test Corporation of North Bergen, New Jersey has established the Walter H. Simson Memorial Fellowship in Photobiology for doctoral and postdoctoral candidates demonstrating exceptional achievement in that field.

According to Dr. Philip Hughes, Duro-Test's director of environmental photobiology, the first recipient of this fellowship will be Mr. Yoshisuke Ozaki of Japan who is working for his doctorate in neuroendocrine regulation with emphasis in photobiology at the Massachusetts Institute of Technology. He will receive a $6,000 award for use in continuing his studies. Mr. Ozaki's research will be in the comparatively unexplored area which focuses on the biological effects of man-made light.

Mr. Ozaki has already distinguished himself for outstanding work he has done in photobiological research. He and Dr. Richard J. Wurtman, professor of endocrinology and metabolism in the Department of Nutrition and Food Science at MIT, have written a paper on effects of modern light sources on endocrine phenomena in rats. It is being published in the scientific journal, PHOTOCHEMISTRY AND PHOTOBIOLOGY. His research showed that a significant difference in body weight gain and adrenal gland weight resulted from exposure of the animals to light sources of different spectra providing "further evidence that the spectral quality of the artificial lighting is a major determinant of its effects on mammalian growth and development."

The Fellowship's selection committee consists of Dr. Richard J. Wurtman, chairman; Dr. Frederick Urbach, professor and director of the Center for Photobiology, Skin and Cancer Hospital of Temple University; and Dr. Robert M. Neer of Harvard University and director of the Clinical Research Center at Massachusetts General Hospital.

To qualify for the fellowship, candidates must be in a recognized doctoral or postdoctoral program, having completed at least one year of doctoral course work by September, 1979. They must be sponsored by a faculty member who is currently involved in active research in the biological effects of light. The sponsor must certify that if the applicant is selected, research space will be made available for the fellow.

Primary basis for selection will be a five-page double-spaced research prospectus outlining in some detail the research study to be undertaken by the fellowship recipient for the coming year. The recipient will be expected to submit a final research report suitable for publication no later than eighteen months from the date of the award. Students in the disciplines of Biology, Medicine, Bioengineering, and Illuminating Engineering are encouraged to apply. Applicants for the award submit in triplicate three letters of recommendation, one of which is from research sponsor, curriculum vitae and five-page research prospectus to: Dr. Philip C. Hughes, Director of Environmental Photobiology, Duro-Test Corporation, North Bergen, New Jersey 07047.

Duro-Test is America's largest company solely devoted to the development and manufacture of light sources. According to Dr. Hughes, it has long recognized the need for advanced research into the effects of light on living things and is seriously committed to the improvement of the indoor lighted environment. It has funded numerous studies on the subject at leading universities here and abroad. Dr. Hughes said that significant positive effects of full-spectrum fluorescent lights which simulate the color and ultraviolet spectrum of sunlight have been found through research at such institutions as MIT, University of California, Harvard, Cornell, and Massachusetts General Hospital.

Walter H. Simson, in whose memory the Fellowship was established, had been chariman and chief executive officer of Duro-Test until his recent death. He pioneered in efforts to create awareness of the biological importance of light and the need for full-spectrum illumination for optimum human function.

NETHERLANDS SOCIETY FOR COLOUR STUDY

The address of the Netherlands Society for Colour Study (NVVK) has been changed:

Old address: Dr. J. L. Ouweltjes, Secretary of the Nederlandse Vereniging voor Kleurenstudie, Hogeduinlaan 20, Waalre, Nederland.

New address: Drs. J. J. Opstelten, Secretary of the Nederlandse Vereniging voor Kleurenstudie, Leeuweriklaan 18, 5613 AG Eindhoven, Netherlands

Seminar on Colors in Hospitals, Porto Alegre, Brasil, April 6 and 7, 1979

The seminar is directed to: administrators, consultants, hospital directors, architects, decorators, engineers, doctors, psychologists, nurses, students of architecture and of decoration of interior design, nutritionists, social assistants and to all the professionals that work in the hospital complex, medical clinics, and rest homes.

Nature speaks to man through the colors.

Color has influence on the individual and collective behavior and the necessity of its adequate use in hospitals, from the planning stages until the final finishings and painting is unquestionable.

Colors encourage and calm down, but they can also depress and accelerate a process of fatigue. When they are appropriately combined they make environments more pleasant, they communicate security, assisting the recovery of the patients. But they can also debilitate, due to a lack of harmony.

Even the human vegetative functions – arterial pressure, cardiac and respiratory frequences – are accelerated or reduced by the influence of ambient colors.

The theme "Color in Hospitals" is one of the most compelling and it is receiving attention from researchers all over the world.

The aim of this seminar is to increase the adequate application of the psychology and aesthetics of color in hospital environments.

Program

Colors in Hospital Environments. The psychoaesthetics of colors applied in hospitals – signalling, identification and ambient psychological reactions – complementary and monochromatic harmonies, triads, divided simple complementaries – the chromatic message.

The technique of the application of dynamic and stimulating colors and of calm and relaxing ones as an aid in the therapeautics and in the definition and make-up of programmed spaces.

Harmonic compositions of colors, previously discussed, with consideration of the necessities of the hospital environment.

The colors in the classification of the efficiency of a hospital. The influence in the therapeutics of the patients and in connection with the professional people that perform activities in the institution.

The prophylactic and therapeutic action of the colors. Chromotherapy – the application of warm and stimulating colors and of cold and relaxing ones – color in the hospital as entity and as an enterprise.

The conventional and accidental symbolism of the colors related to the "territory" and "time-space" of the psychotic person.

Colors in the specific activities divided in sectors by modules of the hospital complex.

The participation of the colors in the humanization of the

hospital environment.

The influence of color in design and in the urban integration of a hospital.

The conventional, accidental, and universal symbology of colors. Distinction between "additive mixtures of lights" and "subtractive mixtures of pigments."

Lecturer: Professor Simão Goldman. The architect Simão Goldman is the author of the following books, *Color Psychodynamics* (5th edition), *Harmonic Compositions of Colors* (4th edition), and *Dialogue Test With The Colors* (4th edition), and six more technical works about color. He was a pioneer in teaching of color, at university level, in South America. Professor of courses of Color Psychodynamics in the main technical and cultural centers of the country, as in the Federation of Industries of the State of São Paulo, Engineering Club of Rio de Janeiro, Technical University of Pernambuco, Pontificial Catholic University of Rio Grande do Sul, Federal University of Santa Catarina, Association of Hospitals of the State of Rio Grande do Sul and also abroad.

For more information write to Professor Simão Goldman, Caixa Postal, 2200, Porto Alegre, Rio Grande do Sul, Brasil.

AEROSPACE MEDICAL ASSOCIATION MEETS IN MAY, 1979 (Golden Anniversary Annual Scientific Meeting)

Members of the Aerospace Medical Association, among whom are some of the world's foremost authorities in aviation, space and environmental medicine, and the allied sciences to these specialties, will attend the 50th Annual Scientific Meeting of the Association during May 14-17, 1979, at the Sheraton-Park Hotel, Washington, D.C.

This meeting will provide a professionally diverse forum for physicians in almost all clinical specialties, biomedical researchers, nurses and other scientists. Data on the latest findings of clinical and research studies will be presented in lecture, panel discussion, seminar, poster presentation, tutorial session, workshops, films, and technical and scientific exhibits. Attendance can earn up to 24 hours of Continuing Medical Education credits for physicians, with a comparable number of Continuing Education Contact Hours for nurses. Highlights of the scientific program will be published when final. Technical and scientific exhibits are encouraged and Exhibit Information Brochures are available on request.

In conjunction with the Association's "Golden Anniversary" meeting, plans are underway by the National Air and Space Museum of the Smithsonian to present a special exhibit depicting the advances made in aviation and space medicine during the past fifty years. This exhibit should be ready for public viewing during the month of May, 1979, with an official opening to coincide with the scientific meeting.

Beginning in January, 1979, the National Library of Medicine will exhibit special materials relating to the last fifty years of advancement in aviation and space medicine, which culminated in man's ability to walk on the moon. This display will continue through the Association's May meeting.

Man in Flight: Biomedical Achievements in Aerospace, a book commissioned by the Association to be written for the fiftieth anniversary, is scheduled for publication in May 1979. It documents the history and advances in medicine accomplished from the very early days of balloon flight to the current scientific sophistication of space-travel – the breakthroughs in medicine which made it all work.

Further information may be obtained from the Aerospace Medical Association, Washington National Airport, Washington, D.C. 20001. (703) 892-2240.

PRODUCTS & SERVICES

1979 Hunterlab Seminar Locations Announced

Hunter Associates Laboratory, Inc. will continue the popular, educational Seminar series which have been a tradition for 20 years. The two day event is a combination of a Seminar the first day, and a Mini-show the second day.

Lectures and discussions during the first day will focus on appearance measurement and will be supplemented by visual aids, demonstrations, and hands-on use of instruments for color, gloss, haze, whiteness, etc. Fee for the first day is $75, which includes reference material and lunch.

On the second day, Hunterlab instruments and personnel will be available in an informal day-long Mini-show exhibit, providing a no-cost opportunity for interested individuals to discuss color problems and possible instrumental solutions.

The Mini-Show/Seminar 1979 schedule is:

Chicago, Illinois	February	14-15
Northern California (Location TBA)	March	1-2
Los Angeles California	March	5-6
Philadelphia, Pennsylvania	April	4-5
Detroit, Michigan	April	18-19
Montreal, Canada	May	2-3
Saddlebrook, New Jersey	May	16-17
Boston, Massachusetts	June	6-7

Two Service Seminars will be conducted in Fairfax, Virginia. These are one-day seminars aimed at personnel who are interested in learning "trouble-shooting" servicing of their Hunterlab instrument.

Additional information and application forms for all Seminars may be obtained from the Marketing Department, Hunter Associates Laboratory, Inc., 9529 Lee Highway, Fairfax, Virginia 22031.

New Pantone® Film and Foil Color Selectors for Printing/Packaging/Metal Decorating

Moonachie, N.J. – Pantone, Inc., has announced publication of its new *Pantone Color Selector for Film* and *Pantone Color Selector for Foil.* They are designed for color specification and visualization in the packaging and metal decorating industries, as well as any commercial flexographic, gravure, and lithographic printing applications on film or foil. Both color selectors use 96 colors of the Pantone Matching System and are printed over opaque white and the film and foil surfaces to show the color effects. The prefix "3" is used before the Pantone Matching System number to denote film; e.g., Pantone 3-185 is Pantone 185C (Coated) as it appears on film. The prefix "4" denotes foil.

All 96 colors are also available in coordinated Pantone Color artist materials. Many colors are also represented in 3M Color-Key®.

With the new Pantone Color Selectors for Film and Foil, designers and printers in the packaging and metal decorating industries can accurately specify, at the design stage, the color of the printed product. This eliminates the costly and time-consuming trial and error procedures heretofore used.

GRAPHIC ARTS TECHNICAL FOUNDATION (GATF)

GATF Produces Two New Learning Modules

The Graphic Arts Technical Foundation, Pittsburgh, Pa., has published two new GATF Learning Modules. The Foundation's Learning Modules are educational materials that provide a unique and highly illustrated format for graphic arts instruction.

GATF's newest Learning Modules are entitled *Copyfitting (by the Character Count Method),* and *Creating Color Images from Black-and-White Art.*

GATF's Learning Modules give instruction in as many as three levels of learning: an introductory level, an advanced apprentice or advanced high school level, and a journeyman or college level. The Foundation's modules have been developed as learning aids that take the graphic arts student step by step, through various printing production operations. Using this innovative system of learning, graphic arts students can progress at their own learning pace.

Creating Color Images from Black-and-White Art, Level 1 is the first part of a two level module on this film assembly (stripping) subject. The second level booklet and an instructor's guide will be published shortly to complete the module.

Level One of the module has four lessons to guide the learner in:

- understanding fake color (the process of transforming black-and-white artwork into a multicolor printed piece)
- determining screen tint values and angles; how to use a screen angle guide to achieve proper angles for color tints
- preparing masks and assembling films into flats for photo combining
- making final assembled flats and making a color proof

Liberal use of both black-and-white and four-color illustrations make GATF's Learning Modules an excellent learning tool for beginners and advanced learners alike.

The Foundation previously published a Learning Module entitled *Determining Basic Camera Exposure.* This module subject is available in three levels of instruction. Level I instructs beginners in determining basic camera exposure, while level II gives instruction in determining basic camera exposure of typeset, fine-line, and screened copy; and level III offers instruction in determining basic camera exposure for colored line copy. An instructor's guide is also available.

Each of GATF's Learning Modules are priced at $3.00 for members and $6.00 for nonmembers. Instructor's Guides are $1.00 for members and $2.00 for nonmembers. For more information about the Foundation's newest learning modules, write to Dr. Jack Simich, director of GATF's Education Department at GATF, 4615 Forbes Avenue, Pittsburgh, Pa. 15213.

GATF P&S Catalog Available

Copies of the Graphic Arts Technical Foundation's 1978/79 *Products & Services* catalog were recently published.

Free copies of the Foundation's 1978/79 *Products & Services* catalog can be obtained by writing to the communications manager at GATF, 4615 Forbes Avenue, Pittsburgh, Pa. 15213.

GATF's new 40-page catalog provides capsulized information on more than 200 GATF products and services including the latest products and services available from the Foundation. Complete price information on all GATF products and services plus an order form are included in this new catalog.

GATF Telex Number Announced

A new telex communication system was installed last week at the Graphic Arts Technical Foundation, Pittsburgh, Pa.

Fully operational and ready to receive messages, GATF's telex number is 866412.

The Foundation's new telex number will provide an additional and faster communications link between GATF and members of the graphic communications industries. Time in processing orders, providing answers to technical inquiries, and in gaining ready access to general information about a GATF educational program, product, or service is expected to be lessened with the installation of the telex system.

NSTF Awards Scholarships

Sixty-two college freshmen and 16 upperclassmen have received scholarships for the 1978/79 academic year from the National Scholarship Trust Fund (NSTF). The NSTF is administered by the Education Council of the Graphic Arts Industry, Inc., a Graphic Arts Technical Foundation affiliate.

Scholarships are awarded to students who have graduated from high school within the last four years and who have registered high academic performance and exhibited interest and/or involvement in the graphic arts. Moreover, the scholarship applicants must be intent upon entering a two- or four-year degree program in graphic communications at an accredited school. Awards are renewable for each of their remaining years of undergraduate education.

The 78 students recently selected to receive NSTF scholarships is an all-time high number of new recipients for one year. The 1977/78 NSTF Scholarship competition attracted 1,170 applicants.

A total of 235 scholarship recipients are currently aided by NSTF at colleges and universities throughout the United States to prepare themselves for careers in graphic communications. The 235 NSTF scholars studying during 1978/79 is still another all-time high figure.

Scholarship applications and information on next year's competition are being distributed to guidance counselors at secondary schools throughout the country; to GATF members; to graphic arts clubs and associations, both at the national and local levels; and, upon request, to individual students, parents, teachers, and counselors.

A brochure describing the scholarship eligibility requirements, applications, and posters for the 1979/80 National Scholarship Trust Fund competition for scholarships to be awarded in September, 1979, can be obtained by writing to Ms. Nancy Hanna, administrator of the NSTF and Education Council at GATF, 4615 Forbes Avenue, Pittsburgh, Pa. 15213.

GARC to Conduct PHOTOGRAPHIC SCIENCE Seminar, March 26-30, 1979

From March 26-30, 1979, the Rochester Institute of Technology's College of Graphic Arts and Photography will hold a seminar on "Photographic Science," at the Institute's campus in upstate New York.

This is a five-day modular program, presenting topics in sensitometry, statistics, photochemistry, image evaluation, non-silver, and photographic instrumentation. It has been designed to assist engineers, scientists and technicians. Participants may elect to attend one, several or all seminar sessions,

according to their own assessments of their individual needs. The newly published Seventh Edition of *Neblette's Handbook of Photography and Reprography,* together with other materials and supplies is included in the sliding tuition scale.

Specific content of the program is as follows:

Day 1: Sensitometry – experimental methods of estimating the response of photographic materials to radiation, exposure methods, processing techniques, densitometry, and data analysis;

Day 2: Statistics – statistical tools for quality control; variability and measure of variability; estimation of experimental error; interpretation of data and statistical inference;

Day 2: Evening; Dinner Meeting – consultation; discussion of topic selected by the participants;

Day 3: Chemistry – chemical and physical properties of silver halide-gelatin emulsion and the relation of these properties to its photographic response; the chemistry of processing with emphsis on component interaction; instrumental and other problems peculiar to the control of photographic processing;

Day 4: Image Evaluation – criteria for image excellence and methods of securing data; problems of correlating objective and subjective procedures; emphasis on optical instrumentation and data reliability;

Color – measurements of color in the CIE system; additive and subtractive color reproductions; masking;

Day 4: Evening: Non-silver image forming systems; Recent advances and product trends; principles and methods of physics and chemistry; latent image theory, mechanism of development, spectral sensitization, and sensitometry as applied to non-silver photography;

Day 5: Photographic Apparatus and Instrumentation – principles and characteristics of instruments used for testing photographic materials such as sensitometers and densitometers; properties of photographic apparatus such as cameras, light meters, projectors, and printers; introduction to photographic instrumentation and the use of photographic recording systems to collect data.

A sliding scale tuition includes text, materials and supplies; the Day 3 (evening) session is an additional $35; $130 for single day, $210 for two days, $260 for three days, $330 for four days, or $390 for five days. Total program charge (with evening) is $425.

EXHIBITION IN WASHINGTON, DC

February 2-25, 1979

A small exhibition devoted to color as used in paintings is to be held at the Arlington Art Center at 3550 Wilson Blvd. in the Washington metropolitan area. The exhibit begins February 2, 1979 and continues until February 25. It is to be a teaching show. The painters will display, along with the completed paintings, their preliminary sketches and plans to show how the final colors were evolved. Several of the artists are using the Munsell color system in interesting ways.

Maxwell disks, the D & H Color Rule, and a Munsell Color Tree will be demonstrated to visitors attending the exhibition. Young people from the Arlington schools are especially invited. Nathaniel Jacobson, who originated the concept of the Modular paints will give a lecture at the Arlington Art Center during the exhibit at 8 p.m. February 6. Joy Turner Luke is scheduled to present a Color Workshop beginning at 8 p.m. Friday, February 16 and continuing from 10 - 5 Saturday, February 17. Linda Taylor, an ISCC member, is one of the artists who will be included in the exhibition.

Joy Turner Luke

SPECIFIC COLOR

An Exhibition of 7 Artists Addressing the Idea of Color

Selected By Richard Cramer, Professor of Painting, Tyler School of Art

Cheltenham Art Centre, Cheltenham, Pa.

November 26 to December 20, 1978

Allan Buckwalter, Brian Cesario, Edward Fink, Margaret Heuges, Steven Kraitchman, Carol Markel, Michael Wommack

Specific color in painting is the concept of pin-pointing as clearly as possible one's emotional/psychological desires with that of the actual physical pigment.

In teaching color ideas in relation to painting, I stress the need for specific, active observation of color change.

Color change or color movement involves all the dimensions of color: hue shift, light levels, saturation, and contrast of clear or neutral color. Observation of these color changes is done in a number of ways.

One of the simplest yet best ways is for the artist to choose a preferred dominant color and to do numerous variations of it, revealing differences in terms of its dimensions. Another way is to place all of the dominant color variants on one light level so as to create a threshold of slightly changing color.

Threshold viewing is connected to the concept of minimal change. The artist-observer has to slow down his process of seeing in order to distinguish very close variants of the same color. By slowing down, awareness increases and the artist-observer makes clearer, more specific color choices, choices that are closer to his own color center and more deeply sensitive.

The artists in this exhibit are all former students of mine and were selected not only for their obvious excellence but also to demonstrate differences of thought about color ideas.

Richard Cramer

ON-PRESS DENSITOMETRY STUDY BEGUN BY GARC RESEARCH STAFF

A major research project intended to objectively measure some hitherto little-understood variables in lithographic printing is now underway in the GARC Web Offset Press Laboratory.

The research program is yielding information that will lead to an improved understanding of how and why distortion occurs during the offset printing process, and suggest techniques for controlling those problems. It also represents one step toward a fully-automated, computer-directed printing system of the future.

Senior Technologist Milton Pearson explained how the project began: "It involved two separate events. First, we've had a long-standing interest in color reproduction research that has indicated how important press variables are in relation to final quality. But only recently has suitable test instrumenta-

FUTURE MEETINGS

ISCC Annual Meetings

1979: April 23-24 – Roosevelt Hotel, New York, N.Y.
1980: April 21-22 – Rochester, N.Y.

Williamsburg Conferences

1979: February 11-14
1980: February 4-6
1981: February 9-11

Dry Color Manufacturers' Association

1979: The Greenbrier, White Sulpher Springs, WV, June 17-20

Federation of Societies for Coatings Technology

1979: St. Louis Convention Center, October 3-5

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tion been available that is fast enough to be used on a large web press."

The GARC research staff first examined the relationship of the densities or dot areas on halftone film and the corresponding dot areas on the printed sheet; this relationship is known as the "plate-press curve." Analysis suggested that the plate-making process introduced very little distortion into the plate-press curve: the printing operation itself appeared responsible for introducing most of the distortion.

The term *dot gain* has been defined as the tendency of the printed halftone dot to change in size at the moment the ink is transferred from the blanket to the moving paper web. This swelling or enlarging effect is often unpredictable. Dot gain, because it represents a difference between the size of the halftone dot on the original and that which is reproduced, may alter the overall visual quality of the printed halftone.

"Recently, press control has concentrated on measuring the solid printed ink desntiy laid down on the sheet," Pearson explained. "But this isn't enough to define the plate-press curve. The factor that really controls the plate-press curve is dot gain."

There are two components to dot gain: *slur,* a directional change in the printed dot shape making it seem elongated; and *fill-in,* the radial expansion of the size of the dot. In order to study the effects of slur and fill-in on halftone reproduction, the research staff needed to measure them separately, on a web of paper that might be racing through the press at hundreds of feet per minute.

The problem was eventually solved by designing a special test object having line tints that, when printed, would have separate sets of line tints oriented parallel and perpendicular to the direction the paper web travels through the press. Using these line tints and a solid, it is possible to mathematically separate the amount due to fill-in and that due to slur.

The MacBeth Corporation donated a prototype pulsed-flash reflection densitometer Model RD-8015 which was mounted after the final printing unit on the GARC web offset press. A digital interface connects the densitometer to a HP-9815A computer and a HP-9872A plotter and also fires the densitometer at the exact instant the printed test object passes beneath the densitometer head.

Senior Technologist Irving Pobboravsky wrote the program which results in a plotted display of the solid density, slur and fill-in while the press is running. He recalled that the system needed some debugging before meaningful results were obtained.

"There was a trial-and-error period," he said, "but we have a working system now. We hope that soon we'll begin to find out why slur and fill-in occur – and then, perhaps, how to control dot gain."

That prospect has prompted considerable interest of late from equipment manufacturers and supply companies. Further research is in the offing. The GARC staff admit they have extensive investigations ahead of them, and all feel that they have made a good, solid beginning and they are looking forward to more.

Deadlines for submitting items to be included in the *Newsletter* are: February 15, April 15, June 15, August 15, October 15, and December 15, in other words, the fifteenth of the even-numbered months.

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