



Inter-Society
Color Council
Newsletter

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TABLE OF CONTENTS
NUMBER 239, November-December 1975

Page	
1	Symposium in Memorial to Ralph M. Evans
1	Richard S. Hunter, Macbeth Award Recipient for 1976
1	Japan Color Research Institute
2	Where Has All the Color Gone?
3	Book Review
4	Reprints Available
	Meetings
4	Gravure Technical Association
4	Society of Photographic Scientists and Engineers
5	Hungarian National Colour Committee
6	Canadian Society for Color in Art, Industry and Science
6	The Colour Group 1976
6	Hunterlab Mini
7	Exhibit, Library of Congress
7	Three Awards Go to Ott for Photographic Excellence
7	Index, 1975
	Color Reproduction, Inside Front Cover

COLOR REPRODUCTION

Traditionally the use of gold has expressed great worth and value. Its widespread use in advertising, packaging and product design today is testimony to the lasting value of the symbolism of gold. Modern metallic pigment and printing technology is up to the task of metallic reproduction as is evident in the antique mortar and pestle reproduction by Ohio Bronze Powder Company, Cleveland, Ohio.

SYMPOSIUM IN MEMORIAL TO RALPH M. EVANS

The Tuesday afternoon session of the 1976 Annual Meeting of the ISCC will be entirely dedicated to a Memorial Symposium to Ralph M. Evans. He was associated with the Council from the date of its conception in 1931 until his retirement in 1970. He served the Council as secretary for 18 years and as president.

The speakers at the symposium are former friends and associates of Ralph. They will discuss past and future development of Evans' work and present some practical implications of his work on color perception.

There will be three principal speakers at the symposium. Bonnie Swenholt, a long time Evans' associate and collaborator, will present excerpts and illustrations from Evans' lectures. The guiding principle in Evans' research provides her title, "Look at It."

Edwin J. Breneman, also from Eastman Kodak, will cover the following topics under the title of "Pictorial Color Reproduction":

The perception of complex and simple stimuli,
The perception of real objects and environments and pictorial representations, and

The objective of color reproduction.

George B. Gardner will present personal recollections of Evans and talk about his career and contributions.

These papers will be followed by a series of short commentaries on Ralph Evans by Dorothy Nickerson, Dick Hunter, and Isay Balinkin. Franc Grum will preside.

The symposium will interest all color enthusiasts, particularly since the concepts presented will be accompanied by exceptional color illustrations.

FG

RICHARD S. HUNTER

MACBETH AWARD RECIPIENT FOR 1976

The Macbeth award was established in 1970 by Norman Macbeth, Jr., in memory of his father, Norman Macbeth (1873-1936), founder of the Macbeth Daylighting Company and an active member of the council from its inception in 1931. (See *Newsletter* No. 216). The award is made biennially, if a suitable candidate can be found, for recent important contributions in the field of color, preferably within the last 5 to 10 years. Richard Hunter was selected by the award committee for his book, "The Measurement of Appearance," which was published in 1975, and for his service to the Council as President (1972-1974). However, Mr. Hunter has a long and distinguished career in the field of appearance measurement. For those who do not know him well some biographical material may be in order.

Mr. Hunter received his AB degree from George Washington University where he majored in psychology and minored in physics. He did research work at the National Bureau of Standards from 1927 to 1946, when he was appointed Chief Engineer of the Gardner Laboratory, Bethesda, Maryland. In 1952 he formed his own organization, the Hunter Associates Laboratory, Fairfax, Virginia, and is still its

President.

Mr. Hunter became involved with efforts to objectively measure appearance phenomena at about the time the photovoltaic cell was first produced commercially. He has made numerous oral presentations and published many papers on the subject of color and gloss measurement. Several of his papers were classic contributions that provided the basis for present-day instrumentation. The paper "A Multipurpose Photoelectric Reflectometer," published in 1940 in both the NBS Journal of Research and the Journal of the Optical Society of America, described an instrument that is still being produced after more than 35 years. The 46-page NBS circular "Photoelectric Tristimulus Colorimetry with Three Filters" was first published in 1942. A footnote to the title reveals on page one: "A preliminary brief account of this project was presented as part of the ASTM-ISCC joint Symposium on Color held in Washington, March 5, 1941." This classic circular was reprinted three times by the U.S. Government Printing Office and seven thousand copies were sold, first for 15 cents, later for 20 cents. In addition one instrument manufacturer received permission for a commercial reprinting of an unknown number of copies.

Mr. Hunter's contributions to gloss measurement resulted from his contacts with industrial problems presented to the Paint Committee of the American Society for Testing and Materials (ASTM). The paper "Methods for Determining Gloss" was published by ASTM in 1936. The classic paper "Development of a Method of Classifying Paint According to Gloss," coauthored by Hunter and Judd, appeared in the ASTM Bulletin in 1939, and formed the basis for ASTM D 523, "Standard Method of Test for Specular Gloss." This ASTM method of test has been adopted by the national standardizing bodies of other countries such as Australia and West Germany, and it has recently been adopted by the International Standards Organization. Mr. Hunter has summed up his nearly 50 years of experience in a book, "The Measurement of Appearance," published by John Wiley Interscience, December 1975.

Mr. Hunter's achievements have been recognized by several organizations. He is a fellow of ASTM, the Optical Society of America (OSA), and the Technical Association of the Pulp and Paper Industry (TAPPI). In 1961 he received the ASTM Award of Merit (an award currently held by less than 500 of the more than 24,000 members) for outstanding contributions to the field of appearance measurement; in 1962 the Armin J. Bruning Award for pioneer work in appearance measurement of paints; in 1969 the TAPPI Testing Division Award for contributions to paper testing; and in 1970, the OSA David Richardson Medal for outstanding contributions to optics in the field of applied colorimetry.

Harry K. Hammond III

JAPAN COLOR RESEARCH INSTITUTE

Professor T. Indow of the KEIO University and Dr. G. Kawakami of the Japan Color Research Institute, members

of the ISCC, attended the 18th CIE Conference in London with together about 40 persons of Japanese delegation.

Dr. Billmeyer gave a three days course of the Principle of Color Technology in Tokyo. After that, he was invited to participate in a discussion on problems of color technology and appearance, which was held as the 131st regular meeting of the CSAJ, Kanto branch at the JCRI. The chairman was Prof. Indow, and Mr. G. Baba (member) of the Hitachi Ltd., Mr. N. Shinada of the Kansai Paint Co., Ltd., Dr. L. Mori (member) of the Tokyo Shibaura Electric Co., Ltd. and Dr. Kawakami participated with Dr. Billmeyer. Since he was the first guest from abroad who had attended the CIE conference in London, the subjects discussed were focused on the topics of the CIE, which seemed to be very useful to all the participants.

Dr. Billmeyer toured the facilities of the JCRI with the participants and was shown an activity to produce some glossy colored paper for the Japanese Industrial Standard.

WHERE HAS ALL THE COLOR GONE?

ONCE there was color in the capital city. By the 1960's the halls and walls of Washington were filled with luminous, luscious, taste tempting shades of plastic paint infused into yard upon yard of unsized cotton duck. Just roll out the canvas and pour on the paint. By the mid 60's the art schools of Washington were crowded with would-be artists, matrons from the suburbs along with flower children and assorted scholastic art contest winners, all armed with cheap cotton, masking tape and jars of Liquitex. The masking tape, enough to supply Earl Scheib for a year of \$39.95 specials, was necessitated by a hard edge trend that had overtaken the free-wheeling skeins of expressionist splotches and pourings which had dominated the early phase of color painting.

Now as Washington approaches the Bicentennial, the color is fading. The galleries and museums are filled with images: photographic, organic, sexual, mythological, fanciful, drug oriented, autobiographical, conceptual — you name it. Last year, the Corcoran, once the bastion of academic color painting, featured Warhol's giant portrait of Mao and Wesselman's giant lipstick construction in their prestigious biennial exhibition. In the same show old time colorist Gene Davis was relegated, unsuccessfully, to the mezzanine rotunda, while New York colorists Poons and Olitski were mired in paintings that had all the brilliance of muddy pasta. And this season the Corcoran opened, not with some colorist fiesta, but with the tall tales of Ed McGowin: a staffed dog, a road side dive, a simulated plane wreck, and a suspended rooster. New galleries in town, such as Rebecca Cooper's, open, not with color painting, but with phantasmagorical ceramic cows. The whole grey mass of imagist art has flooded Washington and washed out all the color.

Now that the color school is fading, it might be valuable to see how it got to Washington and what happened along the way to its demise. In the beginning there were the two initiates, Kenneth Noland, who had been to Black Mountain and studied with the German color master Albers, and Noland's friend, Morris Louis. Together they made a pilgrimage to New York to pay homage to the priest of high

art Clement Greenberg and to visit the studio of Helen Frankenthaler, who was having a stained canvas breakthrough. Out of this meeting of minds and methods, so the story goes, was born the Washington Color School.

Color Field Painting, as it was called in New York, came to prominence as a post abstract expressionist (action painting) style at about the same time as common, commercial imagery began to appear in the work of Rauschenberg and Johns. So, while painting was moving into purer and purer realms, it was also absorbing and reiterating the banal, the commercial, and the vulgar. It was as if art had split into two poles: one formal and serious, the other eccentric and playful. There was never any doubt as to which of the new styles would be accepted in Washington. The color school of course had to fight its battles for acceptance, but as an essentially decorative art with neutral content it became the safest of the new. It was a style that was not loaded. Most of all it was tasteful.

There were some attempts to bring art based on common images to Washington in the early sixties. Alice Denney presented a Pop Art Exhibition in 1963 at the old Washington Gallery of Modern Art which featured a room-sized Kapok-stuffed canvas hamburger, along with erotic nudes by Wesselman and including works by Dine, Warhol and others. Washington, however, remained aloof. After all, this was the nation's capital; let New York celebrate the atrocities of Madison Avenue and Washington artists would float with the main stream. Although Denney and some others tried to introduce the outer reaches of tastelessness to Washington, culminating with Denney's Art Now Festival in 1965 which brought performance art — so-called happenings — to Washington, Washington remained unimpressed. Rather it was the safe and sane sensibilities of people such as Adelyn Breeskin, who came from Baltimore to direct the Washington Gallery of Modern Art in the early sixties and later turned up as consultant to David Scott at the National Collection, along with Gene Baro at the Corcoran who consistently favored the rational and formal over the exotic. Critics, such as Andrew Hudson on the *Post*, parroted the pronouncements of Greenberg and other formalist critics. Frank Getlein at the *Star* had never really understood the new art. And when two new reporters, Paul Richards (*Post*) and Ben Forgey (*Star*), began writing as art critics in the mid sixties, both of whom had broader art appetites than Getlein or Hudson, they still felt a need to promote Washington's most conspicuous art produce: Color Painting.

Neither Vietnam, the counterculture, drugs, peace marches, or riots could shake the hold of the pristine, the crystalline, the pure in painting. In answer to Nixon's Cambodian bombing the Washington artists then on display in Baltimore placed black crepe ribbons across their paintings, perhaps one of the most absurd gestures of the entire period. A proposal by a group of activist painters that artists remove their paintings lent to the government for decorating important officials' offices never materialized. And so in truth what had started out as the most personal of painting had become public art and public policy.

Not even Walter Hopps, who came to the Washington Gallery of Modern Art and the Corcoran with a reputation for a catholic taste, could pull against the color tide. He

was from the west coast, home of the crazies, had owned a gallery with Keinholtz, had organized a Duchamp exhibition in Pasadena, and in Washington tried to buck the tasteful trend with an assemblage "happening" by Lloyd McNeil, Chicago's Comic Strip Hairy Who, Underground Comics and so on; but the critics, while not openly hostile to vulgar images, spent most of their ink on Hopp's major Frank Stella show, a painter in the mainstream whose use of color put him within reach of the tasteful. Not until six or seven years later would Washington accept what Hopps was later to call "Divergent Representation."

What changed the cool color art of the sixties into the strange variety of work seen in DC in the seventies? Perhaps, as with any art movement, the first signs of rigidity and death appeared early on, even when the style seemed to be flourishing. By the time of the "Hard Edge Trend," a show organized by Adelyn Breeskin and Donald McClelland for the National Collection of Fine Arts in 1965, the paintings were losing the drive and spontaneity which Noland, Louis and Mehring had made so exciting in the late fifties. Gene Davis had solidified his stripes, Mehring had abandoned limitless open space in a hard back-to-back format, Paul Reed, another second generationer, was into zigzag diagonals in unattractive colors and even Gilliam, now known for his open expressionist broken field painting, was making hard edge stripes that tapered and bled slightly as they came to a point. Other Washington colorists such as Willem de Loper, Ken Young, Jim Hillary and Alma Thomas would recapture some of the tradition of glowing freedom expressed in early work by Louis and Mehring. Some, Sheila Isham and Leon Berkowitz to be specific, would succumb by the early seventies to the most florid technicolor excesses of color painting.

Somewhere in the late sixties the whole color *thing* began to come apart. Its true mannerist period had been reached and the seeds of decay, evident in the "Hard Edge Trend," were in full bloom. Still, out of this decay and dislocation, came some excellent painting. Tom Downing, who had been doing handsome paintings of repetitive circles against a raw canvas ground, at some point started a whole new approach. First of all he began to build oddly zigzag shaped stretchers, some accomplishment for the sloppiest craftsman of the colorist group. After Downing had stretched canvas on these strange shapes, he would perform feats of visual illusion in muted close valued colors. At this time in Downing's work color began to lose out to shape and illusion. Color became in his paintings, as in color photos, color T.V. and most color movies, an added dimension rather than the primary element. Even Gilliam's extravagant mottled drapes rely more on drape and shape than on color. Of course Ann Truitt successfully wedded color to three dimensional wooden boxes, welding New York minimalist with Washington color to the detriment of both. All of these tendencies on the part of color painters to destroy the rectangular format as a field for color or hue change, while visually stimulating, heralded the end of the color school.

What happened to Color School Painting can best be seen in the work of Michael Clark, a young Washington painter who now lives in New York. He worked as a Downing student and picked up the odd shaped canvas which he

combined with pointillist color reminiscent of Mehring's middle period dappled canvas collages. Clark, it turned out, craved imagery. Soon he started applying his Seurat-like points to architectural facades, welding the colorist sensibilities of the Washington School to representation. Subject matter had come back to Washington. However it is not surprising that this quiet, understated, rather cool rendering of architectural subjects should become the next popular art style in Washington. It contained a certain tasteful nostalgia coupled with the familiar color sensibilities of the previous generation. Both Clark and Kevin McDonald, have had deserved success in this vein. Someone, such as Washington artist Joe Shannon, who ignores color other than for identification — as in "the sky is blue" and loads his work full of ambiguous, highly dramatic encounters between both clothed and unclothed figures of both sexes — has had better acceptance in New York than in Washington.

When you talk about current trends in art, the word in Washington as it is all over the nation is diversity. In the seventies, the women's movement brought with it sexual imagery, first seen in Washington in the work of Mannon Cleary, Barbara Price, Barbara Brent, Terry Braunstein and many other women. Regional memories and autobiographical reminiscences, sometimes closer to story-telling than object-making, are evident in McGowin's new work as well as the photographs and assemblages of William Christenberry. The foundations of art in ritual and myth are being explored by Jonas Santos and the Bird and the Dirt, the sculpture of Ed Mayo and the paintings of Mary Beth Edelson. Satire and caricature, however, which would seem most appropriate to a town saturated with pompous politicians, pedantic lawyers and eccentric judges, have been left primarily in the hands of newspaper artists such as cartoonist Herblock and caricaturist Vint Lawrence. Only Pat Barron's strangely color oriented and abstracted paintings of public figures, real and imagined, explore the pretensions of the "Style Page." Not surprisingly though, given the past tastes of Washington, it is figuration in the hands of potential mainstream color painters such as Michael Clark, which now receives the most attention.

Reprinted, with permission, from the *Washington Review of the Arts*, Volume 1, Number 4, Winter 1975-1976.

BOOK REVIEW

The Master of Light: A Biography of Albert A. Michelson. Dorothy Michelson Livingston. Charles Scribner's Sons, New York, 1973. 376 pp., illus. \$12.50. Reviewed by Faber Birren.

One may assume that the major encyclopedias of the Western world include reference to Albert Abraham Michelson, 1852-1931. What he accomplished scientifically will be found stated therein. He accurately measured the velocity of light (186,000 miles/sec), made important studies of optical interference, designed intricate diffraction gratings and went to Paris to determine the measurement of the standard meter, using an interferometer of his own inven-

tion. His experimental research on ether drift contributed to the development of Einstein's theory of relativity.

For all this, and more, he became the first U.S.A. scientist to be awarded the Nobel Prize in Physics, in 1907.

What is probably of greatest interest to the readers of *Leonardo* is the personality of the man himself. He would have been quite worthy of the Renaissance because of his wide technical, esthetic and cultural interests. Albert Einstein called him the 'poet of science.'

Born in Poland of Jewish parents, he was taken to America at the age of three. First in California and then in Nevada, he showed brilliance as a student and at 18, journeyed to Washington, met President Grant and was chosen as a cadet at the Naval Academy at Annapolis.

As a scientist, Michelson was precocious, was intrigued by phenomena of light and at the early age of 26 made a fairly accurate measurement of the speed of light for which he won instant and broad recognition. As an artist, he played the violin, composed music and was exceptionally talented as a draftsman and watercolorist. (Indeed, in his 50's he took art lessons in Chicago.)

In his personal acquaintanceships he knew Alexander Graham Bell, studied in Germany under the eminent Hermann von Helmholtz and was visited in the U.S.A. by Einstein when Michelson was 69 and Einstein 43. One of his admiring friends in the U.S.A. was Ogden N. Rood, whose book *Modern Chromatics* (1879) was one of the chief influences of the French school of Neo-Impressionism, being carried like a New Testament of color by Pissarro, Seurat and Signac. Rood had given Michelson a copy of an Etruscan seal that the physicist carried with him for the rest of his life. The seal, which showed the figure of a man struck by a bolt of lightning, was meant to warn Michelson of the dangers of gaining such wisdom as to arouse the jealousy and wrath of the gods.

In his study of interference and in the development of the diffraction grating, Michelson held an active interest in color. These gratings that split light beams into the hues of the spectrum were universally admired for their technical perfection. When he lectured at the Lowell Institute in Boston in 1899, he declared: 'If a poet could at the same time be a physicist, he might convey to others the pleasure, the satisfaction, almost the reverence, which the subject inspires. The aesthetic side of the subject is, I confess, by no means the least attractive to me. Especially is its fascination felt in the branch which deals with light, and I hope the day may be near when a Ruskin will be found equal to the description of the beauties of coloring, the exquisite gradations of light and shade, and the intricate wonders of symmetrical forms and combinations of forms which are encountered at every turn . . .'

In lighter vein, he was a tennis champion and an expert at chess and billiards. After teaching in Cleveland, Ohio, and Worcester, Massachusetts, he was invited to head the physics department of the newly-formed University of Chicago, where he remained for over 35 years, bringing fame to himself and the university.

This life of Albert A. Michelson has been written by a daughter of his second wife. Because Dorothy was quite young when her father passed away, she in her maturity had to do extensive research. Her grasp of the scientific ac-

complishments of her father is quite remarkable. (On the human side, however, Dorothy unfortunately writes about herself in the third person.)

In Michelson's book, *Light Waves and Their Uses* (1903), the great physicist predicted a unique art of color: 'Indeed, so strongly do these color phenomena appeal to me that I venture to predict that in the not very distant future there may be a color art analogous to the art of sound — a *color music*, in which the performer, seated before a literally chromatic scale, can play the colors of the spectrum in any succession or combination, flashing on a screen all possible gradations of color, simultaneously or in any desired succession, producing at will the most delicate and subtle modulations of light and color, or the most gorgeous and startling contrasts and color chords! It seems to me that we have here at least as great a possibility of rendering all the fancies, moods, and emotions of the human mind as in the older art.'

Such an art has since been effectively realized by a number of artists in kinetic and mobile color expression (cf., for example, T. D. Jones, *The Art of Light and Color* (New York: Van Nostrand Reinhold, 1972) (reviewed in *Leonardo* 8, 83 (1975)) and F. J. Malina, ed., *Kinetic Art: Theory and Practice—Selections from the Journal 'Leonardo'* (New York: Dover, 1974) (reviewed in *Leonardo* 8, 178 (1975)).

Reprinted, with permission, from *Leonardo*, Vol. 8, pp. 346-347, 1975.

REPRINTS AVAILABLE

"Engraving: An ancient art form develops into a modern science for Carpet prints" by James May, AATCC, President, The James May Organization, Inc., which appeared in the September issue of "Carpet & Rug Industry" magazine and was handed out at the International Textile Machinery Association (ITMA) exhibition in Milan, Italy, from October 5th - 15th, 1975 may be obtained from Consolidated Engravers Corporation, Post Office Box 1816, Charlotte, N. C. 28201.

MEETINGS

Gravure Technical Association (GTA)

The GTA will hold its 27th Annual Convention on April 7-9, 1976 in New York City. The title of the convention will be "Gravure '76 — Spirit of Progress." Write to GTA, 60 E. 42 st. New York City for more information. The telephone number is 212-661-8936.

Society of Photographic Scientists and Engineers (SPSE)

The SPSE, and the New York Chapter invite you to submit papers for the 29th Annual Conference to be held in New York City on May 23-28, 1976.

The Conference will have two main interests:

1. Extensive coverage in the general field of photo-

graphic science and engineering — to be provided by contributed papers.

2. Intensive treatment of the specialized field of Color Reproduction — in the form of a seminar composed of invited and contributed papers.

SESSION TOPICS

The Society is providing a forum for photographic scientists and engineers based on the technical sections that have been established in 1975. These technical sections have been organized to stimulate activity and assure continuity in each specialized field.

Applied Photography: Amateur and Professional Systems, Industrial Photography, Law Enforcement Photography.

Business Graphics: Microfilming, COM, Engineering Drawing Reproduction, Identification Systems, Office Copying.

Graphic Arts: Halftone Systems, Pre-press Technology — Letter press, Lithography, Gravure, Photochemical Reproduction, Photo Typesetting.

Image Evaluation: Note: This subject will be presented at another SPSE conference in 1976.

Medical Radiography: Screen Film Systems, Ionography, The X-ray Spectrum, Diagnostic and Therapeutic Radiography.

Photofinishing: Systems and Equipment Engineering, Computerized Printing Technology, Film and Order Handling Techniques, Automated Packaging and Billing Systems, Data Accumulation.

Processing Techniques: Processing Chemistry, Processing Machine Engineering, Conservation and Ecology, Process Quality Control.

Scientific Photography: Holography, Micro-electronics and Photofabrication, Aerial and Underwater Photography, High Speed Photography, Photomicrography and Medical Photography.

Chemical Photography Mechanisms: Initial Photomechanisms, Sensitization, Latent Image Development Mechanisms, Blemish or Fading Mechanisms, Mechanisms and Kinetics of Photographic Chemistry.

Electrophotography: Electrostatic Image Formation, Image Decay, Sensitization of Photoconductors, Novel Photoconductive Systems, Toning and Toners, Photoelectric Phenomena.

SEMINAR ON COLOR REPRODUCTION

Visual Aspects of Color Reproduction: Psychophysical aspects. The visual process and its relation to tri-color reproduction, The influence of sharpness, granularity, hue discrimination, Color holography and other multi-dimensional modes.

Color Recording Modes & Systems: Pictorial, Amateur, Professional, Industrial. Scientific & Engineering, Metrication — photogrammetry — aerial — terrestrial, Biology — medicine, Micro, Celestial.

Camera Type Photographic Color Materials: Spectral response of modern camera films. Color masking and control of inter-image effects. Reproduction capabilities of

color negative versus direct positive systems. In-camera color materials.

Color Printing Materials and Systems: Silver halide, Electrophotographic, Graphic Arts, Letterpress — Lithography — gravure — screen process.

Processing Systems: Conventional, rapid access, self-contained, on-line. Chromogenic, silver dye bleach, electrophotographic.

Color Measurement and Process Control: Light Sources, Sensitometry, Densitometry, Spectrophotometry, Ag Photographic & dye, Electrophotographic, Graphic Arts.

Write to Robert H. Wood, Executive Director, Society of Photographic Scientists and Engineers, 1330 Massachusetts Avenue, N.W., Washington, D.C. 20005 for more information.

Hungarian National Colour Committee

CONFERENCE ON COLOUR DYNAMICS JUNE 8-11, 1976

Colour dynamics has the purpose of influencing the built-in human environment to promote more effective work, more comfortable rest and a much more pleasant life. Colour dynamics as a science draws conclusions from the relation between man and colours which can be utilized in the practice of coloured space development aimed at the creation of a more human environment.

The objective of our Conference is to summarize the results of colour dynamics achieved so far, exchange the experiences collected in different countries, co-ordinate new research fields, colour dynamics standards and recommendations, and finally to introduce and disseminate the theory and the practice of colour dynamics in Hungary.

SUBJECTS OF THE CONFERENCE

Theoretical colour dynamics. Structural and methodology questions of colour dynamics as a science; environmental aesthetics. Research on the relation between man and colours and its results (colour physiology, psychology, preferences, associations, symbolics, etc.). Research in the field of colour science on the environmental application of colours and its results) colour systems, harmonies, etc.). Theoretical research for practical colour design, and its results (colour and form, colour and structure, colour and function, colour and signal, etc.). Colour dynamics and fine resp. industrial arts affecting the environment. Elementary, medium and high grade education of colour science and colour dynamics.

Practical colour dynamics. Methodological problems of practical colour design; colour design systems and the experiences of their practical application; documentation of colour designs. Relation between colour design and environment as well as objects of different functions (urban, industrial, residential, community, etc. environments; objects for common use and ornamental purposes). Relation between colour and colour dynamics standards, colour systems and practical colour design, respectively. Problems and experiences of colour design; applications of materials, dyestuffs, paints. Methods to survey the effects of actually realized

colour designs, and the relevant experiences.

Colour dynamics and the associated professional fields. Relation between colour dynamics, light architecture and illumination engineering, respectively. Relation between colour dynamics, security engineering, ergonomics and environmental protection. Colorimetry and colour identification in colour dynamics.

Proceedings of the Conference. The full text of each lecture will be published in the original language, i. e. in one of the official languages of the Conference. Papers by Hungarian authors will be published in English.

Authors are requested to submit the full text of their accepted papers to the Secretariate of the Conference before the 15th March, 1976. The papers may not exceed 6 typewritten pages (210 mm x 297 mm, spacing 1½) including max. 2 pages of Figures and graphs. The publication may contain only black and white linear illustrations.

Languages of the Conference. Official languages of the Conference are English, German, French and Hungarian. Speakers may use any of the official languages. The organizing Committee of the Conference will provide for the interpretation of the lectures and discussion.

Participation fee. The Participation Fee of the Conference is US \$60 which covers attendance at the sessions and debates of the Conference as well as at the reception to honour the participants, simultaneous interpretation, and the price of the Proceedings of the Conference.

For more information, write to: Magyar Elektrotechnikai Egyesület, 1055 Budapest, Kossuth Lajos tér 6-8, Hungary.

Canadian Society for Color in Art, Industry and Science

The Fourth Annual Conference of the Canadian Society for Color in Art, Industry and Science will be held at the University of Ottawa on May 12-14, 1976.

The theme of the Conference will be "Colorants." The program will include presentations on various aspects of pigments and dyes. Papers will explain the relation between the physical properties of colorants and the perceived color; the characteristics of colorants that are important to technologists, designers and artists; the colorants used in particular industries and by particular groups of artists; the calculation of colorant mixtures to produce a particular color; and the control of color in industrial processes. An "Open House" in the Optics Section of the National Research Council is also planned. It is hoped that the program will be of interest to all users of color — artists, designers, technologists, scientists, teachers, etc.

The conference will be held on the campus of the University of Ottawa. Accommodation and meals will be available on the campus at very reasonable rates. The University is located in the downtown area of Ottawa within walking distance of the Parliament Buildings, the National Arts Centre, shopping areas, and several restaurants and hotels.

Anyone wishing further information or wishing to be sent a registration form should contact the Program Chairman, Dr. A. R. Robertson, Division of Physics, National Research Council, Ottawa, Ontario, K1A 0R6 (Telephone: 613-993-2478).

The Colour Group 1976

7th January — Institute of Ophthalmology — Faint colours in glass, L. Oldfield; Fechner-Benhams subjective colour, J. Jarvis.

4th February — Imperial College — Color perceptive processes, K. H. Ruddock; Colour effects associated with visual form perception, B. J. Nunn; Photo sensitivity of visual pigments, A. Knowles.

3rd March — Natural History Museum — Visual colorimeter for micro-samples, J. B. Nelson and D. Chamberlin; Colour in butterflies, J. Huxley.

7th April — Imperial College — National and International Codes and Standards on Colour.

12th May, 2:00 p.m. — Royal Institution Joint Meeting u.v. group — AGM; Stray light in Monochromators, A.W.S. Tarrant; Estimation by a filter method, M. R. Sharpe; The chemical users' viewpoint, A. Everett; The Manufacturers' viewpoint, A. Scott.

Summer Meeting, Meetings at 3:00 p.m. — To be arranged

SCOTTISH SECTION

11th February, 4:00 p.m. — Glasgow College of Technology — Problems of Colour Vision Testing, P. Aspinall.

12th May, 4:00 p.m. — Glasgow College of Technology — AGM "Colour Problems" (Problems to Dr. A. R. Hill by March, please).

NORTHERN SECTION

11th February, 6:30 p.m. — Liverpool University — AGM Problems.

10th March, 09:30 a.m. — Leeds University — Symposium: Is your colour matching?

Hunterlab Mini — Shows and Seminars

Hunterlab Mini-Shows and Seminars two day "stands" in cities across the country are designed to give people in industry involved with color a chance to learn more about "Appearance Measurements" and how meaningful measurements can be made with Hunterlab instruments.

The first day will be a FREE exhibit of the newest Hunterlab Colorimeters, Hazemeters, and Glossmeters. BRING SAMPLES OF YOUR PRODUCT PROBLEMS to discuss with Mr. Hunter and to measure on our instruments.

The second day will be an all-day Seminar led by Richard S. Hunter with lectures on appearance attributes and colorimetry. The \$50.00 fee includes reference material, R. S. Hunter's textbook, lunch, and coffee breaks.

Write for more information and a reservation form for either or both days.

Tentative locations and dates:

New Orleans, LA.	February 11-12, 1976
Harrisburg, PA.	February 25-26, 1976
Chicago, Ill.	March 8-9, 1976
Indianapolis, Ind.	March 11-12, 1976
Charlotte, N.C.	March 31, April 1, 1976
New York City Area	April 14-15, 1976
Minneapolis, Minn.	May 12-13, 1976

Syracuse, New York May 26-27, 1976
 For information and applications contact: Margaret Burns, Director, Instructional Services Department, Hunter Associates Laboratory, Inc., 9529 Lee Highway, Fairfax, Virginia 22030, Telephone (703) 591-5310.

EXHIBITS

Library of Congress

Tribute to Rolf Nesch, 1893-1975. This retrospective selection of 75 graphics traces the development of the German-born Norwegian printmaker from his traditional etchings of the 1920's through contemporary metal prints. Nesch produced colorful and complex graphics by printing with etched-through plates supplemented with soldered metal and other materials for added texture. Shown in cooperation with the Embassy of Norway and the Smithsonian Institution Traveling Exhibition Service. In the central corridors, Ground Floor, Main Building, through February 8.

THREE AWARDS GO TO OTT FOR PHOTOGRAPHIC EXCELLENCE

John Nash Ott, chairman and executive director of Environmental Health and Light Research Institute is the recipient of the 1975 Progress Medal, the highest award, of the Photographic Society of America, for significant and outstanding contributions to the progress of photobiology through scientific light research. The citation which he received in Dallas also honors him for focusing attention on the danger of X-radiation emitted by television sets, for his numerous lectures, articles and books, for his studies of the effect of ultraviolet radiation emitted from both natural and artificial sources on man and other living things and for his development of new techniques in time-lapse photography.

Ott received two additional medals for his "Exploring the Spectrum", a 16 mm film based on his "Health & Light" book. The International Film and Television Festival of New York has presented him its Silver Medal and the Chicago International Film Festival has bestowed its Gold Medal. The 46 minute film is now available from International Film Bureau, Inc., 332 S. Michigan Ave., Chicago, Ill. 60604. This film is rich in examples of the correlation between plant and animal health and exposure to both the visible and nonvisible rays of the total spectrum. It portrays how a time-lapse photographer with curiosity opened a whole new vista of scientific research.

INDEX

January-February 1975 — No. 234	<i>Page</i>
44th Annual Meeting	1
ISCC and the Munsell Color Foundation	2

Applicants Approved for Individual Membership	3
History of Munsell Color Foundation, 1942-1974	4
Color Societies Endorse New Journal "Color Research and Application"	6
Japan's Early Contact with Munsell	6
Japan Color Research Institute	7
Foreign Color Scientist Spoke at Recent Meeting of Color Science Association of Japan	7
<i>Meetings</i>	
American Ceramic Society, 77th Annual Meeting	7
Canadian Society for Color, 2nd Annual Conference	8
International Research Group on Colour Vision Deficiencies, 3rd Symposium	8
Oil & Colour Chemists' Association	8
Die Farbe	9
Books Noted	9
Reprints Noted	9
<i>Products and Services</i>	
1975 Spring-Summer Program in Color Technology at Rensselaer	9
Manufacturers Council on Color and Appearance	11
GARC	11
GATF	11
GATF-GARC Cooperative Programs	12
Macbeth Division	13
Optronic Laboratories Announces Products	13
Textile Museum's Fiftieth Anniversary—1975	13
Lüscher Revisited	14
What is the Current "Best" Value for K_m ?	15
"Redefinition of the Candela and the Lumen"	15
Illuminating Engineering Group	16
Editor's Comment	16

March-April 1975 — No. 235

Annual Report Issue	1
Dr. David L. MacAdam Elected Honorary Member	1
Nominations Solicited for ISCC Board of Directors	1
Applications Approved for Individual Membership	1
Professors Jameson and Hurvich Elected to National Academy of Sciences	3
Bound Copies of the <i>Newsletters</i>	4
Color Research and Application (CR&A)	4
Booklet Review	4
The Therapeutic Choice of Color for Medical Pills and Capsules	5
Federation of Societies for Coatings Technology	5
Society of Plastics Engineers — Color and Appearance Division	6
Graphic Arts Technical Foundation (GATF)	7
Industrial Designers of America (IDSA)	7
Japan Color Research Institute	7
Society for Information Display (SID)	8
<i>Meetings Noted</i>	
SID	8
IEEE/OSA	9
University of Rochester	9
Books Noted	10
<i>Products and Services</i>	
GARC-RIT	10
Letters to the Editor	12
Editor's Comment	12
Erratum	12
Hathaway Memorial Book Fund	12
Color Planning Center of Japan — Abstracts	14
Automation of Optical Radiation Calibrations	15
Color Requirements for Obstruction Marking	16
Colorama	16

May-June 1975 — No. 236
ANNUAL REPORT ISSUE

Color Insert	
Report of the President	1
Report of the Vice President	2
Report of the Secretary	2
Report of the Treasurer	3
Report of the Finance Committee	4
Minutes of the Annual Business Meeting	4
D. L. MacAdam Elected to Honorary Membership	5
Report of the Godlove Award Committee	5
Report of the Membership Committee	7
Report of the Committee on Publications	8
Report of the Problems Committee	8
Report of Subcommittee for Problem 6	8
Report of Subcommittee for Problem 7	8
Report of Subcommittee for Problem 10	8
Report of Subcommittee for Problem 18	9
Report of Subcommittee for Problem 22	9
Report of Subcommittee for Problem 25D	10
Report of Subcommittee for Problem 25F	10
Report of Subcommittee for Problem 25P	10
Report of Subcommittee for Problem 27	10
Report of Subcommittee for Problem 30	10
Report of Subcommittee for Problem 32	11
Report of Subcommittee for Problem 33	11
Report of Subcommittee for Problem 34	11
Report of Subcommittee for Problem 35	12
Report from the American Artists Professional League Delegates	12
Report from the American Association of Textile Chemists and Colorists Delegates	12
Report of the American Ceramic Society Delegates	13
Report from the American Chemical Society Delegates	15
Report from the American College of Prosthodontists Delegates	15
Report from the American Institute of Architects Delegates	15
Report from the American Psychological Association Delegates	15
Report from the American Society of Interior Designers Delegates	16
Report from the American Society of Photogrammetry Delegates	17
Report from the American Society for Testing and Materials Delegates	17
Report from the Color Association of the United States Delegates	17
Report from the Color Marketing Group Delegates	18
Report from the Dry Color Manufacturers' Association Delegates	18
Report from the Federation of Societies for Coatings Technology Delegates	19
Report from the Graphic Arts Technical Foundation Delegates	19
Report from the Gravure Technical Association Delegates	20
Report from the Illuminating Engineering Society Delegates	20
Report from the Industrial Designers Society of America Delegates	21
Report from the Institute of Food Technologists Delegates	21
Report from the Manufacturers Council on Color and Appearance Delegates	21
Report from the National Association of Printing Ink Manufacturers Delegates	21
Report from the National Paint and Coatings Association Delegates	21
Report from the Optical Society Delegates	22
Report from the Society of Motion Picture and Television Engineers Delegates	23
Report from the Society of Photographic Scientists & Engineers Delegates	24
Report from the Society of Plastics Engineers Delegates	24
Report from the Technical Association of the Graphic Arts Delegates	24
Report from the Technical Association of the Pulp and Paper Industry Delegates	25

The Self-Study Manual on Optical Radiation Measurements — A Progress Report	25
Spectrophotometry Mailing List Begun	26
Colorama	26
Sketches of Annual Meeting by Joy Turner Luke	27

July-August 1975 — No. 237

Report of Nominating Committee	1
Report of Macbeth Award Committee	1
Instrumental Colorant Formulation Conference to be Held in 1976	1
Applications Approved for Individual Membership	2
Dean B. Judd — AIC Award to be Established	3
<i>Book Reviews</i>	
Modern Chromatics	3
La Vision Parapsychologique des Couleurs	5
Biological Effects for Color	5
Color Science Association of Japan	6
<i>News from Member-Bodies</i>	
Federation Awards Offered for Society Achievements and for Paper on Use of Color in Coatings	6
Color and Appearance Division, Society of Plastics Engineers	6
DCMA Supports Color Research at Rensselaer	7
Books Noted	7
<i>Meetings</i>	
IEEE/OSA Conference on Laser and Electro-optical Systems	7
Hungarian Conference on Color Studies	7
Coloring and Decoration of Plastics — IX	8
Application of Optical Instrumentation in Medicine IV	9
1976 Asilomar Conference	9
Announcements	9
News of Members	9
Instruction	9
Exhibits	10
Colour Group Bibliography	10
Library of Congress	12

September-October 1975 — No. 128

Concern About Benzidine-Based Dyes as a Consumer Hazard	1
Color and Recuperation	1
Effective Use of Color by Consumers Presented in New NBS Guide	1
Charles Bittinger 1879-1970	2
<i>News from Member-Bodies</i>	
Federation of Societies for Coatings Technology	3
Society of Motion Picture & Television Engineers	3
Society of Plastics Engineers Color and Appearance Division	4
News of Members	4
Letters to the Editor	5
US National Committee of CIE	5
Book Review	6
Books Noted	9
The Textile Museum	9
Products and Services	9
GARC/RIT	9
GTA/RIT	10
New 15th Pantone Printers' Edition	10
Announcement	10
Colorful Computing	10
Publication Noted	10
Russian Studies of Vision	11
Carbon Monoxide Detector	11
Comprehension (Poem)	12

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NOTES

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 III, 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, a tax exempt organization set up to acquire and use its funds to further aims and purposes very similar to those of the ISCC: to further the scientific and practical advancement of color knowledge relating to standardization, nomenclature and specification of color, and to promote the practical application of these results to color problems arising in science, art and industry. The Council recommends and encourages contributions for the advancement of these purposes to the Munsell Color Foundation. For information, write 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.