Inter-Society Color Council *News*

NUMBER 261 JULY-AUGUST 1979

1981 GODLOVE AWARD

Nominations are invited of potential recipients of the 1981 Godlove Award of the ISCC. Nominations may be submitted by Member-bodies or by individual members of the Council. They should be sent to the Chairman of the 1981 Godlove Committee:

Dr. Alan R. Robertson
Division of Physics
National Research Council
Ottawa, Ontario K1A 0R6
Canada

and must be received by 30 June 1980.

Basis of Judgment for Godlove Award

The Godlove Award is to be given for contributions to the subject of color. The contributions of an individual shall be examined in light of the Aims and Purposes of the Inter-Society Color Council given in Article II of the Constitution.

The merit of a candidate shall be judged by his contributions to any field of interest related to color whether or not it is represented by the Member-bodies. The contribution to color may be direct, it may be in the active practical stimulation of the application of color, or it may be an outstanding dissemination of knowledge in color by writing or lecturing, based on original contributions by the nominee.

The candidate must be a member of the Inter-Society Color Council (a delegate, an individual member, a retired member, or an honorary member). Former members of the ISCC, who may not be "retired members," may be considered.

The candidate need not have been active in the affairs of the Council.

Citizenship, place of residence, age, or other personal circumstances shall not be considered in the granting of the Award.

Information Required for Nomination

1. Name and address of Nominee
2. Professional affiliation (company, institution, etc., if any)
3. Title (present or most recent) and duties
4. Other professional society affiliations and any positions held
5. Nature of interest and activities in color
6. Evidence of the contribution made in encouraging the scientific, artistic or industrial use of color
   a. In own organization (for company or employer)
   b. In own aspect of color expertise in own industry or professional group
   c. In outside-interest contributions in color (other industries, for example)
   d. In national activities
   e. In international activities
7. Writing or speaking done in support of scientific, artistic or industrial use of color. (Attach list of publications, talks, patents, etc., if possible – the list should be representative, not necessarily complete.)
8. Additional general background information
9. Source of Nomination
   a. Member-body – Give name of person in Member-body who prepared the nomination
   b. Individual member – Give name
   c. Award Committee

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

VIGNETTES FROM THE PRESIDENT'S DESK

I. A recent newsletter of the Canadian Society for Color carried a very interesting enclosure entitled: "Directory of Color Experts." Since this announcement may be of interest to ISCC membership, we present to you an excerpt from that announcement.

The Canadian Society for Color is initiating a service to facilitate the solving of problems involving color. Have you ever encountered a problem in your color work and wished to have the name of someone who could help? We have established a directory of color experts. This will be a living directory; changing, growing and evolving as necessity dictates. Thus far, our directory has about 70 entries and is growing.

These entries were obtained by asking members of the Canadian Society for Color to complete a directory classification form. Thus, our records contain people who have identified *themselves* as experts in various areas. We shall feel free to amend these classifications and identification of expertise as experience dictates.

I wonder if the ISCC should make an effort to do something similar. Let us hear from you or give us your opinion via newsletter. The members are encouraged to participate in the newsletter. Only with your broad participation will our newsletter be an ambassador of communication among us and will reflect the feelings and desires of all members.

II. "Perhaps all small children begin by seeing only primary colours. I remember to the minute when I realised that colours came in variety and were not only plain reds and blues and yellows. My pa and I had gone to Hampton Court in the spring, and for the first time that year I was allowed out of doors without wearing my gaiters. . . I was young enough to need to run to express my pleasure. . . I fetched up beside my father who was looking at the long wall behind the herbaceous border in the palace garden.

"Look at the colour in those bricks.'

" 'It's red,' I said, seeing it that way.

" 'Have another look.' said my father, pushing his hat further back on his head.

"As I looked again the solid red dissolved and now the bricks were many different colours; some were almost blue, or grey, or mauve, or pink or sandy-yellow. Only a few were brick-red. Revelation! The colours came out at me, subtle in their differences, exciting in their unfamiliarity. From that moment I saw more than primary colours. The discovery was that the colours had been there to be found all the time."

Grenfell, Joyce. *Joyce Grenfell Requests the Pleasure.* New York, St. Martin's Press [c1976], p. 43.

NEWS OF MEMBER-BODIES

Communication With Delegates Of Member-Bodies

It is of the utmost importance to maintain active liaison with Member-bodies via the chairman of your delegations. After each ISCC Board of Directors Meeting, a detailed report is sent to both the Society Liaison and the Delegation Chairman. Responses are encouraged as well as any news from the Member-bodies. In recent months I have telephoned many of you in order to establish or renew communication. If there are any news items to be published or business information you may wish to bring to the attention of the board, please feel free to call me at 312-391-9000.

The following names are an update of the Gravure Technical Association.

Frank E. Benham, Chairman of the delegation.

Warren Daum – voting member.

Oscar Smiel – voting member.

The following change has been made in the Society of Plastic Engineers, Color and Appearance Division.

Thomas G. Webber becomes Delegation Chairman and Bill Cunningham a voting delegate. The lineup is as follows.

Thomas G. Webber (C)
W.J. Cunningham (V)
W.V. Longley (V)
M.E. Berenson
F.W. Billmeyer, Jr.
T.V. Haney
A.J. Pentz
R. Stanziola
Joyce S. Davenport, Member-Body Liaison

Color Marketing Group (CMG)

CMG Spring Meeting

Louisville is a great place to be during the racing season but when one has CMG there at the same time, you can bet it's a winner of a town.

CMG's spring meeting attracted almost three hundred members, sixty three of whom were attending for the first time. The program was extremely successful due to the hard work and planning by the program co-chairmen, Monica Dietrich (Clopay Corporation) and Bill Marley (G.A.F.). The meeting emphasized the Color Directions, which is the usual format in the Spring. This year followed along the same lines, each member attending the assigned workshop to participate in a color palette, however, this year a new program was initiated, Cross-Pollination workshops, where members mixed into various workshops and were given ten minutes to show their personal color direction cards and discuss them. Each Directions Committee had an hour and a half program. Technical Directions had a review of Munsell Color System plus a visual display of fabrics under variant light sources by Louis A. Graham. Joyce S. Davenport discussed the phenomenon of metamerism, metameric samples and pertinent information.

Education Directions committee presented their future projects and discussed various areas of support of the association.

Marketing Directions introduced Doris Crary, Chesebrough Pond's – "How to Sell Management Your Creative Ideas."

Morris Gall, Glidden Corporation. "Color Naturals, How to Introduce and Sell Your Product to Distributors and Dealers." Morris also critique the film which is presently being featured.

The main program also included CMG's Robert Winchell Director Advertising and Sales Promotion Curtis Paper discussing marketing management in action. Jim Brown, Manager Carpet Fabric Development. Celanese Fibers, gave a spectacular presentation, showing the new concepts in carpet coloration, the inspiration for design and many other fascinating techniques in the development of carpet fabric. A panel discussion with Morris Gall and James Grabowsky, Glidden Division of SCM, Tom Holloway, Bennett Colorant Division, Joyce Davenport, DeSoto, Inc.

Dr. Lawrence Siebert gave a stimulating talk, which included audience participation, the subject "Confronting Conflict" had considerable information which could be applied to each of us dealing with every day tensions and situations. Dinner speakers were Joseph Martin Vice-President Marketing Sci-Tech. Inc., and Abby Chapple-Furnishings Editor, The Washington Star. The program and workshops kept everyone extremely busy, it was on the Belle of Louisville cruise, members were able to dance and relax, while seeking out and renewing old acquaintances.

We were saddened to hear of the recent deaths of two dear friends and CMG chairholders, Whitridge S. Amos of Cann/Erickson-Wilmington, Delaware and Aimo J. Palosaari of Chrysler Corporation, Detroit. We will miss their friendship, professionalism and their talented contributions to CMG.

Future meetings are set for the Greenbrier, White Sulphur Springs Nov. 11th-13th and Philadelphia, Spring of 1980.

Joyce S. Davenport, Chairman

CMG Active On The West Coast

CMG participates in California Seminar, May 31 - June 1. An extremely successful seminar was held in Monterey, California during the summer. It was entitled, "Designers Showcase '79 and Beyond." Invited were a cross section of the leading interior designers for the Mobile Home/RV industry.

It was the brainchild of Harry Shortway, Vice President Styling and Design for Congoleum. Harry is a chairholder and also a past director of CMG.

What was so unique about this seminar it was not restricted to the company's floor products, but brought in other manufacturers of important interior products for the Mobile Home/Recreational Vehicle Industry.

Where did he turn for the expertise needed? Naturally to his talented associates in CMG many of whom he had worked with in the past.

From this mutual exchange of information between designer and supplier emerged several color directions which will benefit all.

Participants included:

Floors – Resilient – Leonard Ludovico, Director of Design

Congoleum. Carpet – Ann Heacker, Director of Color, Shaw Industries.

Walls – Decorative Vinyl – Ann Jacobson, Marketing Stylist, Newco Inc. Wood Paneling – Keith Hill, Color Director, D. G. Shelter Products.

High Pressure Laminates – Westinghouse Micarta – Murray Smith, Manager Specification Markets.

Draperies – Burlington House – John Rinderman, Vice President, Director of Styling.

Upholstery – Yale Forman Designs – Yale Forman, President, Consultant to Chatham Industries, Celanese Canada, Industrias Polifil.

Southwest Group Seminar. The Southwest Regional Group of CMG presented a seminar for western members of the American Society of Interior Designers, National Home Fashions League and the Resources Council. The July meeting attended by over three hundred was held at the Pacific Design Center.

Subject and Speakers included:

"Universal Color Language" – John Gleason – Ameritone Paint Corporation.

"Metamerism and Lighting" – Victoria Mornean – Calty Design Research, Inc.

"Regional Color in Carpeting" – Robert V. Dale – Karastan Rug Mills.

CMG Southwest Regional Meeting – September 14, 1979. This promises to be another successful meeting and a very interesting program covering various aspects of the paint industry.

The meeting to be held at Ameritone Paint Corporation, Long Beach includes a technical presentation on the impact of California Resources Board ruling on oil base paints. Color palettes in the southwest and introduction of a new color system. The meeting will end with a dinner cruise on a three mast schooner.

Graphic Arts Technical Foundation (GATF)

GATF Fall Workshop And Seminar Schedule Prepared

PITTSBURGH, Pa., August 23, 1979 – The Graphic Arts Technical Foundation's fall workshop and seminar schedule has been released by GATF's Special Programs Department.

GATF's workshops are two- to five-day educational programs held at the Foundation's Technical Center in Pittsburgh; GATF seminars are conducted in major cities around the world.

Details on workshop and seminar instructional content, as well as price and registration information are available by writing to Mr. William H. Smith, director of GATF's Special Programs Department, 4615 Forbes Avenue, Pittsburgh, Pa. 15213.

The fall schedule for GATF workshops and seminars, subject to change, follows.

Fall 1979 GATF Workshops:

OCTOBER	1-3	Paper and Ink
	8-13	Printing Orientation Program
	15-19	Sheetfed Offset Press Operating
	22-24	Process Quality Controls
	25-26	Color Printing
NOVEMBER	1-2	Radiation Curing of Inks
	7-9	Image Assembly
	12-16	Printing Orientation Program
	26-28	Ink Technology
	29-30	Major Plant Expansion & Plant Layout (In conjunction with the American Institute of Industrial Engineers – AIIE)
DECEMBER	3-7	Sheetfed Offset Press Operating
	10-14	Printing Orientation Program

Fall 1979 GATF Seminars:

OCTOBER	13	Paper/Ink Problems in the Pressroom (New York City)
	19-20	Four-Color Process for Sheetfed Press Operators (Milwaukee)
NOVEMBER	2	Troubleshooting (Columbus)
	3	Color Reproduction Systems (Lancaster, Pa.)
	12	Troubleshooting (Richmond, Va.)
DECEMBER	1	Sheetfed Press Operating (Washington, D.C.)
	7-8	Web Offset Printing (Los Angeles)
	8	Color Stripping (New York City)
	8	Prepress Production (St. Louis)
	15	Color Stripping (Greensboro, N.C.)

GATF Initiates Project 80

A major expansion and renovation of the international headquarters and technical center of the Graphic Arts Technical Foundation was announced by Herbert M. Sayers, GATF president and president, Sayers Printing Company, St. Louis, Mo.

Focal point of the $2.7 million project is the GATF Color Center, a new facility to be built within GATF's Pittsburgh headquarters. Entitled Project 80, the plans call for new equipment estimated in excess of $2 million plus $675,000 in renovation and expansion costs. Mr. Sayers said member companies of GATF have already committed $1.1 million in equipment and over $100,000 in cash to the project.

Andrew McNally III, chairman of the board of Rand McNally & Company, Chicago, Ill., has been named chairman of Project 80. Mr. McNally said the GATF Board of Directors approved Project 80 at its recent Spring meeting in Pittsburgh and had also approved a method of financing the expansion.

The GATF Color Center was conceived by William J. Mariner, former GATF president and president, Case-Hoyt Corporation, Rochester, N. Y. He said that it is intended as an industry facility through which graphic communications may concentrate its efforts to solve the color reproduction problems.

"It is designed," he said, "as a focal point for all in graphic communications concerned with the definition and resolution of the problems of color printing. It will provide research, technical, and educational facilities and expertise which are to be used to research the problems of color reproduction; to offer practical, technical information and assistance in production problems relating to color; and to provide technical education programs in color to advance production and management skills."

"We know," he said, "that color sells and that color informs. We need color as a tool of commerce and a tool of education. We see color being used increasingly in today's and tomorrow's world to bring about better understanding. The GATF Color Center is intended to help us bring about better color and better color reproduction."

Mr. Sayers indicated the GATF Color Center will be located on the entrance floor of GATF's four-story headquarters building, allowing easy access to its facilities by all industry visitors. It will include two scanner areas, a camera gallery with darkroom, a direct screen enlarger room, two combination contact-processor rooms, and a viewing and proofing area.

Gravure Technical Association

The "Customer Relations" committee of the Gravure Technical Association has announced acceptance of the DuPont Cromalin toners that have been specifically formulated to duplicate as closely as possible the Group I and V GTA publication printing inks. This should provide the publication gravure printers and service houses a method of pre-press proofing directly from separation positives.

The "Input Copy Requirements for Reproduction" GTA committee has completed the mechanics of its tests to evaluate color copy variations and their effect on the finished printed product. Such items as dye differences, retouching compatibility, duplicating of transparencies, conversion of reflection copy to transparencies, size change, sharpness tests, and many other tests were all included in special tests from original photography through the press run.

Evaluation of the results will be done by a committee of 18 persons representing the entire reproduction chain from client/agency through printer. Conclusions will be made by subjective judgment of the printed reproduction with objective evaluation of the various steps determining cause and degree of contribution each step may make to any problem areas.

A complete report on conclusions is expected to be published in the GTA Bulletin by January 1980.

There seems to be much common ground between all printing processes when you consider the various aspects of copy supplied to the printer or service house. It is the objective of this GTA committee (Input Copy Requirements) to: *identify areas of concern, objectively analyze these areas,* and *disseminate information that would improve the end results.*

It is expected that this information will prove helpful in improving color reproduction from the photographer through the printer with opportunities for the various suppliers to contribute helpful information and techniques to minimize or eliminate problem areas.

Frank E. Benham, Chairman

House & Garden Color Program

Color To Have Greater Impact On Consumer Sales

"Color will be one of the most important factors in generating increased sales in almost every type of household product through 1980 and beyond – influencing design, setting certain items above the crowd, and stimulating consumer needs and desires."

So predicts Ralph F. Timm, publisher of House & Garden magazine in disclosing a record increase in the number of manufacturing licensees who have already signed for the publication's 1980 Color Program.

Mr. Timm said there had been a 30 percent increase of new licensees and that these include such firms as American Hardware Supply Co. (Servistar Paints); Celanese Fibers Marketing Co.; Cannon Mills; Fenton Art Glass; Fuller-O'Brien Paints; C.R. Gibson Papers; Medallion Leisure Furniture; MaLeck Industries, Inc.; Crown Industries; Plymouth Inc.; Schumacher-Waverly Fabrics; and Stance Industries.

The range of other industry leaders continuing as licensees include such well known names as Armstrong Cork, Bigelow-Sanford, Congoleum, Corning Glass, Dart Industries, Du Pont, GAF, General Electic, Hallmark, Hoover, Kirsch, Mohasco, Philadelphia Carpet, Reed Wall Covering, J.P. Stevens, Westpoint Pepperell and many others.

Timm added: "Never before has color been such an important purchasing determinant for the ever growing range of home related items.

"America's growing trend toward more frequent redecorating and its strong color interest is one reason why makers of paints, wallpapers, linens and domestics, appliances, furnishings and other home items are concerned with the best utilization of color in all its aspects."

He noted that House & Garden licensees receive a wide range of services including the House & Garden Palette of 53 colors for 1980.

These colors are those the magazine determines are likely to be the most popular best sellers during the coming year – based on actual sales in the marketplace over the past year, consumer surveys and forecasts of color preferences by the publication and leading consultants and individual market research projects.

Licensees then determine which of their own products to produce in H&G Colors, agreeing to adhere to the highest standard of quality and appearance.

Licensees have the exclusive right to use the "House & Garden Colors" designation in the United States in product promotion and advertising.

Nadine Bertin, Color Program and Creative Services Director of House & Garden added that participants receive among other services:

Information and Research: Color information to help manufacturers make better product decisions. Included are research data on current sales as well as forecasts of potential volume colors in home products, on a product-by-product basis as well as within individual market categories.

Marketing Support: Use of all the multiple resources developed by H&G to help makers move products most profitably.

Communication: Ongoing opportunities for confidential consultation with the Color Program Department. Access to color information from markets that coordinate with those of each manufacturer. Open dialogues with other makers, retailers, designers and consumers.

Color Marketing Forecast with semi-annual research reports; invitation to the magazine's annual Color Marketing Seminar, and Color Evaluation reports of individual product colors in terms of potential sales.

Miss Bertin noted that the House & Garden Colors are internationally known, used by thousands of consumers, designers, manufacturers, contractors, and retailers. They are made available in large Color Chips, housed in a plastic Pack with licensees' names printed on the back of the colors they match for consumers' and retailers' information, plus important tips from interior designers on working with color.

For further information contact: Nadine Bertin or Laura De Angelo at House & Garden. (212) 880-8166.

PIA COURSE IN PLASTICS COLORING

The Plastics Institute of America will sponsor a 3-day plastics

coloring course November 13, 14, 15, 1979. The last such PIA coloring course was conducted January, 1977. The course will again be held near Rensselaer Polytechnic Institue, Troy, New York.

The revised program consisting of lectures and demonstrations by experienced colorists.

Introduction to Color and Appearance – F. W. Billmeyer, RPI.

Visual Color Matching – W. V. Longley, Ford Motor Co.

Instrumental Color Measurement – F. W. Billmeyer, RPI.

Instrumental Color Matching – R. Stanziola, ACS.

Colorants for Plastics – T. B. Reeve, E. I. duPont.

Colorant Forms – V. J. Mimeault, Ferro Corp.

Pigment Dispersion in Plastics -- T. B. Reeve, E. I. duPont.

Color Processing of Molded Parts – D. A. Popielski, Monsanto.

Color Differences – F. W. Billmeyer, RPI.

Special Problems – W. V. Longley, Ford Motor Co.

Color Tolerances – M. Saltzman, UCLA and RPI.

A tour of the RPI Color Laboratory will also be conducted.

The course provides basic technology in color matching and processing on a practical basis, utilizing both color measurement and visual skills. For more information contact Plastics Institute of America at Stevens Institute of Technology, Castle Point Station, Hoboken, N. J. 07030, (201) 420-5552.

PUBLICATIONS NOTED

Color In Hospitals

The July 16, 1979 issue of *Hospitals* has a major article on color by Faber Birren: "Human Response to Color and Light." This is the official journal of the American Hospital Association and was written following a speech on the same subject delivered for the Association in 1978.

While the original article of some 2,500 words had a full page in color, the reprint has reproduced this in black and white to save costs.

Faber Birren will be happy to send a copy to anyone on request. Just enclose a quarter for mailing. 184 Bedford Street, Stamford, Conn. 06901.

Pocket Guide To Color Reproduction

Creating customer-pleasing quality color printing is quicker and simpler when you have a copy of the *Pocket Guide to Color Reproduction,* by Miles Southworth, on hand. This new softcover book from Graphic Arts Publishing Company is the fastest and most convenient access to the latest information on all phases of color printing by any process.

Though it really *is* small enough (4" x 7") to fit in your pocket, the *Guide* is bulging with useful, up-to-date facts and time-tested procedures and production techniques gathered by author Southworth during years of printing experience in color separation and quality control.

He explains basic color separation theory, standard viewing conditions, calibrating your color proofing system to your printing for consistent results, how to identify common color printing problems, choosing and evaluating a transparency for reproduction, and how some of the devices now available to printers can be used to maintain high quality at a reasonable price when producing process color.

Many other topics are covered in this volume, which includes over two dozen full-color illustrations showing the basics of color theory and its application to all kinds of printing.

The *Pocket Guide to Color Reproduction* has been written to assist anyone involved with the reproduction of color in printing – graphic designers, artists, printing production directors, print buyers, sales personnel, paper and ink suppliers, printing craftsmen, communications and design students, and many others in this field. Publishers, advertising agencies, suppliers, trade shops, printers, or any business that sells services for color printing will find the *Guide* makes a perfect, useful gift for their customers. It's an instant "answer book" to help solve a multitude of common (and uncommon) problems through better communications.

In writing the *Guide,* Miles Southworth has drawn upon his extensive consulting experience in industry. He is a professor in the School of Printing at the Rochester Institute of Technology, and is well-known to thousands of readers through his monthly column in *Printing Impressions.* His *Color Separation Techniques* is also published by Graphic Arts Publishing Company.

The *Pocket Guide to Color Reproduction,* by Miles Southworth, is a 120 page paperback book. Single copy price is $5.95, available from: Graphic Arts Publishing Company, 3100 Bronson Hill Road, Livonia, New York 14487. Substantial quantity discounts available. Mail orders should include $1.00 US postage and handling; New York State residents please include 7% sales tax.

PRODUCTS AND SERVICES

Hunterlab D52 Glossmeter

Hunterlab's new hand-held, one-piece glossmeter with 20° or 60° geometries is designed for measurement of specular reflectance of non-metallic surfaces of paints, plastics and other materials. The D52 has been designed to ASTM D523, ISO 2813, DIN 67 530, and other specifications and has the same characteristic precision as other Hunterlab glossmeters. Gloss values are displayed in digital form on the top panel, which also contains the standardizing knob and zero adjustment controls.

Hunterlab Seminars

Hunter Associates Laboratory, Inc. will continue the 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 $90, 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.

Three Service Seminars will be conducted in Reston, 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.

SCHEDULE – 1979-80

DATE	*LOCATION*
September 5-6	Cleveland, Ohio
October 2	Emeryville, California
October 4-5	Anaheim, California
October 17-18	Philadelphia, Pennsylvania
November 7-8	Chicago, Illinois
November 28-29	Montreal, Canada
December 5-6	Cincinnati, Ohio
January 9-10	Baltimore, Maryland
February 20-21	Charlotte, North Carolina
March 3-4	Phoenix, Arizona
March 6-7	San Diego, California
March 26-27	Macon, Georgia
April 23-24	Dallas, Texas
April 30-May 1	Green Bay, Wisconsin
May 15-16	Toronto, Canada
May 28-29	Saddlebrook, New Jersey
June 11-12	Boston, Massachusetts

First Day, Color Theory
Second day, demonstration of instruments and consultation

WORKSHOP

January 23-25 — Reston, Virginia
A three-day extended Color Theory course.

SERVICE SEMINARS

December 7 - D25 Colorimeters — Reston, Virginia
February 7, 1980 - D25-9 Colorimeters — Reston, Virginia
June 5, 1980 - D54 Spectrophotometers — Reston, Virginia

NATIONAL BUREAU OF STANDARDS (NBS)

7th Annual CORM Conference

The 7th Annual CORN-NBS Technical Conference was held at NBS in Gaithersburg on June 20, 1979. This year's technical discussions were centered around the instrumentation used in optical radiation measurements.

A business meeting was held prior to the technical session. At last year's Technical Conference, it was announced that the number of CORM coordinators had been expanded from five to ten (ORN #25, July 1978). This year, in order to better fulfill its objectives of liaison with, and advice to, NBS in the field of optical radiation measurements, CORM has further reorganized and adopted by-laws and elected officers and directors.

Some of the aims and purposes of CORM, as set forth in its by-laws, are: 1) to establish consensus among interested parties on national industrial and academic requirements for physical standards, calibration services, and interlaboratory collaboration programs in the field of optical radiation measurements, including the measurement of the transmitting and reflecting properties of specimens; 2) to establish national consensus on the priorities to be attached to meeting those requirements; and 3) to maintain liaison with the National Bureau of Standards and advise the Bureau of requirements and priorities.

The newly elected officers of CORM are: *E. S. Steeb, General Electric,* President; *F. Grum, Eastman Kodak,* Vice President; *F. W. Billmeyer, Rensselaer,* Secretary-Treasurer.

The directors and their terms of office are:

J. E. Eby, Sylvania	– 1 year
T. A. Luminello, Polaroid	– 1 year
C. S. McCamy, Macbeth/Kollmorgen	– 2 years
R. T. Marcus, PPG Industries	– 2 years
W. E. Schneider, Optronics	– 3 years
A. R. Karoli, Eppley	– 3 years

CORM is presently exploring the possibility of incorporating as a non-profit organization and plans to charge dues of approximately $5.00/year starting in 1980. New members are welcome at any time. In developing priority issues for NBS, the process of forming a consensus within CORM was stressed. In forming a consensus on an issue. all negative notes must be explained and resolved. Only through this process can CORM establish priorities as an organization and subsequently advise NBS. The 3rd CORM report, Projected National Needs in Optical Radiation Measurements, has been prepared and will be issued shortly.

The first technical talk was delivered by Henry Kostkowski who elaborated on the theme that "precision instruments and accurate standards do not insure accurate measurements," discussed previously in ORN #28, April 1979. Despite precision instruments and accurate standards, large errors can still occur due to the differences between the radiation field of the standard and that of the field being measured. Differences in flux level, position and direction, wavelength, and time are among the major problems. These problems can be minimized by designing a radiometer with a responsivity sufficiently invariant with respect to the parameters mentioned or by resorting to a detailed characterization of the responsivity function and the radiation fields and to a more refined computation.

Dave Goebel described the development of a double-monochromator spectroradiometer covering the wavelength range between 200 nm and 2.5 μm. The instrument features thermo-electrically cooled S-20 photomultiplier and lead-sulfide detectors and integrating-sphere input optics. Three interchangeable spheres rotate 180° between the unknown and standard sources. For very low signals, the sphere is removed and a barium sulfate coated diffuser plaque is substituted.

Following these two talks, representatives of three different instrument manufacturers presented the features of their commercially-available spectroradiometers.

Next, Aaron Sanders described some features of the laser power measurements at NBS-Boulder. For instance, they offer standards and measurement services for laser power measurements up to 1kW and energy measurements down to 10^{-16} joules. For pulsed lasers, their calorimeters typically use volume absorbing cavities with optical traps. For their measurement assurance intercomparisons they use silicon detectors of known spatial responsivity characteristics.

In discussing reflectance spectrophotometers, Danny Rich pointed out that the broadband spectral reflectance properties of most materials allow more emphasis to be placed on the accuracy of the photometric scale and less on the wavelength scale than in analytical instruments used to specify the sharp absorbing wavelengths of absorbing media. He then discussed the general features of a number of commercially-available instruments.

The final speaker was Robert Marcus, who discussed the desirable properties of material standards used in reflectance spectrophotometry with regard to stability, uniformity, durability, fluorescence, opacity, polarization, and geometry.

Robert L. Booker

Investigations In Psychophysical Photometry

In order to investigate failures of the current photometric system (see previous article), NBS and the National Research Council of Canada have been conducting a cooperative program in psychophysical photometry. The differences between photometric luminance and perceived brightness have been investigated in separate, but related, experiments at both laboratories. The results of the initial experiments have been published[1,2] and document the substantial differences that can exist between photometric luminance based on the V(λ) function and brightness as perceived visually.

In the most recent phase of this work at NBS, the differences between photometric luminance and perceived brightness were investigated with nine observers in a brightness matching experiment at suprathreshold levels using 20 chromatic stimuli covering a large portion of the chromaticity diagram, including the non-spectral purple region, and were also investigated as a function of source size using four of the stimuli. Deficiencies in the present photometric system were studied through the use of the so-called brightness-to luminance (B/L) ratio where B is the luminance of the adjustable white stimulus used by the observer in obtaining a brightness match and L is the fixed luminance of the chromatic stimulus. B/L ratios were obtained with the chromatic stimuli at a luminance of 100 cd/m^2 while subtending angles of 1°, 20' and 6'. The amount of white light required to make a brightness match increased as saturation increased and decreased as stimulus size decreased. A more complete description of this investigation is contained in an article submitted to the Journal of the Optical Society of America.

Robert L. Booker

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1. D. H. Alman, *Errors of the Standard photometric system when measuring the brightness of general illumination light sources*, J. Illum, Eng. Soc. *7*, 55-62 (1977).

2. R. L. Booker, *Luminance-brightness comparisons of LED alpha-numeric sources at supra-threshold levels*, J. Opt. Soc. Am. *68*, 949-952 (1978).

Reprinted from *Optical Radiation News*, National Bureau of Standards, U.S. Department of Commerce, No. 29, July 1979.

NBS PUBLICATIONS IN UV RADIOMETRY

The previous issue of *Optical Radiation News* included a list of publications documenting recent work at NBS in the area of optical radiation measurements. In order to further inform our readers on additional work done mainly in the ultraviolet spectral region, the following publications are listed for your information.

Ott, W.R., Fieffe-Prevost, P., and Wiese, W.L., *V.U.V. Radiometry with Hydrogen Arcs. 1. Principle of the Method and Comparisons with Blackbody Calibrations from 1650 Å to 3600 Å*, Appl. Opt. *12*, 1618 (1973).

Ott, W.R. and Wiese, W.L., *Far Ultraviolet Spectral Radiance Calibrations at NBS*, J. Opt. Engineering *12*, 86 (1973).

Ott, W.R., Behringer, K. and Gieres, G., *V.U.V. Radiometry with Hydrogen Arcs. 2. The High Power Arc as an Absolute Standard of Spectral Radiance from 124 nm to 360 nm*, Appl. Opt. *14*, 2121 (1975).

Ott, W.R., *NBS Ultraviolet Radiometric Standards*, Symposium on Measurements for the Safe Use of Radiation, NBS-SP 456, p. 107 (1976).

Ott, W.R., *Far UV Radiometry – Survey of the National Measurement System*, NBSIR 75-941 (1977).

Bridges, J.M. and Ott, W.R., *V.U.V. Radiometry. 3. The Argon Mini-Arc as a New Secondary Standard of Spectral Radiance*, Appl. Opt. *16*, 367 (1977).

Bridges, J.M., Ott, W.R., Pitz, E., Schulz, A., Einfeld, D., and Stuck, D., *Spectral Radiance Calibrations Between 165-300 nm: An Interlaboratory Comparison*, Appl. Opt. *16*, 1788 (1977).

Canfield, L.R., Johnston, R.G., and Madden, R.P., *NBS Detector Standards for the Far Ultraviolet*, Appl. Opt. *12*, 1611 (1973).

Saloman, E.B. and Ederer, D.L., *Absolute Radiometric Calibration of Detectors Between 200-600 A*, Appl. Opt. *14*, 1029 (1975).

Saloman, E.B., *Time Response of NBS Windowless XUV Radiometric Transfer Standard Detectors*, Appl. Opt. *14*, 1764 (1975).

Ederer, D.L., Saloman, E.B., Ebner, S.C., and Madden, R.P., *The Use of Synchrotron Radiation as an Absolute Source of VUV Radiation*, J. Res. Natl. Bur. Stand. (U.S.A.) *79A*, 761 (1975).

Madden, R.P., *THE SOLAR OUTPUT AND ITS VARIATION*, section entitled *The Availability and Development of NBS Radiometric Standards*, Editor: O.R. White, (Colorado Associated University Press, Colorado) 1977.

Madden, R.P., *SPACE RESEARCH VOLUME XVIII, Status of VUV Radiometric Calibration of Space Experiments*, Editors: M.J. Rychroft and A.C. Stickland, (Pergamon Press, Oxford and New York) 1978.

NBS RADIOMETRY PUBLICATIONS, 1977-1978

From time to time, questions arise regarding what NBS has done recently in a particular area of optical radiation. To better inform our readers and keep them abreast of work at NBS in the area of optical radiation measurements, the following list of publications by NBS staff has been compiled.

JOURNAL PUBLICATIONS:

Eckerle, K.L. and Venable, W.H., Jr., *1976 Remeasurement of NBS Spectrophotometric-Integrator Filters*, Color Research and Application, (Fall 1977).

Schaefer, A.R., *Ultraviolet Enhanced Responsivity of Silicon Photodiodes: An Investigation*, Appl. Opt. *16*, 1539 (June 1977).

Venable, W.H., Jr., Hsia, J.J. and Weidner, V.R., *Establishing a Scale of Directional Hemispherical Reflectance Factor I: The Van den Akker Method*, J. Res. NBS, (July-August 1977).

Booker, R.L., *Luminance-Brightness Comparisons of LED Alpha-Numeric Sources at Supra-Threshold Levels*, J. Opt. Soc. Am. *68*, 949 (July 1978).

Saunders, R.D., Ott, W.R., Bridges, J.M., *Spectral Irradiance Standard for the Ultraviolet: The Deuterium Lamp*, Appl. Opt. *17*, 593 (February 1978).

CONFERENCE PROCEEDINGS:

Kostkowski, H.J., *Uncertainties in the Measurement of Incoherent Optical Radiation*, Proceedings of the Bureau of Radiological Health Minisymposium on Biological Effects & Measurement of Light Sources, Rockville, Maryland, March 25-26, 1976, HEW Publication (FDA) 77-8002, p. 107.

Zalewski, E.F. and Lind, M.A., *Improving the Accuracy of Radiant Power Measurements Based on Photodetector Instrumentation*, Proceedings of the Bureau of Radiological Health Minisymposium on Biological Effects & Measurement of Light Sources, Rockville, Maryland, March 25-26, 1976, HEW Publication (FDA) 77-8002, p. 117.

Geist, J., *Applications of Absolute Radiometers*, Proceedings of the 1978 Electro-Optical and Laser Conference, Boston, Mass., September 19-22, 1978.

Geist, J., *Applications of Absolute Radiometers*, Proceedings of the 8th IMEKO Symposium of the Technical Committee on Photon-Detectors, Prague, Czechoslovakia, August 21-28, 1978, p. 277.

Hsia, J.J. and Venable, W.H., Jr., *NBS Capabilities for Reflectance and Transmittance Measurements*, Proceedings of the IES Seminar on Testing Solar Energy Materials and Systems, NBS Gaithersburg, MD, May 22-24, 1978, published by the Institute of Environmental Sciences, copyright 1978.

Nicodemus, F.E., *The Self-Study Manual on Optical Radiation Measurements*, Proceedings of the IES Seminar on Testing Solar Energy Materials and Systems, NBS Gaithersburg, MD, May 22-24, 1978, published by the Institute of Environmental Sciences, copyright 1978.

Zalewski, E.F., *Calibrating a Spectroradiometer with cw Laser Lines and a Calibrated Detector*, Proceedings of the 1978 Electro-Optical Laser Conference, Boston, Mass., September 19-22, 1978, p. 277.

MONOGRAPHS AND BOOK CHAPTERS:

Douglas, C.A. and Booker, R.L., *VISUAL RANGE: Concepts, Instrumental Determination and Aviation Applications*, NBS Monograph 159 (June 1977).

Baltes, H.P., Geist, J., and Walther A., *INVERSE SOURCE PROBLEMS IN OPTICS, Chapter 5 Radiometry and Coherence*, Editor: H.P. Baltes, (Springer-Verlag, Germany) 1978.

Nicodemus, F.E., Richmond, R.C., Hsia, J.J., Limperis, T., and Ginsberg, I.W., *Geometrical Considerations and Nomenclature for Reflectance*, NBS Monograph 160 (October 1978).

TECHNICAL NOTES:

Geist, J., Lind, M.A., Schaefer, A.R. and Zalewski, E.F., *SPECTRAL RADIOMETRY: A New Approach Based on Electro-Optics*, NBS Tech. Note 954 (July 1977).

Lind, M.A. and Fowler, J.F., *Four Versatile MIDAS Compatible Modules*, NBS Tech. Note 958 (September 1977).

Saunders, R.D. and Shumaker, J.B., *OPTICAL RADIATION MEASUREMENTS: The 1973 NBS Scale of Spectral Irradiance*, NBS Tech. Note 594-13 (April 1977).

Shumaker, J.B., *Self-Study Manual on Optical Radiation Measurements, Part I Concepts, Chapter 6, Distribution of Optical Radiation with Respect to Polarization*, NBS Tech. Note 910-3 (June 1977).

Kostkowski, H.J. and Nicodemus, F.E., *Self-Study Manual on Optical Radiation Measurements, Part I Concepts, Chapter 5, An Introduction to the Measurement Equation*, NBS Tech. Note 910-2 (February 1978).

Lind, M.A., Zalewski, E.F., and Fowler, J.B., *The NBS Detector Response Transfer and Intercomparison Package: The Instrumentation*, NBS Tech. Note 950 (July 1977).

Nicodemus, F.E., *Self-Study Manual on Optical Radiation Measurements, Part I Concepts, Chapter 4, More on the Distribution of Optical Radiation with Respect to Position and Direction*, NBS Tech. Note 910-2 (February 1978).

Zalewski, E.F. and Corrons, A., *Detector Spectral Response from 350 to 1200 nm Using a Monochromator Based Spectral Comparator*, NBS Tech. Note 988 (December 1978).

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ISCC Annual Meetings

1980: April 21-22 – Rochester, N.Y.

Williamsburg Conferences

1980: February 4-6
1981: February 9-11
1983: February 7-10

Dry Color Manufacturers Association

1980: The Greenbrier, White Sulpher Springs, WV, June 15-18

Federation of Societies for Coatings Technology

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

Industrial Designers Society of America

1979: Hyatt Regency, Washington, D.C., September 26-30

Optical Society of America

1979: Genesee Plaza Holiday Inn, Rochester, NY, October 8-12

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