Inter-Society Color Council *News*

Number 275 NOVEMBER-DECEMBER 1981

VOTING DELEGATES URGED TO RETURN BALLOTS

The Secretary reports that ballots for the election of Officers for the 1982-1984 term and Directors for the 1982-1985 term are in the hands of the Voting Delegates. There were no additional nominees beyond those given in the last Newsletter.

The Voting Delegates have been reminded of the importance of their participation in the voting process, which has dropped to less than 50% in recent years. All Voting Delegates are urged to return their ballots as part of their responsibility for the governing of the Council.

The results of the election will be announced to the membership in the next Newsletter.

51st ANNUAL MEETING

The 51st Annual Meeting will be held at the Sheraton Center Hotel, Charlotte, North Carolina, on Sunday evening, Monday and Tuesday, April 18-20, 1982. A final program, registration information, and hotel reservation will be sent to the membership early in March. It is strongly recommended that all who plan to attend preregister at that time. We look forward to seeing you in Charlotte for the ISCC's first meeting in Textile Country.

NEWS OF MEMBERS

Henry W. Levison to Receive Macbeth Award

The ISCC Macbeth Award Committee, chaired by Richard Hunter, has unanimously nominated Henry W. Levison for the 1982 Macbeth Award, for outstanding achievements in color for the visual arts.

The Macbeth Award was established in 1972 by Norman Macbeth, Jr., in honor of the memory of his father, Norman Macbeth. The outstanding contributions of both father and son to the fields of color and illumination have added to the prestige of the award. Nominated by Artists Equity Association, Henry Levison was cited by the Award Committee for his life-time contributions to the art material industry and for providing unbiased, accurate information to the artist; but the basis for the award was his concentrated work since 1971 to make possible new standards for artists' paints.

BACKGROUND

Originally trained as a chemist, Levison began his career working with industrial lacquers and inks. He became concerned about the importance of the use of permanent pigments in artists' paints through contact with Dr. Martin Fischer, who was then at the University of Cincinnati where Levison graduated. This interest and contacts with local artists led him to found the Permanent Pigments Company in 1933 where he set a policy of using only very lightfast pigments and printing a full description of pigment content on the label.

Twenty-eight years ago Levison formulated and marketed the first complete line of acrylic polymer emulsion artists' paints. During the years that he ran his company he continued a small lightfastness testing program, publishing several booklets giving his results and background information about artists' paints. He served on a National Bureau of Standards committee which in 1942 established the first voluntary standard for artists' paints. He served again in 1962 when the standard was revised.

Before retiring from his company in 1971 he formulated and introduced an innovative set of paints called the Modular Colors. They were suggested by Nathaniel Jacobson and based on the Munsell color system. Color measurement data on each of these colors was made available to artists.

Levison has been a member of the American Chemical Society for 52 years, a member of the Federation of Societies for Coating Technology for 46 years, and is a past Fellow of the American Institute of Chemists. He was elected to the Art Material Hall of Fame by the Art Material Trade Association and made a Member in Perpetuity. He has also been an active member of the ISCC for a number of years.

RECENT WORK

Retiring in 1971, Levison established *Colorlab* in Hallandale, Florida, where he could work as a consultant and could begin the extensive lightfastness testing on artists' paints which he believed should be done.

The NBS Standard had included a list of pigments approved for use in artists' paints, and it was agreed that a number of pigments which had since been introduced in the market should be tested for possible inclusion in the list of a future revision. Levison began this job on his own time and at his own expense.

In addition to the need for information about the lightfastness of individual pigments, there was a need for a standardized test method. The one used in the 1942 and 1962 versions of the standard was not accurate, and each company was using different methods to evaluate pigments. This sometimes resulted in the same pigment being rated differently by different companies.

Believing the unrealistically high temperatures and exaggerated humidity developed in standard sun and Fade-Ometer exposures could distort test results in the case of some pigments, he designed and constructed a cabinet containing daylight

fluorescent tubes which were cycled for light and dark periods and monitored for the amount of energy to which the samples were exposed. Including a group of traditional artists' pigments whose permanence was well known plus a group of pigments being proposed as suitable for use in artists' paints, Levison formulated these into paints diluted with a standard white paint, and prepared samples for exposure.

By 1976 the samples had been exposed to the equivalent of 25,000 langleys of sun exposure, which Dr. Robert Feller of the Carnegie Mellon Institute had suggested as representing 100 years of average indoor exposure. Levison published the results and back-up data at his own expense in the book *Artists' Pigments: Lightfastness Tests and Ratings.* He also wrote a proposed revision of the NBS standard based on his test method and test results, and requested that the Bureau of Standards Standing Committee be reactivated.

However, before the standard could be thoroughly considered the NBS ceased issuing voluntary product standards. Levison and a few other members of the NBS committee established an ASTM D-1 subcommittee to continue the work. With the cooperation of manufacturers now on the D-1 subcommittee, Levison could do a more comprehensive set of tests which would also verify his test method.

So he started all over again. This time 177 paints (92 pigments formulated in both oil and acrylic emulsion vehicles) were diluted with a standard white to 40% reflectance at the wavelengths of greatest absorption. This had to be determined separately for each paint and then samples made for four exposures. One set of samples was exposed in his fluorescent cabinet, one set was exposed under glass to the sun in a commercial rack in Miami, one set was exposed under glass in Binney & Smith's exposure racks in Kansas, and one set was exposed by M. Grumbacher in their Xenon-arc Fade-Ometer. The data from all tests were evaluated and the Lightfastness Categories necessary for the new standard have been established.

During this same period Levison worked on other test methods to address problem areas he knew from experience. The test methods are: Preparation of Films of Artists' Paste Paints for Colorimetric Determination, Adhesion between Artists' Paint Films Having Dissimilar Vehicles, Yellowing of Paint Vehicles in an Indoor Environment, Flexibility of Artists' Picture Varnishes, and Distensibility of Artists' Paint Vehicles.

Levison devised the test methods, provided test data, and has written a draft of each method himself. These methods are still moving through the ASTM balloting process and there will be, as always, changes before they are adopted; but no matter how any individual standard may be altered, without Levison's initiative and work the standards would not exist.

The NBS standard, while innovative for 1942, had not been practical and had been allowed to become completely obsolete. Levison, persisting in the ideal of his youth and with 10 years of selfless effort, has lifted his field to a new level of knowledge. The results of his work will slowly spread throughout the industry resulting in better products, better informed artists, and a more lasting national heritage.

Joy Turner Luke

REPORT ON THE 1981 MEETING OF THE INTER-SOCIETY COLOR COUNCIL AND THE CANADIAN SOCIETY FOR COLOR, WILLIAMSBURG, VA., U.S.A.

The Inter-Society Color Council (ISCC) of the U.S.A. and the Canadian Society for Color (CSC) met at Williamsburg, Virginia, from 8 to 11 February 1981. Twelve papers were presented on the subject Creativity, the Common Denominator: Artist and Scientist Working Together. About 90 persons attended the meeting.

Charles Parkhurst (U.S.A.) dealt with the question, Who Invented the Color Wheel? His investigation continues that of Robert L. Feller, who a decade ago had shown that references to color circle diagrams in Europe go back at least to the year 1611. Parkhurst identified no graphic records of circular systems earlier than the 17th century, but he said some may be inferred from recent tests and may be reconstructed, namely, the 7-color circle (13th century), the 4-color circle (14th, 15th centuries) and the red-yellow-blue circle (17th and 18th centuries).

Yale and Francis Forman (U.S.A.) showed slides and artifacts to illustrate their talk entitled China–Its Influence on Western Color and Design. They reviewed the influence of early commerce between China, Rome and Byzantium by land and that of the 18th- and 19th-century by sail ships to Europe and the U.S.A. They then dealt in more detail with commerce with the People's Republic of China, in particular, with the export of handcraft objects, whose designs and colors they predicted would influence those made in other parts of the world.

Paul V. Gardner (U.S.A.) gave a paper on Color in Glass, beginning with objects made more than 2000 years ago, continuing with Venetian glassware, with stained glass applications and ending with 19th- and 20th-century Art Glass, a manifestation of the resurgence of glass as an art medium during the last two decades.

Joy Turner Luke (U.S.A.) in her contribution entitled Examples of the Application of Current Scientific Knowledge to the Fine Arts dealt primarily with present color knowledge, which can provide (1) information on materials useful for making artworks and (2) psychological and psychophysical information useful for producing visual illusions. She pointed to the work of the ISCC Committee on Artists' Materials as regards the color properties of materials. She also discussed current developments on color systems as a source of information on the color gamuts available to artists and designers, on color reproduction and its relevance to visual art and on color appearance under changing types of illumination. She stated that those working on color science welcome help from visual artists in resolving color problems.

Art and the Analytical Laboratory was the topic discussed by Marilyn Laver (Canada). She showed the use of radiographs in revealing alterations made to paintings, the origin of copper and iron used in prehistoric and ancient artifacts, the age of artworks and the reasons for the durability of pre-historic rock paintings.

Joyce S. Davenport (U.S.A.) gave a paper on The Dependence of Color Systems on Technology. She reviewed the

technical considerations that underlie a paint manufacturer's task in producing batches of colored paint to meet specification: the availability of established new pigments, problems involved in manufacture (such as those related to pigment compatibility and pigment dispersion) and product performance (such as weathering resistance of pigments).

David Makow (Canada) discussed Liquid Crystals–A New Medium for Artists, in this case certain properties of cholesteric liquid crystal coatings. In particular, he pointed out that, since little light is absorbed, the perceived color of such superimposed liquid crystal coatings is that of additive color mixture. This property enables liquid crystals to produce a wider color gamut (higher color saturation) than is possible with ordinary pigments. Two other characteristics of liquid crystal coatings are: the dependence of colors on the angle of illumination and viewing and the dependence of colors in some situations on the ambient temperature. He displayed paintings, reliefs and sculptures that utilized these properties.

The Artist and the Art Conservator: A Dialogue, the title of a paper presented by Joyce Hill Stoner (U.S.A.), emphasized the diverse tasks of conservators in restoring, repairing and preserving artworks. Accurate information provided by artists regarding the intended appearance of a work are extremely important for its conservation. Should it be varnished? What instructions should be followed during repair? (Louise Nevelson and Alexander Calder have authorized conservators to respray paint onto entire surfaces of certain works, if damaged.)

Other papers presented were entitled The Identification of Dyes in Archeological Textiles by Max Saltzman (U.S.A.). The Interaction of Art and Technology in Television Design by Pierre Garneau (Canada), Color in Colonial Williamsburg by Arthur L. Smith (U.S.A.) and Color in Signs and Graphics by James Cass (U.S.A.).

The persons who attended the meeting had different backgrounds: color scientists; painters; sculptors; art conservators; textile, product and interior designers. The discussions following the presentation of papers reflected their diverse points of view.

Louise Z. Stahl

Reprinted from *Leonardo*, Vol. 14, No. 4, p. 304, 1981. Printed in Great Britain.

NEWS OF PROJECT COMMITTEES

Determination of the Tinting Strength of Colorants–25-P

The active members of this Committee, the co-chairmen (Joyce S. Davenport and Jacqueline K. Welker), Al Keay, and Edward Cairns have been in frequent contact with each other. The group are currently working on the summary of the data generated in the first stage of their testing. The data will be presented to the Board of Directors of ISCC during the annual meeting. The group are pleased to announce that Mr. Cairns, who was transferred out of the immediate field of color into other areas of his company (DuPont) is back in this area of color and also active again in Subcommittee 25-P.

Joyce S. Davenport

Philatelic Color Designation

In the last half of 1981, our activities have supported the development of a modern method of designating the names of colors used in describing postage stamps as listed in recognized international catalogues on this subject.

A seminar was given at the annual convention of the American Philatelic Society in Atlanta, Georgia, in September concerning the use of the Munsell System and the Universal Color Language in stamp collecting. A major emphasis was placed on the need for a recognized standard and the preferred use of universally acceptable terminology for the descriptions to overcome the extensive confusion of names which exists now and is made even less tolerable when translations are made from one language to another.

A second article was approved for submission to the "American Philatelist," the official organ of the American Philatelic Society, by the ISCC Board of Directors. This work, by Committee Member, Dr. Fred W. Billmeyer, Jr., provides Munsell notations and Universal Color Language designations where various color sample collections already exist but are inadequate for use as standards in the effective management of the color-naming problem. Many collectors will have access to these tools but not to the "Munsell Book of Color;" and, with them, some approximation can be obtained. At least one well-recognized handbook on color was found to be seriously deficient. This work serves to alert the hobby of possible problems arising from its use. The article is entitled "Universal Color Language Designation for Some Philatelic Color Aids."

A third article is being prepared by the Committee Chairman and provides the basis, employing the techniques proposed by the Committee, for renaming the color terms used in the major worldwide catalogues in English, French, Spanish and German. Examples of all of the issues of postage stamps of one country issued before 1880 were examined; and, from this study, the preferred names were developed. The article should be ready for submission to the ISCC Board sometime in early 1982. This work will document the successful application of the techniques developed by the Committee and serve as an example from which similar treatment of the color-naming can be achieved for the stamps of all nations.

Donald L. MacPeek

NEWS OF MEMBER-BODIES

Illuminating Engineering Society (IES)

At five of the six regional conferences of the Illuminating Engineering Society a WORKSHOP ON COLOR FOR LIGHTING ENGINEERS, ARCHITECTS AND DESIGNERS, prepared by the IES Color Committee, was presented. Dr. Robert Levin of GTE Sylvania spoke in Orlando, Al Hart of the G.E. Lighting Institute spoke in Tucson, Dr. Philip Hughes of Duro-Test spoke in Kansas City and Prof. Alexander Styne, University of Miami spoke in Banff, Canada. A fifth presentation took place during the LIGHTING WORLD INTERNATIONAL Exhibition and Regional Conference of the Northeast Region of the IES in December in New York City. It was

given by Dr. William Thornton of Westinghouse Corp. This workshop is now available to audiences anywhere and to any interested group by members of the IES Color Committee. It is presently scheduled to be given to joint meetings of IES, AIA, CSI, ASID, IBD, ISDA in Denver, Colorado and Sacramento, California in February 1982 by Alexander Styne. The IES Color Committee is now working on preparations for a publication on Color and Illumination planned to be ready by the end of 1982.

William A. Thornton, Chairman
IES Delegation to ISCC

Society for Information Display (SID)

Welcome to the most recently joined ISCC member-body. The SID was founded in April 1963 to provide the proper environment for information exchange between individuals involved in information display technology. Information display is a highly interdisciplinary field concerned with the processing, dissemination and presentation of intelligence to man through the application of scientific and engineering principles, inventions, machines and systems. The Society publishes a Journal, a quarterly Proceedings, an Annual Symposium Digest and various other materials of interest to members. For further information, contact the Society for Information Display, 654 North Sepulveda Boulevard, Los Angeles, 90049, (213) 473-3550.

The Society's forthcoming International Symposium will be held May 11-13, 1982 in San Diego, California.

Ifay F. Chang

COLOR 81

The Association Internationale de la Coluleur (AIC) meetings in Berlin, September 1981, opened with two papers on the history of color measurement. Dr. Manfred Richter, who received the Judd Memorial Award and can be said to be the father of the AIC, gave an historical paper showing pictures of famous scientists (back to Newton) responsible for building the science of color. Dr. W. David Wright related the history of the CIE Standard Observer and coordinate system which he helped found. Both papers were well given.

The announced focus of the conference, which included approximately 70 lectures and 50 poster demonstrations, was color difference formulas. Second in importance was the development of color difference scales correlating adequately with visual appearance. Among the questions raised was a fundamental one; e.g., "Was it proper, when the CIE Observer for colorimetry was formed, to combine the $\bar{y}$ luminosity function with the chromaticity functions?" The question was not answered.

Notable papers included one by Mori and Fuchida of Japan which showed that CIELAB is the best of existing UCS color scales. It, too, however, can be improved. There was also a seminar on industrial color tolerances in which Lou Graham of Burlington Industries gave an excellent talk. He stated that shade sorting of textiles, using the 555 System and the Bi-Sort equations, was working very well. He noted that in the Bi-Sort System, lightness is given the largest tolerance, saturation is next, and hue – the smallest. Burlington has 23 systems.

PIX FROM AIC COLOR 81 BERLIN

Left to right – Dr. Stephen Bergen, Richard Hunter, Dr. Henry Hemmingdinger, Mrs. R. Hunter, Joyce S. Davenport

Left to right – Mrs. D. Wright, U.K.; Dr. Lakowski's Asst.; Dr. R. Lakowski, Canada; Joyce S. Davenport, U.S.A.; Dr. Allan Rodrigues, U.S.A.; Jacqueline K. Welker, U.S.A.; Dr. Hans Joachim Kaseler, Germany (background); Prof. W. David Wright, U.K. (foreground)

Reception at Gerhaus Schloss

The next President of the AIC will be Dr. Hunt of Kodak in Britain. The Vice President will be Heinz Terstiege, and the Secretary-Treasurer will be Hans Vos. Also on the Executive Committee will be Mr. Harrah of France, Mr. Hord of Sweden and Peter Kaiser of Canada. The next AIC meeting (four years from now) will be in Monaco on the Mediterranean. In the interim, there will be conferences on Color Dynamics in Budapest (1982) and color-order systems in Sweden (1983).

Richard S. Hunter
J. S. Christie

MEETINGS

Gemological Institute of America (GIA)

The first International Gemological Symposium will be held from February 12-15, 1982, at the Century Plaza Hotel in Los Angeles, California. The program is extensive.

If more information is needed, please contact the GIA, 1660 Stewart Street, Santa Monica, California 90404, (213) 829-2991.

Technical Association of the Graphics Arts (TAGA)

Key figures in the graphic arts industry will meet at the May 16-19, 1982 Annual Technical Conference of the Technical Association of the Graphic Arts. The conference will be held at the King Edward Hotel, Toronto, Canada. The emphasis is on future developments in the industry rather than on currently available techniques. Nonmembers are invited to participate.

Theme: FOCUS ON TOMORROW'S TECHNOLOGY . . . The doorway to future trends, technology, and systems, for profitable graphic reproduction. The papers are designed to excite the imagination and sharpen technical knowledge and skills.

WALTER BRUEHS, 1982 Papers Chairman, is receiving prospective papers. Contact Walter A. Bruehs, Eastman Kodak Company, Research Laboratories, Bldg. 59, Kodak Park, Rochester, NY 14650. (Tel. 716/477/4916).

Registration information and program details will be sent upon request. Write to Technical Association of the Graphic Arts, P. O. Box 3064, Federal Station, Rochester, NY 14614.

AIC Interim Meeting

The AIC Interim Meeting will be held June 8-10 in Budapest, Hungary. "COLOR DYNAMICS 82" will be organized by the Hungarian Commission for Colours. Topics of the conference include the following: Color in the environment and standards for color dynamics, technical directives and facilities for planning.

For further information, including registration forms, please write to the Editor.

Council for Optical Radiation Measurements (CORM)

The 1982 Annual meeting of the Council for Optical Radiation Measurements will be held at the National Bureau of Standards, Gaithersburg, Maryland, on Wednesday and Thursday, May 12-13, 1982. The theme of the meeting will be *A National Measurement System for Radiometry.*

The program of CORM 82 will include contributed papers of 20-25 minutes in length in two areas of high current interest, for which titles and brief abstracts are hereby solicited:

New Developments in Spectroradiometry

Contributed papers concerning new techniques, devices, or applications of spectroradiometry are solicited. Examples include near-infrared radiometry, vidicon or array radiometry, Fourier and heterodyne radiometry, tunable dye lasers, quantum detector physics, and new approaches to digital control and measurement in radiometry. Abstracts in these and related areas should be submitted to Dr. W. D. Parlow, Westinghouse Electric Corporation, Research and Development Center, 1310 Beulah Road, Pittsburgh, Pennsylvania 15235.

Material Standards Needs in Spectrophotometry

Contributed papers concerning techniques, material standards, or the role of standardization in applications of spectrophotometry are solicited. Examples include the state-of-the-art of precise and accurate spectrophotometry; calibration (photometric and wavelength), systems checks, and diagnostic standards and methods; material standards for such special measurements as specular reflection, high-density transmissometry, evaluation of metamerism, specular exclusion in integrating spheres, etc.; and certification or accreditation programs. Abstracts in these and related areas should be submitted to Mr. Franc Grum, Research Laboratories, Building 82, Eastman Kodak Company, Rochester, New York 14650.

The deadline for receipt of abstracts of contributed papers for CORM 82 is February 22, 1982. The final program, with full details of the meeting, will be available in April. For further information, contact the program chairmen named above or Dr. Fred W. Billmeyer, Jr., CORM Secretary-Treasurer, Department of Chemistry, Rensselaer Polytechnic Institute, Troy, New York 12181.

The deadline for receipt of abstracts of contributed papers for CORM 82 is February 22, 1982. The final program, with full details of the meeting, will be available in April. For further information, contact the program chairmen named above or Dr. Fred W. Billmeyer, Jr., CORM Secretary-Treasurer, Department of Chemistry, Rensselaer Polytechnic Institute, Troy, New York 12181.

PRODUCTS AND SERVICES

Eighteenth Annual Summer Program in Color Technology at Rensselaer

Dr. Fred W. Billmeyer, Jr., Professor of Analytical Chemistry at Rensselaer Polytechnic Institute and Director of The Rensselaer Color Measurement Laboratory, will present his nationally-known one-week courses in the Principles of Color Technology, Color Technology for Management, and Advances in Color Technology this June at Rensselaer's Troy Campus. The program will also feature Mr. Max Saltzman of the University of California at Los Angeles, and Adjunct Professor of

Color Science at Rensselaer. In addition, a special one-time-only course, Colorimetry and the Eye, with the internationally known W. D. Wright as Lecturer, will be presented in May.

Colorimetry and the Eye, May 25-27, 1982. Fee: $575. This course will cover the visual processes of color perception, color matching, the standard observer, color differences, and appearance. The lecturer, Professor W. David Wright, retired, Imperial College, London, pioneered the study of most of these topics over a 50-year career.

The course is a one-time opportunity for all concerned with color science and technology in all its many branches to attain a better understanding of the first principles behind the use of instrumentation and computers in color technology. A separate brochure provides more detail on the course "Colorimetry and the Eye."

Color Technology for Management, June 2-3, 1982. Fee: $550. The principles of color technology as they influence management decisions will be discussed. The course provides information on physical and perceptual aspects of color, color measurement, color differences and tolerances, and color matching. Typical problems in the production and sale of colored products will be covered, with solutions presented in terms of management decisions based on the principles of color technology. Management personnel attending this course will learn how to use color technology to improve productivity through better utilization of equipment and manpower and the reduction of waste.

The course is designed solely for executive and management personnel. The major clientele is individual personnel responsible for programs of production and sales of colored products. Those directly involved in color matching and color control will be asked to enroll in other courses in the program at Rensselaer.

Principles of Color Technology, June 7-11,or June 14-18, 1982. Fee: $600. This course provides information on color description, color-order systems, measurement principles, color-difference calculations and tolerances, computer color matching, and colorant properties. Laboratory periods provide hands-on experience in measurement, computation and problem solving using the latest commercial equipment.

The course is of value to all individuals interested in color science from a variety of disciplines and organization levels. The major clientele is industrial personnel involved in color matching and color control. Attendance is limited to the number which can be accommodated in the laboratory sessions.

Advances in Color Technology, June 21-25, 1982. Fee: $600. This course provides the latest information on the developments and techniques of color science and technology at an advanced level. Topics that will be discussed include instruments, calibration, and measurement errors; terminology and standards; color spaces and color differences; color appearance; and turbid-medium theory and color matching. Selected advanced laboratory workshops are included.

The course is designed for those having two or more years of direct personal experience in instrumental color measurement. The major clientele is industrial personnel involved in color matching and color control at an advanced level. Since elementary material is *not* included, applicants without previous experience will be asked to enroll in the course "Principles of Color Technology."

Contact: Office of Continuing Studies, Rensselaer Polytechnic Institute, Troy, New York 12181; (518) 270-6442.

Organic Pigment Identification Package

The Rensselaer Color Measurement Laboratory has developed the method of solution spectrophotometry for the identification of organic pigments. It is applicable to the analysis of paints, plastics, printing inks, works of art, or any other material colored with organic pigments. The method is simple and rapid, requires only small samples (down to 20-30 micrograms for semimicro analysis), and uses only readily available equipment. Mixtures of pigments can be analyzed, and the presence of resins, binders, or other uncolored additives generally does not interfere with the analysis.

To apply the method, a few milligrams of sample is treated with a few milliliters of organic solvent; several different solvents are used in a prescribed sequence. Organic pigments are extracted into the solvents in a few minutes at room temperature or slightly above. Spectra are obtained from the resulting solutions using a visible-range (though extension to 900 nm in the near-infrared is important) analytical or color-measuring spectrophotometer providing a log-absorbance vs. wavelength plot. This display gives a curve shape independent of the quantity of pigment present, and identification of the organic pigment is made by identity of experimental curve shape to one of those in a library of reference curves.

To facilitate the use of the solution-spectrophotometry method, The Rensselaer Color Measurement Laboratory offers an *Organic Pigment Identification Package* consisting of (1) complete instructions, including analytical schemes and a curve-shape-index method of searching the reference library, and (2) the reference library, consisting of 416 log-absorbance plots of 166 organic pigments in the solvents recommended. In Package No. 1 the log-absorbance plots are computer plotted to be identical in size and scale (to facilitate identification by overlaying experimental plots) to those produced on General Electric-Hardy, Diano Hardy, Diano Match-Scan, Applied Color Systems Spectro Sensor, and other spectrophotometers utilizing the same scales. The cost of Package No. 1 is $250.

Other packages will be developed on request, with library curves plotted to match the size and scales of other log-absorbance plots submitted with the request. Prices will vary upward from $250 depending on demand, and will be quoted on request. Arrangements can also be made for users to access Rensselaer's computer data files for the library.

For a more complete description of the solution-spectrophotometry method for the identification of organic pigments, request a reprint of a recent publication.

CONTACT: Dr. Fred W. Billmeyer, Jr., Department of Chemistry, Rensselaer Polytechnic Institute, Troy, New York 12181. Telephone: (518) 270-6458.

BOOK REVIEW

Principles of Color Technology – Fred W. Billmeyer, Jr., and Max Saltzman

John Wiley and Sons, New York, 1981. Pp. xv +240. Price $39.95.

Like the successful first edition (1966), this book deals mainly with the coloring of objects and is written for the professional colorist, whose job it is to create and match colors through the skilled application of dyes and pigments to materials. To do this satisfactorily also requires a basic theoretical understanding of why the properties of light sources and human observers also affect the colors of things. The book communicates this information very effectively at an elementary level. Where materials are concerned, both theory and practice are treated in more detail. This suits the intended audience and is consistent with the authors' desire (p. vii) to "have limited the content of the book to topics within the scope of our personal knowledge." Since both authors are chemists, their expertise runs deepest here.

To those familiar with the first edition, it will come as no surprise that Billmeyer and Saltzman accomplish their objectives very well. They write with a light and often entertaining style and use a profusion of illustrations for many purposes, ranging from graphs that substitute for equations to a few cartoons having purely an entertainment value. The book is longer by a third than the first edition and has been fully updated. Every sentence and every figure of the first edition seems to have been carefully scrutinized; those items judged pedogogically ineffective or obsolete have either been exorcised or updated. Many sections and illustrations have been added, including a stunning set of new color plates.

Topics that receive repeated emphasis include metamerism, observer variability, problems of production sampling, and the proper relation of instrument use of visual observations. The major progress of the last 15 years has been in the area of color instrumentation: Compare (1st edition, p. 77) "the accuracy of existing instruments is only about one-tenth that which one would like to see" with (second edition, p. 88) "modern color-measuring instruments can typically reproduce the measurements of stable, uniform samples with an uncertainty of less than a tenth of a just-perceptible color difference." The analog computers used for color measurement in 1966 are all but extinct, and digital computers (whose use for color measurement was pioneered by Professor Billmeyer) are now routinely attached to spectrophotometers and colorimeters.

Many problems remain to be solved. There is still no valid index of metamerism, a problem that cannot wholly be avoided for the color matching of different materials (such as plastics and fabrics) where, because identical colorants cannot be used, invariant physical matches cannot be achieved. The lack of a valid metamerism index relates to a lack of adequate methods for predicting the color differences that will be perceived between stimuli represented by pairs of spectral reflectance curves. Part of this problem relates in turn to the fact that there exist substantial differences in color perception among persons with normal vision, the CIE standard observer to the contrary notwithstanding.

The book is handsomely done, with the same basic format as the first edition. Between the wide, hard-cloth covers one finds that the sans-serif type of the first edition has been replaced and that whiter paper has been used. The annotated bibliography has been kept to 115 items by eliminating about 70 old ones, with new titles substituted. The main bibliography, which is about three times larger than the annotated one, has been similarly updated, as have the text references. The subject index has been expanded and is superbly done.

Books teach best when their authors have a particular audience in mind, a major strength of this one. Surprisingly, this focus does not diminish its value for others, and this reviewer recommends it for the bookshelf of anyone seriously interested in any aspect of color, particularly those who share the responsibility of teaching the subject to others.

Robert M. Boynton

Courtesy of JOSA.

CHAMPAGNE COLOR A PROBLEM?

The December 1981 issue of USAIR (v 3, n12) describes a color problem for an ISCC Project Committee for which there should be no end of volunteers.

"There are two approved methods for making rosé champagne in France, and neither is a sure bet. Under the older method, the skin of the dark Pinot Noir grape is allowed to remain in contact with the juice after pressing, as in making red wine. A second method calls for the addition of a small amount of still, red Champagne wine to the blend just before the second fermentation. In either case, it takes about three to five years in the bottle for the pinkish color to develop; and, often, it will come out blue or yellow or brown instead. Pink champagne goes in and out of style (it is "in" now), but blue champagne has not yet had its vogue."

William D. Schaeffer

CALENDAR

ISCC Annual Meetings

1982: April 19-20 – Charlotte, N.C.

1. Any person interested in color and desirous of participating in the activities of the Council for the furtherance of its aims and purposes . . . shall be eligible for individual membership (By-Laws, Article I, Section 2). Application forms for individual membership may be obtained from the Secretary (address given above).

2. The Council re-affirms its community of interest and cooperation with the Munsell Color Foundation, an independent private foundation devoted solely to the advancement of color knowledge in science, art, and industry. It serves as Foundation Associate of the Inter-Society Color Council. The Council recommends and encourages contributions for the advancement of these purposes of the Munsell Color Foundation. For information, write to S. L. Davidson, NL Industries, P.O. Box 700, Hightstown, N.J. 08520.

3. The Council promotes color education by its association with the Cooper-Hewitt Museum. It recommends that intended gifts of historical significance, past or present, related to the artistic or scientific usage of color be brought to the attention of Christian Rohlfing, Cooper-Hewitt Museum, 9 East 90th Street, New York, New York 10028.

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.

Send newsletter items to:
Ms. Mary Ellen Zuyus
Hunter Associates Laboratory, Inc.
11495 Sunset Hills Road
Reston, VA 22090

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Inter-Society Color Council

January, 1982

51st ANNUAL MEETING

The 51st Annual Meeting of the Inter-Society Color Council will be held at the Sheraton Center Hotel, Charlotte, North Carolina, on Sunday Evening, Monday and Tuesday, April 18-20, 1982. The Sheraton Center is located on the outskirts of Charlotte, and there is taxi and shuttle-bus service from the airport. Note that this is another in the series of ISCC Annual Meetings held at new locations with features of particular interest to our members.

The theme of the 51st Annual Meeting will be "Welcome to Textile Country." The meeting will start with a wine-and-cheese reception, for which advance registration will be required, on Sunday evening, April 18, starting at 5:00 P.M. Following the reception, members and guests will be free to dine in one of Charlotte's many fine restaurants -- a list will be included with the meeting program mailed in March. Meetings of Delegation Chairmen, Project Committee Chairmen, and New Projects Planning (open to all) will also be held on Sunday evening.

In a change of pace, Monday, April 19, will be devoted to a Symposium on the theme topic, "Welcome to Textile Country." The keynote speaker will be Mr. William R. Martin, Jr., Executive Director of the American Association of Textile Chemists and Colorists. His opening remarks will be followed by presentations on Design Concepts by Ann Dillon and Jim Brown, and on Translation to Production by Vernon Smith, J. R. Aspland, and Tom McCullough. The Symposium will conclude with presentations on The Garment, by Scott Bailey, and on Marketing, by Cecil Bessellieu.

An Awards Luncheon will be held Monday noon, at which time the 1982 ISCC Macbeth Award will be presented to Mr. Henry W. Levison. Later on Monday afternoon there will be a visit to Cannon Mills at Kannapolis, North Carolina, where members of

the ISCC who have never visited a textile mill can obtain a real appreciation of the textile manufacturing process. Bus transportation will be provided, and advance registration will be required. The tour will end with return to the Sheraton Center in time for members and guests to dine at a location of their choice.

Tuesday, April 20, will be Problems Committee Day, with open sessions of ISCC Project Committees scheduled for the morning and afternoon. The second formal Luncheon of the 51st Annual Meeting will be held on Tuesday, and will incorporate the brief annual business meeting required by the By-Laws. At this time the Officers for the 1982-1984 term and the Directors for the 1982-1985 term will be installed, with Louis A. Graham succeeding William D. Schaeffer as President. The Annual Meeting will close at the end of the afternoon Problems Committee meetings, 4:00 P.M.

A final program, registration information, and hotel reservation card will be sent to the membership early in March. It is strongly recommended that all who plan to attend preregister at that time. As noted above, it will be mandatory to pre-register for some events. We look forward to seeing you in Charlotte for the ISCC's first meeting in Textile Country.