

# INTER-SOCIETY COLOR COUNCIL

## NEWS LETTER

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NUMBER 176

May-June 1965

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ANNUAL MEETING ISSUE  
REPORT OF THE 34TH ANNUAL MEETING  
STATLER HILTON HOTEL, NEW YORK, NEW YORK  
APRIL 26, 27, 1965

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34TH ANNUAL  
ISCC MEETING

Although the details of the 34th Annual Meeting can be found in the March-April issue of the Newsletter, the flavor of the meeting certainly cannot. The extent of the U. S. endeavor in color is thoroughly reviewed both in the Problem Subcommittee Meeting and in the Annual Meeting Reports of the member-body delegates. Such a broad gauge view is not available in any other form. The complete reports of the delegates is a major part of this Annual Meeting issue of the Newsletter.

But there is still more to the Annual Meeting which is not contained in the Newsletter--the hallway discussions, the exchange of information around the dining room tables, and the festive atmosphere of the reception and banquet. My memory is too inexact to give you, my reader, a good picture of the event. If you have not attended I strongly recommend that you do at your earliest opportunity. If you did attend, then my words are certainly ineffective.

Those who arranged the program, the speakers who presented their stories at the seminar, and those who made meeting and banquet arrangements are to be heartily congratulated. Such a high level of spontaneous participation is not enjoyed by many societies.

W. L. R.

(Enclosed you will find a pamphlet describing the special technical conference on Instrumental Approaches to Colorant Formulation to be held at Williamsburg, Virginia, February 6-9, 1966. This is ISCC's first attempt at such a working conference. Please note: The attendance is limited to 100 participants. Although not everyone who wishes can attend, by keeping the participation limited it will be possible to have a truly "working" session.)



DR. ISAY BALINKIN RECEIVES  
THE GODLOVE AWARD OF 1965

In 1956 the Godlove Award Fund was accepted by the Inter-Society Color Council in memory of Dr. I. H. Godlove and his many and important contributions to color and to the Inter-Society Color Council. It was established by his wife, Margaret N. Godlove, in accord with the wish he had expressed during his lifetime that the Inter-Society Color Council establish a modest medal or award to be granted for outstanding work in color. As Dr. Godlove's contributions were themselves outstanding and unusual, there were those in the Council--the late Dean Farnsworth, in particular--who helped find a way that this award could itself be outstanding and unusual. Through considerable cooperation, an award was designed that consists of an original spectrum grating ruled on gold, cut in triangular form and imbedded in clear plastic on which the words ART, SCIENCE, and INDUSTRY are engraved, with the name of the recipient and the date of presentation on the back. Such an award has been presented biennially since 1957, making this presentation the fifth. Previous awards have gone to Deane B. Judd, Ralph M. Evans, Dorothy Nickerson, and David L. MacAdam.

The selection of the recipient is made by a Godlove Award Committee which this year used as its guide a set of recommended practices established by the Board of Directors in 1963 at the request of the last award committee. In accord with the new practice, the Godlove Award Committee was made a standing committee of the Inter-Society Color Council, with a chairman and not more than five members, two members to be replaced every two years, its members selected to represent a wide diversity of interests in the field of color.

The first action of the present committee, appointed in May 1964 by the incoming I.S.C.C. president, was to solicit nominations from the chairmen of delegates of each Council member body, these nominations to be received by October 1, 1964. In accord with section 3.2 of the recommended practices, requests were made for: "Nominations for the Godlove Award, to recognize outstanding contributions to the knowledge of color and appreciation for fulfilling the aims and purposes of the Inter-Society Color Council." It was requested that nominations be accompanied by information that would cover a number of questions regarding a nominee's qualifications. This was to help the committee make sure that in addition to names submitted by its own members, its coverage of all suitable nominees would be as wide as possible.

When the committee met in early October it considered the names of several persons whose contributions made them eligible. By a preferential ballot the number was reduced to three, and finally to one whose qualifications are such that your committee is proud to present his name to you as our unanimous choice: Dr. Isay Balinkin.

Early history and education. Dr. Isay Balinkin, professor of experimental physics at the University of Cincinnati, resident of the United States since 1925, citizen since 1936, was born in the Ukraine September 14, 1900, in Odessa where he finished high school in 1918, a gold medal student.

In the summer of 1921 he found himself in Constantinople, quite penniless and unable to speak a word of Turkish, although he could speak English, French, and German. As a political refugee, the American Red Cross found him work at



Robert College. They paid him 50 cents a day, and provided him with living quarters in the student dormitory. By fall, when the work had given out, the dean of Robert College, L. A. Scipio, had become interested enough to help him enter the school that fall to study mechanical engineering. Working his way, he obtained his B.Sc. degree in 1925 from the Engineering College. During his senior year Dean Scipio had exchanged professorships with the late Prof. A. L. Jenkins, then head of the University of Cincinnati's Mechanical Engineering Department, and Prof. Jenkins encouraged the young Balinkin to take his graduate work at Cincinnati. He arrived in this country in 1925 with barely enough money to get in. But with a fellowship in the graduate school, he made it, and in 1926 the University of Cincinnati awarded him a Master of Science degree in physics, in 1929 a Ph. D. in physics. He has been on the University teaching staff since that time.

Business and professional activities. During the summer of 1929 he worked with the Science Advisory Committee to the Chicago World's Fair, and --- on leave of absence in 1930 --- worked in Chicago for the World's Fair on Hall of Science exhibits and for the Central Scientific Company. It is undoubtedly this experience that taught him so early and so well the efficacy and art of combining entertainment with teaching demonstrations to make teaching more effective.

In 1936 he became research consultant for the Cambridge Tile Company and, the first problem being one of color tolerances and small color differences, he spent that summer as a working guest at the Colorimetry Section of the National Bureau of Standards. His association with the Cambridge Tile Company has continued to the present time. In the meantime he has served as consultant on a number of color problems and projects such as the first housing project for National Homes in Fort Wayne, Indiana, in 1950, and only recently, in connection with the 1964-65 New York World's Fair, he has served as technical consultant to the Interchemical Corporation in preparing the Interchemical Color Center for the Hall of Sciences Pavilion. (For each of you attending this meeting we hope to have a copy of an Interchemical color booklet which includes a set of flash cards illustrating many types of color phenomena, some of which are demonstrated in the Interchemical World's Fair Exhibit.)

Dr. Balinkin's dual interests in the fields of teaching and industry have provided him with a wide scope for his creative imagination and inventive ability. His teaching aids and ability for making skillful presentations of difficult subjects is so outstanding that it was featured a few years ago in a LIFE magazine article. In 1961, Dr. Wells, head of the Department of Physics at the University of Cincinnati, said of him that: "As a teacher he is one of the best that the University of Cincinnati has ever had ... As a popular lecturer in various phases of physics and engineering, I venture to say that Dr. Balinkin has no equal. The spark of genius with which he can reveal the intricate secrets of science to an audience of laymen through clever descriptions and ingeniously conceived and executed demonstration experiments has won for him an international reputation."

Particular interests in color. His interest in color came early in his career. This is evidenced by a 1930 paper in the BEEKEEPERS ITEM (for he was interested also in beekeeping) entitled "The Wonders Within The Spectrum." Then in 1936

he began work on uniform color scales and the expression of color tolerances and small color differences in connection with studies of color uniformity in ceramic tile. In 1939 and 1941 he presented two important papers on this subject, each as part of an I.S.C.C. symposium. The first paper was on "Industrial Color Tolerances" at a meeting jointly sponsored by the I.S.C.C. and the American Psychological Association, and the second, "Measurement and Designation of Small Color Differences," was presented at an American Ceramic Society meeting jointly sponsored by the I.S.C.C. In these two papers he presented results of visual estimations made on a group of ceramic tiles, relating them to measurements by several methods, both spectrophotometric and colorimetric. He discussed consequent studies of current formulas for color difference and suggested new ones. In the 1939 paper Balinkin first proposed that the unit of color difference based on formulas developed by Judd and his associates, well known today as the NBS unit, be designated by the name "judd."

Dr. Balinkin is the author of a number of papers, several on color, and has been granted a number of patents. For years he has given a required course in physics to students in the College of Design, Architecture and Art, one that quite naturally places considerable emphasis on color and color problems. For a number of years he gave a course in the evening school called Introduction to Color Science. But while color is one of his favorite subjects, his formal teaching is primarily physics, in which color is but one of many topics. Yet it is as a teacher and educator, for his development of teaching aids, and for his skill as a lecturer in demonstrating so many of the facts of color so clearly, that his greatest contributions to color have come. For many years his lectures on color phenomena have been heard by thousands of engineers, architects, colorists, students, and the lay public. His demonstrations and equipment have been seen by audiences from Houston to Toronto, from New York to Los Angeles. While he has recently had to curtail much of this activity, there have been periods when he has given as many as twenty lectures on color in a single year. On a national scale they have been given before annual meetings of such technical groups as the Inter-Society Color Council, the Optical Society of America, the American Ceramic Society, the American Institute of Architects, the American Association of Physics Teachers. On the other hand he has addressed many local scientific, fraternal, business, and church groups, including sixth grade science students, and students working on color exhibits for a Science Fair. The following lecture titles, selected at random, illustrate the catholicity of his interests:

- Color Facts and Fancies
- Light and Color
- The Wisdom and Wonder of Vision
- Color and Color Mixture - Old and New
- Subtractive Color Mixtures
- Light, Color and Human Beings
- Color Fundamentals
- Color Fundamentals for Architects
- Lasers - Theory and Mechanical Model
- Color Space Platform
- Solid Geometry in Color Space
- Mechanical Models in Optics



Among his teaching aids perhaps his best known is his wave machine. Several others have been marketed, including a Filtergraph, in a slide rule and a cabinet model, for teaching the principles of color mixture.

Professional affiliations. Dr. Balinkin is a past chairman of the Inter-Society Color Council; a fellow of the Optical Society of America, and member of its Uniform Color Scales Committee; member of the American Association of Physics Teachers; fellow of the American Ceramic Society, which he has represented as delegate to the I.S.C.C. since 1940, and of the British Ceramic Societies. As a U.S. delegate he has attended the last four congresses of the International Commission on Illumination (C.I.E.), in Stockholm, Zürich, Brussels, and Vienna, and is a member of the U.S.N.C.-C.I.E. committee on colorimetry, E-1.3.1. From 1960-65 he has served as a member of the panel on metrology of the National Research Council's Advisory Committee to the National Bureau of Standards.

Honors and awards. In 1925 he won first prize for the best paper, Student Branch A.S.M.E.; in 1926-29 he was Hanna Fellow at the University of Cincinnati. In 1929 he was elected to Sigma Xi; in 1951-2 he was chairman of the Inter-Society Color Council; and in 1963 he was designated "Engineer of the Year" by the Cincinnati Council of Technical and Scientific Societies.

Scientific interests other than color. Optical determination of axial stresses; radiation from crystalline substances under high potentials; mercury and mercury amalgam vapor lamps; wave machines; transverse vibrations of long rods; flexible crystal models; physical properties of electro-deposited chromium; compression of dry clay powder; adhesion between ceramics and portland cement; transpiration of ceramic bodies; stress development in tile installations.

Publications, Patents, and Models. A partial list of Dr. Balinkin's publications, patents, and models, including those having to do chiefly with color, is appended.

Citation. Thus, in recognition of his outstanding contributions to the knowledge of color and appreciation for fulfilling the aims and purposes of the Inter-Society Color Council, particularly for his work on uniform color scales, the expression of color tolerances, equation for color uniformity control, his development of teaching aids, and the generous use of his skill as a lecturer in demonstrating to large groups of people many of the technical facts of color, your committee recommends that the 1965 Godlove Award of the Inter-Society Color Council be presented to Dr. Isay Balinkin.

Godlove Award Committee:

Katherine Chandler  
Norman Macbeth  
Max Saltzman  
F. L. Wurzburg, Jr.  
Dorothy Nickerson, Chairman



ISAY BALINKIN

Publications, patents, and teaching devices or models relating to color and optics (from a more extended list) - 1927-1964.

Publications

- 1927 An optical determination of axial stresses in long rectangular plates under tension, *Physical Review*, 30, 520-526.
- 1930 The wonders within the spectrum, *The Beekeepers Item*, 14, 193-196.
- 1931 On the radiation emitted by compressed crystalline substances under high potentials, *The Philosophical Magazine*, 11, 315-322.
- 1932 (with D. A. Wells) A new mercury vapor lamp for laboratory use, *Review of Scientific Instruments*, 3, 388-391.
- 1933 (with D. A. Wells) The spectra of potassium and sodium in the mercury arc, *Jour. Optical Society of America*, 23, 105.
- 1936 (with D. A. Wells) The spectrum of rubidium in the mercury arc, *Jour. Optical Society of America*, 26, 77-78.
- 1939 Industrial color tolerances, *American Jour. of Psychology*, 52, 428-448.
- 1941 Measurement and designation of small color differences, *Bulletin of American Ceramic Society*, 20, 392-402.
- 1941-42 The World of Color: I. Light and color; II. How do we see; III. Color measurements; *The Science Counselor*, 7, 69-70, 90; 101-102, 127; 8, 13-14, 27.
- 1942 Fired color of ball clays, *Bulletin of American Ceramic Society*, 21, 278-281.
- 1944 Small color differences in the ceramic industry, *American Dyestuff Reporter*, 33, No. 14, July 3.
- 1948-49 Color phenomena, *Proceedings of Royal Canadian Institute*, Series III-A, 14, 77-78.
- 1949 Color facts and phenomena, *Bulletin of American Institute of Architects*, 3, 25-30.
- 1950 A fundamental approach to color in design, *Electrical Manufacturing*, 46, 104-110, 242-250.
- 1950 Controlling color in product design, *Electrical Manufacturing*, 46, 106-107, 202-204.
- 1954 Progress in color, 1936-1954, ceramics, *I.S.C.C. Newsletter* 115, 23-26.
- 1955 Three international congresses: color at Heidelberg, illumination at Zurich, ceramics at Cannes, *Bulletin of American Ceramic Society*, 34, 342-346.
- 1957 Citation honoring first recipient of the Godlove Award, *I.S.C.C. Newsletter*, 129, 1-3.
- 1957 (with Drs. Leon Goldman and Harold Plotnick) Investigative and clinical studies with diascopy in dermatology, *American Medical Ass'n Archives of Dermatology*, 75, 699-705.
- 1961 (with Alan C. Traub) Proximity factor in the Judd color difference formula, *Jour. Optical Society of America*, 51, 755-760.
- 1962 (with C. H. Dwight) Instructions for Balinkin-Dwight FILTERGRAPH, Welch Scientific Company.
- 1962 Martin H. Fischer, 1879-1962 (necrology), *I.S.C.C. Newsletter* 158-159, 8-9.



- 1963 Color demonstrations with diffraction gratings, Die Farbe, 12, 237-243.  
 1965 (with Arno M. Illing) Precision in measurement of small color differences. In press, Bulletin of American Ceramic Society.  
 1965 (with Mahlon A. Cline and Interchem scientists) The color tree, 48 page booklet, in press.

#### Books

- 1962 (with L. M. Alexander, C. H. Dwight, F. W. Pape) Physics laboratory manual. Tri-State Offset Co., Publication Division.  
 1933 (Processed) A manual of advanced experiments in mechanics.

#### Patents

- 1932 (with Clifford F. Muth) Irradiation processes No. 1,868,042 (July 19)  
 1959 (with C. H. Dwight) Device for demonstrating color mixture No. 2,917,836 (Dec. 22)  
 1962 Device for color demonstration No. 3,069,788 (Dec. 25)

#### Teaching Devices or Models

Wave machines for demonstrating transverse and longitudinal vibrations and resonance.  
 Models of flexible crystals.  
 Munsell color space model for teaching three attributes of color.  
 Configurational color space model for developing color harmonies.  
 A tetrahedral color space for color study and selection of color for a housing project.  
 Color space platform to study color tolerances, control of color uniformity, dry or wet mixer cleaning, shading boards, etc.  
 Steel ball and anvil used as mechanical analogy of reflection from white surface, or absorption from black surface.  
 Rubber balls, blue, green, and red, used as abridged "mechanical" spectrophotometer.  
 Filtergraph, a subtractive color slide rule for studies of color mixtures.  
 Universal space plotter, for plotting three dimensional functions.  
 Mechanical model of ruby laser.

A NICKEL IS  
YOUR TICKET

(At the conclusion of the presentation of the Godlove Award by the President of the Inter-Society Color Council, Mr. Ralph E. Pike, the following words of acknowledgement were spoken by Dr. Balinkin.)

Mr. President, Mrs. Margaret Godlove, Members of the Board of Directors, Members of the Godlove Committee, Members and guests of the Inter-Society Color Council and last but not least, Dear Dorothy.



Now that the accolade of the cherished Godlove Award has been bestowed upon me, it leaves me almost speechless. There is a vivid feeling of gratitude and the thoughts expressed in words are only pale images of the grateful heart. It cries out: Thank you, thank you one and all.

In joining the ranks of my four distinguished predecessors in receiving this precious award and the priceless reward, I should be mindful of honoring also the man in whose name this award is made, Dr. I. H. Godlove. He has contributed richly to the advancement of color knowledge and in his lifetime exemplified the aims and purposes of the Inter-Society Color Council. He will always have our respect for his wisdom and admiration for his character.

I. H. Godlove, or simply I. H. as he was affectionately known to his friends, was a quiet man of sterling qualities. He was a gentle man with a friendly smile. A chemist by training, he could delve into the intricate molecular structure of colorants as well as into problems of color vision and color perception.

As an editor of the ISCC News Letter, I. H. maintained for many years a publication full of the sparkling genius of his wisdom. The history of color from the days of antiquity held a special fascination for I. H.

There was a note of humor in his popular writings. He wrote, for example: "Colors are like old-fashioned children--they should be seen and not heard." On many occasions I have borrowed this phrase to start my lecture-demonstrations on color.

In the complex world of today, no one can attain a position deserving high honor without the dedicated assistance of a legion of friends and co-workers. At this moment it would be impossible to pay tribute to many of them. I cannot, however, allow this opportunity to pass by without acknowledging a few.

First, comes Mr. C. H. Burchenal, former President and now Chairman of the Board of Directors of the Cambridge Tile Mfg. Co. He started me on a route into the wonderful land of color problems in manufacturing ceramic tile.

Dr. Deane B. Judd took me then into the classroom and the laboratory at the National Bureau of Standards. In a pleasantly personal manner some of the mysteries of color were gradually vanishing and others born to provide a continuous challenge.

Miss Dorothy Nickerson by personal example and advice, now gentle and now stern, made me complete and render for publication the results of my studies. Thank you also, Dorothy, for the remarkable job you have done in your presentation by putting together the pieces of my jig-saw puzzle so that I could hardly recognize myself.

This is one of the very few of my utterances at which I am not using any demonstration equipment. But then, may I not consider myself a piece of demonstration equipment who as a youthful immigrant planted his roots in America about forty years ago.

It was a warm August day when I stepped off a ferry boat bringing me from the Ellis Island after being cleared by the immigration authorities. From the Battery Place my first order of business was to make my way to the offices of Robert College.

With a heavy suitcase filled with books held by one hand and a coat over the other arm, here I was in the land of my dreams--the United States of America. I have heard from a few immigrants arriving on the same ship about America with "streets paved with gold." As my eyes were scanning from the heights of the skyscrapers down to the street level--the gold of the pavement was not visible.

"I must be on my way," I said to myself, but how to get there I did not know. A man was coming toward me. I addressed him: "Excuse me, sir, please be kind enough to tell me how do I get to 18 East 41st Street?" Without stopping he answered: "Take an El." Trying to follow him, I nearly shouted: "Pray, tell me what is an El?" He stopped, looked me over quizzically and now with a friendly smile, he said: "I see you are a greenhorn!" And so you see, Ladies and Gentlemen, the prophetic color term, "Greenhorn," has pinpointed my future life-work in color and colorimetry. No sooner have I stepped on the blessed soil of America than I become a color name.

After receiving proper directions, I climbed the structural steel scaffolding of the Elevated Street Railway station. There, at one end of the platform I observed a man sitting behind the bars of a giant bird cage. I decided it was the ticket seller. I addressed him: "Excuse me, Sir, but would you be kind enough to sell me one ticket, one way to the 18th East 41st Street." His answer snapped at me: "A nickel is your ticket!"

This did not make any sense to me, so I looked around to discover what others were doing and I did the same. I dropped a five cent coin into a little slot on top of a barrier, pushed hard against a huge wooden cross-arm which turned and propelled me to the other side of the platform. As I boarded the car and we began to move, all I could hear was a chatter between the car wheels and the rail junctions saying slowly at first: "A nickel is your ticket," and then faster and faster: "A nickel is your ticket, a nickel is your ticket, a nickel is...."

And I thought that maybe this expression is symbolic of America--there is a price of admission to everything. There was no gold in the street pavement, instead, "A nickel is your ticket." No nickel--no ticket--no admission. However, let me add quickly that it did not take me long to discover that there is a great deal more to the meaning of the word "a nickel" than its simple monetary value.

What I discovered was that "a nickel" stands for willingness to work and work hard with energy and enthusiasm.

It represents--knowledge, adaptability, skill, competence and maybe even wisdom.

It requires of you--imagination, good ideas, ingenuity and resourcefulness.



It is based upon faith in yourself and others, hope, duty, optimism and loyalty.

I am sure that all of us here this evening can display in some measure the combination of these qualities.

My Fellow Americans: Let me tell you what a blessing it is to live in our magnificent country where everybody has an opportunity to work as his God-given talents allow him; to enjoy the fruits of his work in freedom--to progress with freedom.

As a youthful immigrant I did not find "streets paved with gold," instead I found something infinitely better--human hearts of gold in the people of America.

REPORT OF THE SECRETARY  
RALPH M. EVANS

The Inter-Society Color Council now consists of 30 member bodies with 225 delegates and 513 individual members. The Color Marketing Group was approved for membership by letter ballot during the year and thus became the 30th member body of the Council. The names and interests of the individual members accepted during the year have appeared in the News Letters which followed the Board of Directors meetings at which they were approved.

Two reprints were sent to the membership during the year, namely, "Color Vision" which was reprinted from the Sight Saving Review, and "Symposium on Gloss Measurement" reprinted from the Official Digest of the Federation of Societies for Paint Technology. As described in the March-April issue of the News Letter, a set of the ISCC-NBS Centroid Color Charts was sent to all members and delegates recently. Additional sets may be purchased at the Bureau at the very minimal price of \$3.00 per set. This system of color designation gives every indication of becoming one of the most important contributions that the Council has made to the world of color.

REPORT OF THE TREASURER  
NORMAN MACBETH

The Treasurer submitted a report from Gremmel and Wuerfel, accountants, who had examined ISCC records for 1964. This report, on file in the Secretary's office, is summarized as follows.

Balance Sheet as of December 31, 1964

ASSETS

Cash

The Columbus Trust Company  
New York Savings Bank  
Bowery Savings Bank

\$15,565.75

Investments

3,461.27

Dues Receivable

262.00

\$19,289.02

LIABILITIES AND SURPLUS

Dues Paid in Advance		\$ 12.00
Accounts Payable		521.82
Surplus		
Balance, December 31, 1963	\$17,428.51	
Less: Contingency Fund	<u>202.50</u>	
	17,226.01	
Add: Excess of Income over Expenses - Current Year	1,529.19	
Balance, December 31, 1964		<u>18,755.20</u>
TOTAL LIABILITIES AND SURPLUS		<u>\$19,289.02</u>

Statement of Income and Expenses for Year Ended December 31, 1964INCOME

Dues		\$ 3,725.00
Publication Sales		
Royalty -	803.24	
News Letter	129.00	
Bibliography	<u>37.50</u>	969.74
Interest and Dividends		784.33
Annual Meeting		<u>259.50</u>
TOTAL INCOME		5,738.57

EXPENSES

Secretary's Office	52.40	
Treasurer's Office	121.64	
President's Office	322.25	
News Letter	2,861.05	
Special Publications	<u>852.04</u>	
TOTAL EXPENSES		<u>4,209.38</u>

EXCESS OF INCOME OVER EXPENSES	\$ 1,529.19
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1964 Budget Analysis

	<u>Budget</u>	<u>Expenses</u>	<u>Under or Over Budget</u>
President's Office	\$300.00	\$ 322.25	\$ (22.25)
Secretary's Office	100.00	52.40	47.60
Treasurer's Office	100.00	121.64	(21.64)
News Letter	2,500.00	2,861.05	(361.05)
Special Publications	1,000.00	852.04	147.96
Annual Meeting	400.00	(259.50)	659.50
Contingency Fund	<u>150.00</u>	<u>0</u>	<u>150.00</u>
TOTALS	<u>\$4,550.00</u>	<u>\$3,949.88</u>	<u>\$ 600.12</u>

I. H. Godlove Award FundStatement of Receipts and Disbursements for Year Ended December 31, 1964

Balance, January 1, 1964	\$1,005.58
Receipts	<u>25.00</u>
TOTAL	1,030.58
Disbursements	<u>0</u>
Balance, December 31, 1964	<u>\$1,030.58</u>

REPORT OF MEMBERSHIP COMMITTEE  
TO THE 1965 ANNUAL MEETING OF THE  
INTER-SOCIETY COLOR COUNCIL

welcome to the new group and asks that the chairman of the delegation, Mr. Louis A. Graham, kindly rise.

During the preceding year the Color Marketing Group has been elected as a member-body. The chairman wishes to extend a hearty

The Board of Directors of the Council has adopted a new policy with regard to member-bodies which requires the chairman of the Membership Committee to come out of hibernation to explore new prospective member-body affiliations. Suggestions of the names of organizations which might mutually benefit from an affiliation are requested from delegates and individual members. These may be communicated either to the secretary or me.

Respectfully submitted,

Walter C. Granville,  
Chairman,  
Membership Committee

PROBLEMS COMMITTEE  
REPORTSubcommittee on Problem 2, Color Names,  
Kenneth L. Kelly, Chairman

At this time all of you who are members of the Inter-Society Color Council have received a copy of the ISCC-NBS Centroid Color Charts. These have been donated to the Inter-Society Color Council members by the National Bureau of Standards as a token payment for all of the help both financial and cooperative which the members of the Inter-Society Color Council have contributed to this project.

The Color Names project started about the year 1919 when Dr. Edmond Norris Gathercoal, a newly appointed member to the Revision Committee of the United States Pharmacopoeia, became dissatisfied with certain color names especially one "a blackish-white," which is as specific as saying that I live somewhere between the north and south poles. As the result of Dr. Gathercoal's search for a method of designating colors in pharmaceutical literature, the Inter-Society Color Council was founded in 1931. The Colors Name Project became Subcommittee on Problem 2, Color Names, of the ISCC. The first solution to this problem was published jointly by the Inter-Society Color Council and the National Bureau of Standards in 1939 under the title "Method of Designating Colors," Research Paper RP 1239. This method was revised, a Dictionary of Color Names added, and published in 1955 under the title "The ISCC-NBS Method of Designating Colors and A Dictionary of Color Names," NBS Circular 553.

It had always been the hope of the Inter-Society Color Council and the National Bureau of Standards that someday color samples would be developed illustrating the color names in the color names charts. The great progress which has been made on this project resulted from the close cooperation of the Inter-Society Color Council, the National Bureau of Standards, and the companies and the individual members of the Inter-Society Color Council. The publication of the ISCC-NBS Centroid Color Charts which you now have, is a continuation of this cooperative effort, this time including Mr. Hale of the Munsell Color Company and Mr. Toby of the Toby Color Card Company, who produced these charts. The Centroid Color Charts have been produced as a supplement to Circular 553, the Color Names Dictionary. The charts consist of a page of history, two pages containing the Munsell renotations of each of the 251 colors included and eighteen color charts.

The individual colors are mounted on a neutral background, varying from white at the top to black at the bottom, so that each of the colors will be seen on a background of approximately its own lightness. Sixteen of the colors were not obtainable with modern pigment technology. Of the 251 colors accepted 215 met the requirements for centroid colors while 36, which did not meet these requirements, fell within the color name blocks and were retained for information purposes only. Each of these 36 colors is marked with asterisks in the table of Munsell renotations in the front of the charts. These charts may be obtained as Standard Sample 2106 from the Office of Standard Reference Materials, National Bureau of Standards, Washington, D. C. 20234 for \$3.00 per set. Nine-by-twelve-inch samples of each of the 251 Centroid Colors may be obtained from the Munsell Color Company, 2441 North Calvert Street, Baltimore, Maryland 21218 for \$5.00 for a single sheet or for \$60.00 for the complete set of 251.



You will note that a number is associated with each color name in the color name charts in Circular 553. This same number is repeated in the central part containing the synonyms and near synonyms and in the Color Names Dictionary at the back of this book. These same numbers are also associated with each of the centroid colors. These numbers can be used as a shorthand method of designating the ISCC-NBS color names or the centroid colors when time is a factor or when using punchcard techniques.

I am concerned that the low price of \$3.00 for these specialized charts will be misunderstood by those purchasing them. This is only a token price due partially to the return on your tax dollar and chiefly to the tremendous amount of cooperative effort which has been contributed toward this production by so many people throughout the life of this project. The reprint which each of you will receive, entitled "A Universal Color Language" appeared in the March-April issue of Color Engineering. It will explain the uses of these Centroid Charts in more detail. It will also explain the use of the 6-level method of fineness of color designation which has been developed around the ISCC Method of Color Designation using the Munsell color notation system as the common denominator.

Many important uses for the ISCC-NBS Color Charts have already been noted. Remember that this is the first time a scientific system of color names has later been illustrated by color samples. Normally a system of colors based on some metric has later been described by color names. The centroid color charts were developed for the special purpose of illustrating the color names in Circular 553; they are not a tool for color measurement and you will not find all colors which you may desire among the 251. They were developed specifically for color designation and color communication. Thru the color names dictionary part of Circular 553, it is possible to use other well known color-order systems in place of Munsell in determining ISCC-NBS color designations.

The six level method of fineness of color designation was developed by ISCC Subcommittee on Problem 23, the Expression of Historical Color Usage, that is color trends, under the chairmanship of Helen Taylor and Everett Call. This method of color designation lends itself well to color designation using punchcard techniques such as with inventory or acquisition cards. It is also applicable in developing lines of coordinated colors. As I mentioned, the table in the front of the chart sets contains Munsell renotations of each of the 251 colors. Thus they are color standards and may be used as such by describing each as an ISCC-NBS centroid color followed by the appropriate number and name. As I mentioned earlier, the centroid color charts have been developed as a supplement to the Color Names Dictionary which may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402 for \$2.00 per copy. The reprint, A Universal Color Language, describes the developments in the ISCC-NBS Method of Designating Colors since the Color Names Dictionary was published in 1955. Thus the Color Names Dictionary, the Centroid Color Charts and this reprint contain all the information on this project to the present time.

The publication of the ISCC-NBS Centroid Color Charts and this reprint completes the assignment of ISCC Subcommittee, Problem 2, Color Names. Therefore, as chairman, I have asked that this committee be discharged. This does not mean that the work of Problem 2 is completed. It is now necessary to compile a list of all the uses of this method and to make this information available to others.

I want to thank the other members of this subcommittee, Miss Dorothy Nickerson and Dr. Judd, the officers and members of the Inter-Society Color Council, the National Bureau of Standards and all the companies and individuals who have contributed so generously in the successful completion of this project. I want to mention especially Davidson and Hemmendinger of Easton, Pennsylvania, Mr. Hale of the Munsell Color Company in Baltimore, and Mr. Toby of the Toby Color Card Company of St. Louis.

In closing, I want to request that each of you keep me informed of the applications to which you put these charts.

Subcommittee on Problem 7, Survey of American Color Specifications,  
Robert F. Hoban, Chairman

In 1955 the work of this Subcommittee culminated in the publication of a very useful guide called "Survey of American Color Specifications, 1955." This has become "quite out of date" and the task of updating the report has been assigned to the present Subcommittee. It became apparent when we began working on the updating, that some revision was also necessary.

Sections of the report were assigned to individual members who were well acquainted with the areas covered in their sections - ceramics, paints, plastics, dyes, etc. - and these were brought up to date by them. The revision has been discussed in committee and agreed upon, which will give an alphabetical listing of standards as well as adequate cross referencing.

Since most of the work has been done under Francis Scofield's direction as chairman, a rough draft of the report will be written shortly and circulated to the members of the Subcommittee for corrections, comments, etc. In addition, several individuals who are specialists in various areas have volunteered to edit those sections connected with their specialties and make any additions which have appeared in the last year.

Again this year it is our hope that the final report will be ready for submission by next year's meeting.

Subcommittee on Problem 10, Color Aptitude Test, F. L. Dimmick and  
C. E. Foss, Co-Chairmen

The standardization of the new edition of the Color Aptitude Test was completed in July of 1964 and the test is now in production. The Color Marketing Group is cooperating with the subcommittee in the compilation of 1000 test scores and the results of this study should be available in several months.

Subcommittee on Problem 14, The Colorimetry of Transparent Materials,  
W. B. Reed, Chairman

This subcommittee is on a stand-by basis awaiting assignment of further work.

Subcommittee on Problem 15, Definitions of Color Terms, Dorothy Nickerson,  
Chairman

This subcommittee has been reactivated and is starting to work on a condensation of the material originally published as "A Comparative List of Color Terms."



Subcommittee on Problem 16, Standard Methods for Mounting Textile Samples for Colorimetric Measurement, W. L. Matthews, Chairman

A first draft of the report of the work of this subcommittee has been prepared and is now being studied by committee members, after which a final draft will be prepared.

Subcommittee on Problem 17, Color in the Building Industry, Waldron Faulkner, Chairman

This subcommittee was organized in 1951 and has attempted to encourage producers of building materials to set up color standards in the various industries.

Our first project had to do with the color of Indiana Limestone. Although the subcommittee suggested color standards that seemed to be acceptable to the Indiana Limestone Institute, nothing came of it until very lately.

To our surprise some recent correspondence with the newly-formed National Association of Indiana Limestone, which has superseded the Indiana Limestone Institute, indicates that they are genuinely interested in the work that was done by the subcommittee in 1952, and it now seems quite possible that something tangible may come out of this.

After a review of the past scope of the work of the subcommittee at the meeting of the subcommittee on May 26, it was suggested, because of differences of opinion as to the effectiveness of its activities, that consideration be given to the establishment of several other problem areas.

After considerable discussion, it was voted that the subcommittee should continue but with a different emphasis. A review of the recent correspondence and a discussion among the members of the subcommittee revealed that differences concerning the objectives seem to be largely a question of procedures.

It was resolved by unanimous vote that sense of the meeting was to continue under the present scope quoted from Ralph Pike's outline, "To make a study of the color of building materials of different kinds so that they could be better selected and specified in order to harmonize in the completed building."

It was voted to reorganize the subcommittee so as to pursue the following phases of the scope: -

1. Measurement and recommendation of color standards by products, preferably with tolerances.
2. Compilation of color specifications by product and indexing by the Munsell re-notation.
3. Study methods of indexing and compilation of colors for practical application.

The meeting was of great interest to those who attended and all indicated that they were eager to resume activities because much work needs to be done.

Subcommittee on Problem 18, Colorimetry of Fluorescent Materials,  
Eugene Allen, Chairman

At the April 26 meeting, the committee was reorganized and a new temporary objective established. Work will now be carried out on a comparison of instrumental methods of determining the spectral radiance factor curve of fluorescent substances. This is the curve which one obtains by irradiating the sample with a standard light source and then passing the combination of fluorescent and reflected energies through a monochromator, all against a standard white as reference.

The general approach at the start will be to use as many different instruments as are available among the committee members for the measurement of fluorescent samples, but to attempt to make the conditions of measurement as uniform as possible between instruments. Even if the method of measurement should not be the usual one for that instrument, it is hoped to get concordant results between instruments as a basis for further work. Variations in the procedure will then be introduced, probably in the sense of using each instrument more in the manner in which it was originally intended to be used, and the resulting variations in results will be analyzed.

About 10 different instruments are available for the initial round-robin tests.

Subcommittee on Problem 20, Basic Elements of Color Education,  
Randall M. Hanes, Chairman

The report of this committee was published in book form in 1963 under the title: Color: A Guide to Basic Facts and Concepts. At its October 1963 meeting, the ISCC Board of Directors approved continuation of the subcommittee for two years to:

1. Monitor reaction to the present book.
2. Examine the possibility of producing another book on a more elementary level.
3. Explore the possibility of documenting the book by additional illustrations (in the form of charts, films, and/or slides).
4. Prepare a catalog of illustrative aids for teaching color.

These objectives were discussed at a subcommittee meeting in May 1964, at which time useful suggestions were made with respect to the last three objectives by the few people who attended. For the purpose of monitoring reaction to the published report and for more broadly based suggestions about future committee efforts, a questionnaire was distributed with the Jan.-Feb. 1965 issue of the ISCC Newsletter. As of the end of May, only 76 had been returned, and these can be summarized as follows. (Each tabular entry is the percentage of the replies that fell into the indicated categories.)

	<u>Respondent has</u> <u>used the report</u>	<u>Respondent knows someone</u> <u>who has used the report</u>
Often	31	7
Occasionally	57	42
Rarely	12	10

Advantages of the Report

Conciseness	- 26
Value as source book	- 20
Completeness	- 18
Organization	- 16
Clarity	- 16
Ease in finding information	- 16
Terminology	- 10
Other	- 17

Disadvantages of the Report

Outline format	- 23
Incompleteness	- 13
Excessive technicality	- 12
Other	- 21

Recommendations for further committee effort

Supplement the present text by means of illustrative aids for teaching color	- - -	46
Expand text by adding material in present format and style	-	34
Rewrite the text in a more elementary (simpler, more readable) form	- - -	26

It is clear that the report has been useful to the respondents, and furthermore, that there is more interest (among the respondents) in having the report expanded and supplemented than in having it changed. While these conclusions are gratifying to the committee, they are suspect because of the small number of replies. Therefore, the committee renews its appeal for replies to the questionnaire. All who received the report are urged to indicate their reaction to it. Even if you have lost the questionnaire, a simple statement about your use and assessment of the report will be helpful.

Subcommittee on Problem 21, Standard Practice for Visual Examination of Small Color Differences, Sam Huey, Chairman

The present ASTM method, Visual Evaluation of Color Difference of Opaque Materials, D 1729-64, was reviewed in detail. This method was designed for the evaluation of paint samples and it was obvious from those present with their diversified interests, that we would have to modify it considerably if it were to be useful in other fields.

It was believed, however, that a procedure could be drawn up that would be broad enough to cover other materials and yet be meaningful.

The present method stipulates two light sources, one at 7400° K and the other at 2854° K. There was the question as to why a color temperature of 2854° K was chosen instead of 2300° K. 2300° K is the color temperature of the present "horizon light" in the Macbeth light source. This low temperature light source is used to evaluate metamerism and the present method did not include metameric matches. On the other hand there are those who might want to evaluate samples under standard incandescent lights which are approximately 2850° K.

There were some present who thought we should replace the 2850° K specification to read 2300° K. Mr. Reese stated that it would be easy to change the incandescent lamps to 2300° K or 2854° K in the present Macbeth lamps. This



can be done by operating the bulbs at half their normal voltage or at their normal voltage.

It was agreed that the present sample size called for in the method was satisfactory, as were the photometric conditions specifying the light out put in foot candles. The ideal condition would be to raise the light out put for dark samples and lower it for light samples.

The specifications of the present method in regard to background and surround were accepted as satisfactory. They are a Munsell value of N6 - N7. It will be very difficult to specify viewing angles because so much depends on the end use.

It was pointed out that in some cases plastic material is rolled up into a tube to compare it to the material it is going to be used with. On the other hand paint samples are usually flat.

If glossy samples are going to be compared to low gloss samples, then other viewing conditions are needed. No individual set of viewing conditions can be specified but they can be noted when a report is made.

Those who have shown interest in the present method have found little use for the conformity index as related to the Abbot-Gibson standard. It was thought that greater use could be obtained from the new color rendition index for light sources. This will be included in the new proposed procedure. It was reported that the Abbot-Gibson data will soon be replaced by Judd's new Reconstituted Daylight.

One of the most important factors in color matching is reporting the exact procedure that was used to arrive at the match. Considerable amount of misunderstanding can be eliminated if there is good communication between buyer and seller. When a report is required the following information should be given:

1. Lighting equipment used and tolerance designation of sources.
2. Category of evaluation, general or critical, and intensity of specimen illumination.
3. Designation of standard and specimen, and description of gloss or surface characteristics.
4. Observed order and direction of magnitude of color departure from the color standard.
5. Identity of observers.

A new procedure will be drawn up with the suggestions that resulted from the meeting.

Subcommittee on Problem 22, Procedures and Material Standards for Accurate Color Measurement, Fred W. Billmeyer, Jr., Chairman

The Chairman opened the 1965 annual meeting of Subcommittee 22 by previewing, for the 59 members and guests attending, the paper, "Precision and Accuracy of

Industrial Color Measurement," which he will present at the International Colour Meeting 1965 in Lucerne. In this paper, the results of the 1964 interim report of the Subcommittee on the precision of color measurement with the G. E. Spectrophotometer were recalculated as MacAdam color difference measurements and compared with typical industrial color matching tolerances. In general, the repeatability and reproducibility errors of the G. E. instrument are smaller than such tolerances, but in routine industrial measurement the errors, as determined in the Subcommittee's Round-Robin I, were several times larger.

A rigorous calibrating and operating procedure for the G. E. Spectrophotometer, prepared during the year by a working group within the Subcommittee, was then discussed. This will serve as the instructions for Round-Robin II, to be initiated immediately.

Plans were made for two further interlaboratory comparisons. Round-Robin III will extend I to six other types of spectrophotometers used by Subcommittee members for color measurement, again starting as soon as possible. Round-Robin IV will involve color difference measurements. Possible samples for, and the philosophy of, this round-robin were discussed at length. It is intended that it operate to furnish information pertinent to the improvement of procedures and material standards for accurate color difference measurement, and not for the purpose of assessing the relative merits of various instruments.

REPORT FROM THE AMERICAN  
ARTISTS PROFESSIONAL LEAGUE  
DELEGATES, FRANK C. WRIGHT,  
CHAIRMAN

No report.

REPORT FROM THE AMERICAN  
ASSOCIATION OF TEXTILE CHEMISTS  
AND COLORISTS DELEGATES, ROLAND  
E. DERBY, JR., CHAIRMAN

One of the most important properties of most textile materials is its color. This fact underlies the detailed concern of various AATCC research committees with color problems.

The primary responsibility of these committees is to develop test methods which indicate the suitability of a dye-fiber system for specific end uses. In this work they are exposed to a broad gamut of practical and theoretical color problems.

To aid the various committees in their work a color committee composed of specialists in color science is available. This committee which has recently been redesignated as Color Technology Committee RA36 is under the chairmanship of Dr. Eugene Allen.

Through the work of this group a new grey scale for evaluating visually color differences arising during the course of color loss by light fading or other degradative processes, has been made available.

This new scale contains the same five steps as the original Society of Dyers and Colourists scale, but the production tolerances are considerably closer. In addition, the experience of the Munsell Color Company has been utilized to provide an improved format. These scales are now available from AATCC Headquarters in Durham, North Carolina.

There have been a number of requests for a grey scale having smaller steps. An experimental scale has been prepared by Munsell in cooperation with the Color Committee. This scale is currently undergoing evaluation. Preliminary results appear quite encouraging.

An important project currently underway is concerned with measurement of the degree of fade of the AATCC Blue Lightfastness Standards (initially Std L-4). This work will be carried out by the NBS, and results expressed in fundamental CIE terms. It is proposed that the actual color difference be expressed using the Adams-Nickerson equation. The data obtained will provide statistical tolerances on the L-4 Blue Standard and permit ready calibration of various fading lamps. Further, it is expected that eventually this approach will permit issuance, by the AATCC, of physical samples exhibiting a "standard" degree of fade. If this project is successful, it will be extended to the remaining Blue Standards.

On two other projects, i.e. the measurement of dye strengths and preparation of a catalogue of color measuring instruments, the Color Technology Committee is working closely with the related problems sub-committees of the ISCC.

Bibliography submitted.

REPORT FROM THE AMERICAN  
CERAMIC SOCIETY DELEGATES,  
H. D. BIXBY, CHAIRMAN

Interest in color measurement, specification, description and control has again grown during 1964 in the ceramic industry.

Increased utilization of color in glass, porcelain enamel, whitewares, structural clay products, and electrical porcelain has resulted in much wider concern about industry-wide color standards, control techniques, product-to-product color compatibility, etc. This increased interest has been evidenced through publication of papers, a Color Symposium during the Annual Meeting of the American Ceramic Society, and numerous inquiries for assistance and information on color problems.

The following papers were published during 1964 in the Bulletin of the American Ceramic Society:

"CERAMIC COLOR COMPOSITIONS," Paul Henry, Color Control and Research Laboratory, O. Hommel Co., Pittsburgh, Penna.

"COLOR DEPENDENCY IN STRUCTURAL CLAY BODIES," David M. Miller and J. O. Everheart, Department of Ceramic Engineering, Ohio State University, Columbus, Ohio

"HISTORY AND DEVELOPMENT OF CERAMIC COLORS," R. K. Mason, Mason Color and Chemical Works, Inc., East Liverpool, Ohio

"COLOR IN THE BUILDING INDUSTRY," Waldron Faulkner, F.A.I.A., Washington, D. C.

A Color Symposium was presented for the members of the American Ceramic Society during the Annual Meeting in Chicago, and featured the following:

"COLOR IDENTIFICATION IN INDUSTRY," Kenneth L. Kelly, National Bureau of Standards, Washington, D. C.



"COLOR AS A MERCHANDIZING TOOL," Everett R. Call, National Paint, Varnish & Lacquer Assoc., Washington, D. C.

"APPEARANCE COLOR STABILITY," Walter C. Granville, Color Consultant, Libertyville, Illinois.

"COLOR DECORATION AND PRINTING ON GLASS," J. W. Hackett and H. H. Holscher, Owens-Illinois Technical Center, Toledo, Ohio.

"MEETING THE CHALLENGE OF CERAMIC COLOR REQUIREMENTS," Charles J. Rickey, B. F. Drakenfeld & Co., Washington, Penna.

REPORT FROM THE AMERICAN  
INSTITUTE OF ARCHITECTS  
DELEGATES, WALDRON FAULKNER,  
CHAIRMAN

The delegates from the American Institute of Architects to the Inter-Society Council for the current year are: William H. Scheick, Executive Director, Milo D. Folley, Eric Pawley, Karel Yasko,

Theodore W. Dominick and Waldron Faulkner, Chairman.

The activities of the Institute devoted to color are largely dependent on those of the I.S.C.C. Subcommittee #17 on "Color in the Building Industry" because this activity is of interest to both organizations. Although Subcommittee #17 has been relatively inactive for sometime, it is hoped that the proposed future program for this subcommittee will be of practical value to architects and therefore of real interest to the A.I.A.

REPORT FROM THE AMERICAN  
INSTITUTE OF INTERIOR  
DESIGNERS DELEGATES,  
BEATRICE WEST, CHAIRMAN

As usual the American Institute of Interior Designers had a very colorful year.

Mrs. Francis Henry Lenygon, F.A.I.D.,  
Chairman of the American Institute of

Interior Designers' National Committee on Restoration, with her working committee have recently completed the refurbishing of the Entrance Hall, the Front Drawing Room, the Back Drawing Room, the Dining Room and the Powder Room of the first floor of Blair House, the Nation's guest house in Washington.

Mrs. Lenygon and her committee were selected by Mrs. Angier Biddle Duke, the wife of the Chief of Protocol, State Department, and Chairman of the Blair House Committee, as a result of their work in redesigning, reconstructing and refurbishing the Library in the White House last year.

The overall effect of the refurbishing of the main rooms of Blair House creates a background of elegance and simplicity, graciousness and refinement, color and warmth.

The American Institute of Interior National Design Awards cited 14 products which will contribute to the form or function of the well-designed interior of 1965. The awards were made at a dinner in Chicago on January 3. Selected from more than four hundred entries submitted by manufacturers and designers in the U.S. and abroad, the 14 winning products will be exhibited throughout the country during 1965 -- at the National Design Centers in Chicago and New York, the International Design Centers in Miami and Los Angeles, and later at the Pavilion of American Interiors at the New York World's Fair and in leading department and furnishing stores.



Among these awards were such colorful trend setters as follows: Top hard surface floor covering winner is Armstrong Cork's "Colonial Chestnut Series" which simulates old wood flooring. It was designed by Armstrong's Edward F. Ustilla and Abram Rudisill.

Winner in decorative accessories is Callaway Mills' "Mediterranean Collection" of embossed towels in brilliant color combinations designed by the Callaway styling studio.

Ten woven upholstery fabrics taken from historic documents in the Cooper Union Museum by Margaret D. Nelson A.I.D., Stroheim & Romann, took the upholstery fabrics award.

Green was the basic interior color for four of the seven 1965 Du Pont - A.I.D. World's Fair model rooms previewed at the Chicago Design Center last month. These settings are the first of 14 which will comprise the second edition of the Du Pont - A.I.D. regional settings to be exhibited at the Pavilion of American Interiors, New York World's Fair. Although each setting represents the regional thinking of A.I.D. chapters as far apart as Hawaii and Connecticut, there are more similarities than differences in decorative styles.

The Color Marketing Group, a new association member of the I.S.C.C., has two directors, Beatrice West and Ruth Strauss whose work keeps them busily working on colorful projects with color styling and consultation for builders and manufacturers.

A.I.D. members are constantly called upon to speak on Color for the home at various group meetings. In addition, many are designing colorful room settings for National Manufacturers which are shown in magazines and greatly influence the tastes of the consumer through constant exposure to proper COLOR planning.

REPORT FROM THE AMERICAN OIL  
CHEMISTS' SOCIETY DELEGATES,  
W. T. COLEMAN, CHAIRMAN

No report.

REPORT FROM THE AMERICAN  
PSYCHOLOGICAL ASSOCIATION  
DELEGATES, LEO M. HURVICH,  
CHAIRMAN

With this meeting my ten year term as a member of the APA delegation to the ISCC comes to an end and this is my final report as chairman of the delegation. The contributions to the problems of color by members

of the American Psychological Association during this decade are simply too many and too diverse for summary review in this brief report. Annual accounts and bibliographies have, of course, been presented in the reports to the ISCC and more systematic reviews are available in the Annual Review of Psychology and the Annual Review of Physiology.

What about major trends or major events in this period? There has been an appreciable increase in electric recording in the study of visual and color problems. More and more psychologists are supplementing the psychophysical results with electroretinographic and electrophysiological data. Within this context, one of the most important developments has been the way in which specific quantitative treatments of psychophysical data obtained on humans and electrophysiological data obtained on lower organisms have been converging in



their support of an opponent process theory of color vision. The electrophysiological evidence comes from a variety of preparations and has been recorded at a number of neural levels: the retina, the lateral geniculate, and the cortex. Reversed electrical potentials that are wavelength dependent and spatial interaction effects of opposed sign have made manifest on the oscilloscope screen events previously measured on intact organisms and postulated by formal theorists. Quantitative psychophysical measures of the opponent-color responses are approximately reproduced in the retina of the fish and the lateral geniculate and cortex of the monkey. Moreover, simultaneous equations developed to handle spatial contrast effects in the human eye are in essence astonishingly like those that describe the interactions measured by spike frequencies, among adjacent areas in the eye of the *Limulus*.

There has been, at the same time, another trend which, from a variety of viewpoints, runs directly counter to the above. Actually it is probably less a trend than a series of three relatively independent major "excitements," or to borrow a term from the avant-garde theater movement, a series of three "happenings." One derives from photography and the other two from researches in visual photochemistry, but the three "happenings" have much in common. In each instance their source is Cambridge; two of the three derive from Cambridge, Mass., and the third from Cambridge, England. Each is associated with an eminent person whose earlier renown was achieved in an area other than color vision. And in each instance there has been a considerable flurry and to-do associated with the public presentation of the facts and the experimental data. In the case of Edwin Land, the distinguished inventor and industrialist, the mass media appear to have been instrumental in generating the hullabaloo. In the case of William Rushton, the noted physiologist, interest was kept at a peak as he shuttled back and forth between the United States and Great Britain to gain the attention of anglophile and anglophobe alike. And most recently, in the case of the biologist George Wald -- world famous for his rhodopsin-vitamin A research and discoveries -- a scramble for priority with respect to the microspectrophotometry of cone pigments as well as a crowded schedule of major addresses at a number of American and European conferences and meetings of professional societies has gained him the center of the stage.

Both the Land and Rushton excitements appear to be petering out. As already noted in last year's report Rushton has dramatically disclaimed some ten years of interpretation of the photolabile substances in the fovea that were based on his reflection densitometry measures. In a letter published last year in the Journal of the Optical Society he states that he now gives no references to his earlier photopigment work. In any event, simplistic photochemical accounts will not handle the complexities of color vision.

Those members of the ISCC who saw Ralph Evans' two projector color demonstrations at the Optical Society meetings in New York City in 1943 could hardly have been surprised when Land, a dozen years later, reproduced essentially the same demonstrations. But surely some ironical peak was reached when the May 1959 issue of the Scientific American that carried the account of Land's "discoveries," reproduced in the very same issue in its little noticed "50 and 100 Years Ago" column a summary statement from the May 1909 issue that George Albert Smith and Charles Urban had exhibited in approximately natural hues very satisfactory moving pictures using only two color mixture. Land's stunning photographic demonstrations of simultaneous contrast or induction effects



did produce a tremendous surge of interest in color; it rightly shook up physicists and engineers brought up on conventional textbook accounts of color mixture effects and even biologists and psychologists who might have been expected to "know better." But Land introduced mystery rather than clarification probably because he was unaware that his "new adventure" had a long, solid scientific base; he overlooked earlier important theoretical formulations which sought to handle not only the limited phenomena of contrast but also the many other sorts of perceptual and psychophysical data that have piled up in the visual literature.

George Wald followed up the measurements made with P. K. Brown of the absorptions of 4 individual cone elements, with a series of experiments which he believes measure directly the spectral sensitivities of the blue, green and red receptors in the intact human observer. Using Stiles' increment-threshold method, Wald has scooped the field and come up with what are pretty much the Arthur König 1893 curves for the Young-Helmholtz theory. But where Stiles was forced by the complexities of his data to postulate 5 or even 7 receptors the problem was simpler for Wald. With three microspectrophotometric curves at hand, the isolation of three comparable individual spectral sensitivity curves in the human observer by the increment-threshold method simply "involves trying number of filters and brightnesses" and finally choosing those conditions "that yielded the narrowest and simplest shapes of spectral sensitivity function." (Science, 145, p. 1009, 1964) Stiles' brief factual Appendix to Wald's paper in Science stands in sober counterpoise to Wald's experimental sampling procedure. At this point in time, Wald's vigorous espousal of a simple Young-Helmholtz theory seems quaint.

Bibliography submitted.

REPORT FROM THE AMERICAN SOCIETY  
FOR TESTING MATERIALS DELEGATES,  
GEORGE W. INGLE, CHAIRMAN

In contrast to our reports for prior years, this report reflects a somewhat narrower range of more intensive activities. These are largely

limited to work in Committees E-12 on "Appearance Properties of Materials" and D-1 on "Paint, Varnish, Lacquer and Related Materials." Studies are continuing in other committees concerned with plastics, acoustical materials, paper, and cotton fibers.

In ASTM, the number of color-related methods transferred from the jurisdiction of Committees concerned with specific materials to Committee E-12 continues to increase. The latest in this class is Method D986 "Preparation of Magnesium Oxide Standard of Spectral Reflectivity." This method originated in Committee D-6 on Paper.

New Tentative Standards prepared by Committee E-12 are:

1. Recommended Practice for Preparation of Reference White Reflectance Standards.
2. Definitions of Appearance Terms (over 70 terms are included).
3. Method of Test for Slip Resistance of Carbon Paper. (This method is indirectly concerned with the appearance of carbon copies.)

To solicit further comments on procedures of truly far-reaching importance, E-12 is publishing for purposes of information these proposals:

1. Method of Test for Absolute Calibration of Reflectance Standards
2. Recommended Practice for Description and Selection of Conditions for Photographing Specimens
3. Method of Test for Indices of Whiteness and Yellowness of Near-White Opaque Materials
4. Recommended Practice for Spectrophotometry and Description of Color in the C.I.E. System. This proposal represents the joint efforts of ASTM, TAPPI, the American Standards Association's Committee 258 on Optics, and Technical Committee 61 on Plastics of the International Organization for Standardization. Ultimately ASTM and ISO standards will result, to obtain world-wide concurrence in the measurement of color.

ASTM Committee D-1 continues its leadership in applying basic colorimetric methods to surface coating materials. ASTM Method D-2244, "Instrumental Evaluation of Color Difference" is being revised to include the MacAdam, as well as the Adams' Munsell Value, method for evaluating color difference from CIE tristimulus data. Method C-523 "Light Reflectance of Acoustical Materials by Integrating Sphere Reflectometer" is being adopted to lacquered aluminum, stainless steel, aluminum-pigmented, and texture-paint roof coatings. Another intriguing example of application research is the development of a suitable photo-electric instrument to evaluate the night visibility of traffic paint.

To last year's report was appended a list of about 65 ASTM Standards related to color. To these should be added these new standards:

- D-2200-63T Pictorial Surface Preparation Standards for Painting Steel Surfaces
- D-2201-63T Method for Preparation of Hot Dipped Non-Pessivated Galvanized Steel Panels for Testing Paint, Varnish, Lacquer and Related Products
- D-2204-63T Recommended Practices for Testing Traffic Paints
- D-2218-63T Specification for Molybdate Orange
- D-2242-64T Specification for Weathered Heavily Chalked Paint Panels for Use in Weathering Tests of Latex Paints
- D-2253-64T Method of Test for Color of Raw Cotton Using the Nickerson-Hunter Colorimeter
- D-2255-64 Method for Grading Cotton Yarns for Appearance
- E-240-64T Recommended Practice for Operating Water Cooled Xenon-Arc Type Apparatus for Artificial Light Exposure Tests

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REPORT FROM THE COLOR ASSOCIATION  
OF THE UNITED STATES, INC.  
DELEGATES, MIDGE WILSON, CHAIRMAN

As the Color Association observes its Fiftieth Anniversary we pause to reflect on the colorful changes which have marked this half century.

First, WHAT HAS HAPPENED TO OUR WORLD?

We see time as a new dimension. It has become an instantaneous world - whether it be news and current events, ready-to-eat foods or new colors. Former facts about the seven-year color cycles have now become fiction.

Advancements in communications - air travel, colored advertising, television, even Telstar, give us simultaneous color information all over the world. Everyone is aware of what is happening around the globe and all fields are influenced by the same current events, the same trends, the same inspirations. The days of "follow the leader" are past.

Emphasis on youth and the young market has changed our concepts of styling, advertising and promotion. All encourage fresh, young, stimulating colors.

We're living in a new world, whether you consider it from the standpoint of the population explosion and this vast new market of young people; or because of a new Europe being rebuilt after the war with large areas of freshly colored buildings and apartments - so marked a change from the centuries old weathered buildings; or from our own new suburban communities and fresh urban renewal centers; or all of the new African countries. Never have we had as new a world as this!

It is a big world, dominated by large companies, involved in volume production and distribution. This accelerates working schedules and necessitates planning much farther ahead. It means that color forecasts have also been advanced by several months.

Space has become a contradiction. On one side we condense, compress and restrict everything, from autos, to low-ceiling rooms, to pre-packaged foods while spending billions to explore limitless outer-space.

WHAT WAS HAPPENING TO COLOR while these changes were taking place?

Our concepts of color have also changed. Colors used to vary seasonally and were of chief concern to ready-to-wear. Today, the word "fashion" is synonymous with "change" and fashion colors are of great significance in every field.

In place of a relatively neutral world, with one or two colors highlighted for the season and slow-moving color changes, we are now living in a very colorful world - a world completely committed to color. Consider the vast range of synthetic products which depend upon color to give them character and all of the permanent items in our lives which are highly colored. It is easy to understand why we can never revert to the relatively sober, dull world of yesterday. Our building exteriors are colored, our roads, autos, ships, storage tanks; our business machines and offices; our bath and kitchen fixtures; our vinyl floors and wall coverings - all make this a highly colored world. Windows of buildings are tinted pink or green; safe deposit boxes and check books and just everything are colored. Not only have color cycles changed, but even the way in which colors are used.



Current color cycles are like the wheels of a watch - some are large and move more deliberately, some are very small and revolve quickly, some move at regular intervals. Thus, we have several color cycles revolving at the same time. Products in the top price bracket, which represent large investments and relatively conservative tastes, are styled to last for several seasons. Rather than seasonal or dated colors, relatively timeless neutrals and subtle tones which blend and harmonize with their setting are much more appropriate. These color wheels move slowly and gradually.

Simultaneously, we have the vast fashion (volume) market which uses color to date merchandise and make it obsolete, to build impulse sales and bring freshness and variety into an otherwise very closely prescribed market. Here, we not only find radical seasonal color changes, but in some areas, as ready-to-wear, six different groups of colors per year, rather than the old four-season concept.

Colors no longer "filter down from the top" - there isn't time. A new color may start anywhere - in Paris - inspired by a distinguished person's trip to India - the colors on a book jacket - a new automobile. It will spread like measles, into all fields at the same time. If it is fresh and right, a new color will be picked up quickly for all types of products.

With the inter-relation of one field to another, the emphasis on fashion styling for all market and simultaneous stimulation in all fields, we no longer have a two, three or four year lag in the use of colors in various industries. The same colors are important in all industries at the same time. This means that the market may be saturated by a new color much more quickly than formerly and, therefore, this color may have a shorter life, thus upsetting old color cycle theories.

In our world which is completely committed to color, all color families are present at all times. The tones and relative importance of the various families will shift with the seasons. To achieve variety, greater emphasis is placed upon the way in which colors are used. We have moved from a world of neutrals sparked with color, to brights coupled with pale tones, followed by pure white used with bright colors and on into color-with-color. Coming, for Spring 1966 will be monochromatic clashes, interpreted in the purest colors we have ever used. This dominance of bright colors is closely related to the pace-setting influence of the young market. There is nothing young about dull, drab colors and since everyone wants to look and feel young, we all gravitate toward this fresh, colorful atmosphere.

Our industrial bigness means that we must style much, much earlier. Since the time lag between styling and presenting the product to the consumer is lengthened and current colors could become dated in the interval, stylists choose the very newest colors so that they will still be fresh and vital when presented for sale, several months hence. Thus it is the volume market which now confirms the color trends.

This bigness also fosters the use of electronic computers. We have spoken previously of IBM-erism and how this is stifling fashion business by concentrating on a few safe colors rather than a range of fashion shades. Personal reactions to color are emotional. There is nothing emotional about an electronic brain. It may be wonderful for figures, but when it comes to colors ... it is color blind!



As the rest of the world shifts from a craft economy to one dominated by volume production and distribution and from a world styled for the wealthy adult to one directed to the teenager, the United States, with its extensive experience in both areas, now sets the trends and leads the world in the use and application of color. This country has pioneered in the use of color to move merchandise, in styling, advertising, packaging and selling.

These many changes in our way of life have had far-reaching effects. The stereotyped market conditions resulting from limited ranges of merchandise due to bigness and IBM-erism have resulted in PACKAGED PEOPLE. This is a serious situation and something which we should think about.

We ride to work amid traffic jams, or overcrowded trains, subways or busses. We work in huge office buildings in inside offices with no air or light, our offices and apartments are smaller and smaller; most of the products we buy are packaged so that we often don't really know what we have until we open them at home; even our thinking is packaged by the advertising and promotional themes which are so carefully worked out. We are boxed in on all sides.

The world around us is very colorful. In home furnishings it is the gay printed sheets and blankets and towels which are selling. Carpets, bathroom fixtures, kitchens are all highly colored. All of this makes a person feel that the world around him is more important than he is. It is busy and exciting but makes him feel insignificant. To balance this, and make the individual feel important we must continue to have bright, pretty, colorful clothes to add that extra spark, and balance the rest of the colorful world in which we live.

#### WHAT'S AHEAD FOR COLOR?

To maintain variety and change in our very colorful world we will continue to seek new combinations of colors and new ways to use them. The OP ART and POP ART which use colors in very contrived ways as eye-ball shockers and some of the modern painters who use colors in a belligerent, destructive manner for ugly effects are affecting the public's attitude toward color. Motion-mania (the compulsion to do two and three things at the same time) adds to the high tension of our daily existence and is also reflected in such extreme uses of colors and the color build-up. As with music, we believe that the tasteful application of pure colors will be used to soothe and balance these frantic emotions, bringing an era of beautiful, gentle colors. This places a great responsibility on those of us who are working with color to see that it is used intelligently and beneficially; constructively and not for destruction.

We believe that greater attention will be paid to color coupled with light and lighting. Colored lighting can be as effective as mood music. Which store will be first to simulate the cold northern light of the ski slopes to help sell their skiwear and next to it use the rays of the sunbaked sand for their bathing suits?

The potentials of color therapy have yet to be explored. How wonderful it will be when thoughts of color concern their healing as well as their fashion qualities!



As we review the past and ponder the future, our thoughts go out in grateful thanks to the far-sighted men who established this non-profit association and to all of the loyal committee members who have shared their wisdom, judgment and experience to make this truly a service organization, proving that competitors can and will work together for the benefit of all.

We are proud of this spirit of cooperation and look forward to many more years of close association with our Board of Directors, our Committees and our many members and friends around the world.

REPORT FROM THE COLOR  
MARKETING GROUP DELEGATES,  
L. A. GRAHAM, CHAIRMAN

The year 1964 is the year the Color Marketing Group became of age. Many fine things happened not the least of which was the acceptance of CMG as a member body of ISCC.

Most of you have read the ISCC Newsletter with the capsule history of CMG so I will not repeat, but instead review for you the two CMG 1964 meetings.

In May CMG met in New York and the unquestioned highlight of this meeting was a talk by Domenico Mortellito of the duPont Company's Color Council. His talk was so much to the point I would like to quote from it.

"Probably one of the most significant and important phenomena affecting the behavioral patterns of human beings is the excitement generated by the color of everything in the world that surrounds us. Color is one of the most common, yet, one of the most complicated subjects which confronts us. So very little is known about how it works, the way it affects people, and its many factors in terms of sensorial excitation. Actually, the total subject of color is a great big mixed-up phenomena. On the one hand, it is an obvious, natural, humanistic, inevitable and unavoidable kind of thing. On the other hand, it is a very unnatural, scientific, synthetic, difficult, and complicated phenomena which is hard to grasp. It becomes even more difficult when we realize how the total concept of color has been complicated through misunderstanding and misuse.

"You, the members of the Color Marketing Group, better than most people, recognize the importance of color decisions and the great responsibilities of making color selections. You know that the success or failure to select the right color for your product may very well be the success or failure to sell your product. More than this, I am sure you know that your ability to select the right color depends upon many, many more things that meet the eye. One thing sure! The more I learn about color the more I feel I must learn about people, and the more I learn about people, the more I feel I must learn about color.

"Big questions always loom up: How can I learn more about color? How can I develop an adequate frame of reference so that I can better use color to communicate with? How can I be sure I have selected the proper color for its proper application and environment? How can I be certain that this color will help achieve the marketing goals?

"First I must understand the many things that color is.

"Color is not any one single thing.



"Color is three things: It is physics, chemistry, and psychology all rolled up into one.

"Color is something which one sees empirically in one moment, and perceptually in another moment.

"Color is something to which people adjust sympathetically or do not unsympathetically.

"Color is a feeling in one case, and a name in another.

"Color can both be defined and undefinable.

"Color can be a desire or a habit, and it is important that the color expert understands which it is in terms of marketing influences.

"Big umbrella statements about color are dangerous if they are used without supporting information.

"Same color can be many colors depending on where, when, and how it is seen.

"The use of color as a visual language.

"Color is not a static, fixed, inflexible factor.

"Earlier, I said: 'Color is a great big mixed-up phenomena.' I must therefore caution you not only that this subject is complicated, but that we must be cautious of what we read and believe. This is a business in which there are too many pseudo-authorities with too many positive statements about color. There is great danger, as well as undue presumptuousness in the pragmatic color discussions made by people who do not consider the many influencing factors.

"It is my impression that the same problems and challenges now face the Color Marketing Group. I do not know what the ultimate intent of the Color Marketing Group is. I presume that in some way, based upon the conglomerate represented here of all industries and marketing areas, that there will be an attempt to provide significant and applicable color know-how to industry. In this behalf, I am sure that you will be looking for useful knowledge which will serve as a marketing tool. Hopefully, you will try to adopt new color systems, new color devices, and perhaps a color language which will tend to standardize and unify the exchange information between you. I also assume that you will stimulate greater interest in successful marketing through color. All in all, I would presume that the Color Marketing Group will become highly successful and effective as a central clearinghouse of marketing color know-how, and a service and inspirational springboard for the many industries who will need help in these areas.

"Yours is a most unique opportunity in an expanding color market. I like to think that the world of color is just rising over the great industrial horizon, and that the Color Marketing Group, like the rising sun, will bless all things with beauty, significance, and memorability. This is a lovely color marketing picture, and I think it rests with you to paint it with bold strokes!"



Bruce Walrod of the Boise Cascade Paper Company on the West Coast opened the May meeting with a fine talk on paper and among other things challenged the U. S. Post Office to consider a postal color code to augment the ZIP code.

The Color Marketing Group officially met at the Biltmore Hotel in New York City on Monday and Tuesday, November 16 and 17, 1964. One hundred and fifty persons were in attendance representing sixty-nine corporations and many industries.

The general sessions were opened by Miss Ruth Strauss under the theme "Progress with Color." This theme was carried forth in the two-day meeting by speakers from seven trade associations, summarized in a panel with Miss Mary Davis Gillies as moderator. Also dealing with the color marketing theme were Mr. Howard Ketcham as banquet speaker and Miss Rita Perna, national fashion coordinator for Montgomery Ward catalogues and stores, as agreed luncheon speaker.

The highlights of the various talks were noted in a summary available at the CMG office. Not all the speakers furnished written copies of their talks, although some are on file. Questions should be directed to the CMG office, 1000 Vermont Avenue, N. W., Washington, D. C. 20005.

Changes in the selling pattern of a color can be deceptive, according to Elizabeth Burris-Meyer, of House and Garden, who spoke as the Color Fair was opened. "The color marketer," she said, "considers himself to be many things but mainly one who ferrets out the color picture to find reasons for its being the way it is. Sudden color changes should be investigated to be understood." She cited the sharp inexplicable upsurge of pink in the major appliance field when it was known not to be going well. A major manufacturer decided to drop its pink and cleared out that color indicating an increased customer demand that was entirely false.

"Two things are of importance to the color stylist," she said, "a combination of statistics and know-how. He should balance the trend charts with his own knowledge and experience in work with color."

The Fall 1964 Color Fair prepared under the direction of Miss Beatrice West and Mr. Jesse Levine and designed to show a broad selection of all the colors available in the American market place was enthusiastically received and will be repeated in Fall 1965.

As usual, the busiest parts of the CMG meeting were the various workshops. The reports of the moderators are being collected. As a result of the session of the Centroid Color System or "Universal Color Language" resulted in the purchase for each paid-up 1965 CMG member of a set of NBS-ISCC chips.

It is through concrete suggestions such as this that CMG will learn to serve its members' needs.

As always, CMG invites everyone with genuine interest in color marketing to attend its meetings. As noted in the ISCC Newsletter, meetings will be held in New York in November of 1965 and in Williamsburg, Va., in the spring of 1966.



REPORT FROM THE DRY COLOR  
MANUFACTURERS' ASSOCIATION  
DELEGATES, MAX SALTZMAN,  
CHAIRMAN

During the past year the Dry Color Manufacturers' Association has had three meetings at which the principal speaker discussed some aspect of color.

These speakers were:

Dr. Isay Balinkin  
Professor of Physics  
University of Cincinnati

William G. Huckle  
Research Supervisor  
Imperial Color & Chemical

Domenico Mortellito  
Chairman of the Color Council  
The du Pont Company

The Technical Committee of the Dry Color Manufacturers' Association is continuing its cooperative work with the New York Printing Ink Production Club in surveying the properties of pigments used in printing inks. In addition, preliminary work has begun on an examination of the use of instrumentation in setting specifications in commercial transactions.

The Dry Color Manufacturers' Association has made a grant-in-aid to Rensselaer Polytechnic Institute to help support the work of Professor Billmeyer in the field of color.

REPORT FROM THE FEDERATION OF  
SOCIETIES FOR PAINT TECHNOLOGY  
DELEGATES, S. LEONARD DAVIDSON,  
CHAIRMAN

The activities of the Federation in the field of color were somewhat limited the past year. However, it is anticipated that activity will increase.

Plans are being made to present a panel discussion at our Annual Meeting in Atlantic City on October 30, 1965 on the subject, "Color as an Analytical Tool in the Coatings Industry." The panelists will be Dr. Fred Billmeyer, Miss Ruth Johnston, Mr. Hugh Davidson, Mr. Max Saltzman and Dr. Eugene Allen.

After meeting with the Board of Directors, it was agreed that this portion of our Annual Meeting would be co-sponsored by the Inter-Society Color Council.

We are also acting as co-sponsors of the Workshop on "Instrumental Color Formulation," which we feel will be of great benefit to our members.

At our Annual Meeting in Chicago, the Armin J. Bruning Award for outstanding contributions to the Coatings Industry in the field of Color was presented to Francis Schofield.

It is my pleasure to inform you that Mr. Robert Matlack is our new executive secretary.

Bibliography submitted.



REPORT FROM THE FOLDING PAPER BOX  
ASSOCIATION OF AMERICA DELEGATES,  
NELSON G. CURTIS, CHAIRMAN

No report.

REPORT FROM THE GRAVURE TECHNICAL  
ASSOCIATION, INC. DELEGATES, OSCAR  
SMIEL, CHAIRMAN

The Gravure Technical Association  
at its last convention, and after  
thorough plant testing went on  
record recommending a new density

range for continuous tone positives for color work. The old range of .25 to 1.55 was not applicable to all the gravure processes, and secondly was not considered photographically ideal from a reproductive standpoint. The new density range of .35 to 1.65 is universally acceptable and results in a straight line reproduction curve with the result that highlight and shadow detail are more readily retained. For the first time in the history of gravure the whole industry is now on a standard density range regardless of color process being used.

The new density range should not affect the ink swatches or color scales now in use since the printed result must still be in accordance with the ink standards at present prevailing for newspaper supplements. It simply means the gravure engraver or printer has to adjust his engraving techniques to accommodate the increased density range of his film positives. This applies to supplements, magazines and catalogue printing.

Insofar as magazines are concerned, there has been some evidence to warrant a change in screen ratios from the present 133 lines to 150 lines per linear inch. As a result all magazine printers and publishers have agreed to switch to 150 line screens in an effort to get a better lay of ink and better detail on super-roto or coated stocks. The newspaper supplements being printed on a coarser grade of paper such as newsprint will continue to use 120 line screens for their color printing.

Ink hues, while standard for newspapers using color gravure, are still not standardized for magazines. However, the majority of magazines being printed in gravure, except for the black ink, are making progress in their efforts to use the same hue and value of the yellow, red and blue inks. Seventeen and T.V. Guide use yellow magenta and cyan, the latter two being much cleaner in appearance than the orangey red and mallory blue of the newspapers. It is to be noted, however, that while standard newspaper inks tend to look more uniform from one publication to another because the printing surface of newsprint has similar absorption and hue characteristics, the appearance of an ad printed in magazines will differ considerably even where the same ink is used if one magazine is printed on coated stock and another on super calendered stock. To get all magazines to use the same stock, due to varying price ranges of paper, is going to be a monumental job, but efforts in that direction are now being made.

In addition, the G.T.A. has now standardized on a three step wedge to be used by all engravers on the progressive proofs or color guide supplied with positives to the gravure printer. Efforts are being made to set up ink viscosity controls or standards, as well as standard reflection density readings for the three step wedges as they appear on the printed sheet. All this is done to further improve quality control of uniform four color reproduction printing in the gravure industry.



REPORT FROM THE ILLUMINATING  
ENGINEERING SOCIETY DELEGATES,  
NORMAN MACBETH, CHAIRMAN

The Illuminating Engineering Society and the Inter-Society Color Council sponsored jointly a Feature Session on "Color" at the annual National Tech-

nical Conference of the Illuminating Engineering Society at Miami Beach, August 31, 1964. This was a lengthy session, covering one full afternoon. There were three contributed papers and a lecture-demonstration, which were as follows:

- (1) "The Spectral Distribution of Typical Daylight as a Function of Correlated Color Temperature," presented by Dr. Deane B. Judd and co-authored by Dr. David MacAdam and Dr. Gunter Wyszecki. This was an important paper in which data, gathered from various parts of the world, was correlated and computed by the authors to indicate average or typical daylight, spectral energy distribution curves and various color temperatures, based upon actual experimental measurements.
- (2) "Color Rendering of Light Sources: CIE Method of Specification and its Application," co-authored and presented by Miss Dorothy Nickerson and Mr. C. W. Jerome. This, again, was a significant milestone in the specification of color rendering of light sources, adopted by the CIE, and basically originating from work started over ten years ago by the Color Rendering Sub-Committee of the Light Sources Committee of the IES, in which many delegates and individual members of the I.S.C.C. contributed.
- (3) "Effects of Wavelengths of Light on Physiological Functions of Plants and Animals" by Dr. John N. Ott. This was a special interest paper, involving excellent time lapse photographs, indicating the effect of energy in the visible and non-visible areas of the spectrum as it affects physiological functions of plant and animals.
- (4) In conclusion, a lecture-demonstration on "Color Phenomena" was presented by our 1965 Godlove Award winner, Professor Isay Balinkin.

At the present moment, the IES is revising its IES Handbook and a special section on "color" is being edited by Miss Dorothy Nickerson.

During the year 1964, there were several papers presented on the subject of color in the journal of the IES, known as ILLUMINATING ENGINEERING. These papers were: (1) "International Intercomparison of Photometric and Colorimetric Measurements of Fluorescent Lamps," (2) "Color and Light in Home Design," (3) "Color Matching," (4) "Color for PAR Lamps," (5) "Color Rendering, CIE Committee Agrees on Method of Rating Lamps," (6) and an abstract of the paper #2 above for the special session on color in Miami.

The three papers given in Miami last August, as noted above, not including the lecture-demonstration, are being printed in ILLUMINATING ENGINEERING this spring and will be distributed to each delegate and individual member of the I.S.C.C.

The IES continues to work closely with the I.S.C.C. and vice versa and interest in the area of color continues to become more important.



REPORT FROM THE INDUSTRIAL  
DESIGNERS SOCIETY OF AMERICA  
DELEGATES, H. KETCHAM, CHAIRMAN

sales of black cars ran a poor fifth (to blue, maroon, gray and green) in the prosperous days before The Crash. Came Black Friday, 1929, and suddenly sales of black cars boomed. Black remained the preferred car color all through the Depression. (Psychologists opined that people just didn't want to be ostentatious when others were selling apples on street corners.) The affluence of today's society is mirrored in a recent survey which showed that black has dropped to seventh in popularity among all car colors. Fittingly, white, the direct opposite of black, is now number one on the car parade for every model of the Big Three auto manufacturers.

Black is a popular car color when the country's economy is in the red. Back in the 20's, the first color preference study for automobiles found that

Technology affects taste. Consumer preferences in carpet colors are heading toward brighter, lively hues. One reason: technical advances, such as man-made fibers, which receive dye with greater depth and clarity, make brighter colors practical. There is a trend away from white, gray and beige, and toward turquoise, purple and burnt orange.

Color is busting out all over the television screen. It took six years (1956-1962) to sell one million color TV sets. Estimates are that in the next four years (1962-1966) the number will be quintupled to five million. Studies to date indicate that there is about 50% greater recall for commercials in color than for those in black and white. The American system of transmitting color through the airwaves is currently battling it out with the French system for the dominance of the European network of sets. But, technical details aside, what is really needed is a more penetrating study of color psychology in relation to color television. This should be conducted concurrently with technical improvements to achieve a more realistic and meaningful degree of color fidelity.

Too much contrast is as bad as too little contrast. At least it seems that way where dials are concerned. Recent studies show that the most easily read scale is one where the contrasting color surrounding the dial face is a light neutral rather than a black or intense hue.

See yourself as others see you! That's what prospects for automobiles -- especially females -- want when they walk into an auto showroom. And two leading car manufacturers are letting them do just that. They're introducing a turntable and mirror setup which permits prospects to sit in the car and see themselves from all angles. That way a fashion conscious woman can check whether the car's color goes well with her hair color or favorite clothing color.

Why not more color in car interiors? All too many auto manufacturers are "playing it safe" by using neutral colors in interiors when they have used exciting colors on exteriors. Customers should have the option of selecting a bright, vivid interior to suit their personalities -- and carry out the feeling of the exteriors.



Women respond strongest to personal feelings -- they must feel in their hearts that a product is right for them before exchanging it for their money and their loyalty. Color strongly influences women's coffee buying preferences, according to Stokely-Van Camp's marketing expert, Henry R. Warren, Jr. The tests he reports indicate women believe coffee presented in a brown colored container is "too strong." To them, a yellow package suggests a coffee that is "too weak." Red coffee containers imply a "rich brew."

Preferred colors for home interiors. As in automobiles, off-whites, and even dead white, are today's favorite interior paint colors, either as the basic room color or as important accents. Yellow, from pale lemon to gold is still holding its place, but has a tendency to merge or be combined with orange. And orange is itself on the upswing in everything from a clear sherbet hue to burnt orange, rust and terra cotta. All variations of blue are slowly but definitely increasing in demand, but turquoise shades are being used largely as accent color. The high fashion colors are monochromatic reds, with emphasis on pale pinks and deep bluish reds, and, most especially greens. These are largely of the yellow-green variety, but with some brilliant emerald also in evidence. After being in eclipse for some years, green is once more emerging as a favorite color and is especially popular as an accent in almost any combination.

Homes that grow need color planning. Adding on parts to houses, as so many families are doing these days, can result in a crazy-quilt look -- unless color-coordination is practiced. The idea is to tie rambling parts together by picking up trim colors throughout. Professional guidance is needed to make suggestions to homeowners who just don't have the know-how.

Color commands sales in newspapers today, according to a Sales Management magazine trend report. Marketers are increasing color advertising in newspapers at a much faster rate than they're increasing black-and-white advertising. Color preprints -- sections which are slipped into the newspaper -- are becoming ever more popular. (Two types of preprints are now available on coated stock: Hi-Fi and SpectaColor.) One advertiser -- Chevrolet -- has multiplied his investment in newspaper color 20 times since 1961. Why? Different studies show that color in newspapers gets 66 to 100% more reader attention and 77 to 115% more reader retention than black-and-white. Here are some ways marketers are using newspaper color:

To launch new or improved products or new models, and to instill fresh new life in older products.

To market-prove new features, prices or offers.

To spotlight distinctive product differences.

To grip older markets, to invade new ones, and to strengthen a product's standing in its weaker markets.

To create realism: To bring a product to life. One vintner boasts of newspaper "color you can taste." Food marketers almost can make you bite the paper. Car makers win women (and men) with four-wheeled rainbows. Newspaper color helps to sell color TV sets.



To show how a product will look on you, on your table or in your home, in lines from clothing and cosmetics to canned soup and carpets.

To select from a spectrum: Which among 15 hair-coloring shades fits you?

With one product as a spearhead -- a hat or paint, for instance -- to sell a whole ensemble or decorative scheme.

To clarify the differences in products or services offered by the same marketer. United Air Lines offers red, white and blue facilities on one plane. For gasoline grades Sun Oil's pumps are red, blue and yellow.

To burn in a brand -- such as Winston cigarettes' RED.

To convey product quality and corporate character.

REPORT FROM THE NATIONAL ASSOCIATION  
OF PRINTING INK MAKERS, INC. DELEGATES,  
F. L. WURZBURG, JR., CHAIRMAN

At the end of the year the specifications for standard four-color process proofing inks, developed for the

American Association of Advertising Agencies and the Magazine Publishers Association, were finally released. This was the culmination of a great deal of work on the part of many people and organizations including the Ink Association. The reception has been most gratifying and, although limited to letterpress proofing, it appears that the same hues may well be adopted for web offset magazine printing.

The Printing Ink Handbook first issued by the NAPIM in 1958 is now in the process of revision. Those charged with the task of rewriting the chapter on color have received valuable suggestions and constructive criticism from a number of members of the Council.

The National Printing Ink Research Institute is planning another summer course in Printing Technology at Lehigh in August. Tiny Erikson, Bob Bassemir and Lew Wurzburg will discuss various aspects of color for the participants.

Interchemical Corporation opened an exhibit in the Hall of Science in the World's Fair called the Interchem Color Center. This exhibit explores various phenomena of color in a series of unusual demonstrations in color perception. Interchem has also prepared a booklet incorporating most of these demonstrations and a mailing of these will be made to Council members with a forthcoming Newsletter. Dr. Isay Balinkin, this year's Godlove Award winner, together with Interchem scientists, conceived and helped produce the demonstrations at the Center.

A difference in the light fastness of inks pigmented with organic pigments when printed on foil and on Kromekote paper was reported by Sinclair & Valentine. The identical ink shows considerably improved light fastness when printed on the foil as compared with the Kromekote. The cause of this phenomenon is still unknown.



REPORT FROM THE NATIONAL PAINT,  
VARNISH AND LACQUER ASSOCIATION  
DELEGATES, EVERETT R. CALL,  
CHAIRMAN

The efforts of the National Paint,  
Varnish & Lacquer Association con-  
cerning color were primarily in the  
field of public education.

Articles discussing the decorative applications of color through paint appeared in leading magazines with a combined circulation of over 20,000,000. Articles now scheduled for publication involve a combined circulation of over 25,000,000 plus nationally syndicated newspaper features.

Over 400 radio and television stations across the Nation receive, at their request, a monthly publication "Paint & Color Briefs" which provides news and discussion information regarding color.

The Color Newsreel has been shown thousands of times through film distributors, as well as by individual paint manufacturers. This film has been shown on television to an estimated audience of just under 1,000,000 people.

NPVLA has been active in the formation and development of the Color Marketing Group. It is hoped that through this group the activities concerning the marketing aspects of color will increase and at the same time that ISCC will develop new programs of value that this Member Body can not only endorse, but actively support. NPVLA will be one of the enthusiastic co-sponsors of the ISCC conference on "Instrumental Color Formulation."

REPORT FROM THE NATIONAL  
SOCIETY OF INTERIOR DESIGNERS,  
INC., DELEGATES,  
MRS. EDITH GECKER, CHAIRMAN

No report.

REPORT FROM THE OPTICAL SOCIETY  
OF AMERICA DELEGATES, DOROTHY  
NICKERSON, CHAIRMAN

Since our report of last year the  
Optical Society of America has held  
two meetings, October 6-9, 1964 in  
New York City, and March 31-April 2,

1965 in Dallas, Texas. The October meeting included a session of seven contributed papers on color, an invited paper by George Wald on the Mechanism of Human Vision, a session of seven contributed papers on physiological optics, several of them related to color. Among the other sessions there was one on radiometry, one on ultraviolet and thin films, another on atmospheric and space optics. The Dallas meeting included a color session of six papers, two sessions on physiological optics, and sessions on atmospheric and space optics that contained papers of interest to technical workers in color. At both meetings sessions on instrumentation included papers of theoretical interest. D. Nickerson presided at the color session in New York, D. L. MacAdam in Dallas.

The OSA Committee on Uniform Color Scales, D. B. Judd, chairman, held a meeting on October 7 at which a number of difficult and fundamental decisions were reached, all by unanimous vote that followed considerable active discussion. A 15-page report of this eighth meeting of the committee outlines the procedures to be followed as a result of these decisions. A progress report of the work of this committee, appointed in 1947, has been prepared on request for the 1965 International Colour Meeting by Dr. Judd who will give it at the meeting in Lucerne, to be held June 1-4, 1965. It will be published as a part of the Congress report, also in Die Farbe.



Optical Society delegates to the CIE U.S. National Committee are taking an active part in preparations already well under way for the 16th CIE Congress scheduled for the Shoreham Hotel, Washington, D.C., beginning Sunday, June 18 through Wednesday, June 28, 1967, with pre-session committee meetings to be arranged from Thursday, June 15.

OSA's delegates to the U.S. National Committee of the CIE can report that during the past year recommendations agreed upon in Vienna by CIE committees E 1.3.1 (colorimetry) and E 1.3.2 (color rendering of light sources) have become official CIE methods. The four recommendations of E 1.3.1 are contained in CIE publication 11A, the Vienna Proceedings, Vol. A, and that of E 1.3.2, Method of Measuring and Specifying Colour Rendering of Light Sources, is now in preparation as CIE publication No. 13. These several recommendations are discussed in ISCC News Letter No. 165-166 (May-August, 1963). A summary, with working formulas, of the E 1.3.2 recommendation and its application, as reported to the Illuminating Engineering Society's 1964 technical meetings, appears in Illuminating Engineering, April 1965.

The Optical Society of America publishes Applied Optics, which occasionally contains articles of color interest (for example, there is a paper on "The Spectral Properties of Plants" in the January, 1965 number). In 1964 the February number of Applied Optics was devoted primarily to papers on atmospheric optics, the May number to visibility, October to Rayleigh, December to solar optics.

Note was omitted in the 1964 report that The Science of Color, the 1953 definitive book on the subject by the OSA Committee on Colorimetry, is once more available. Copies of its third printing may be purchased directly from the secretary's office, Optical Society of America, 1155 - 16th Street, N. W., Washington, D. C. 20036, at \$10 per copy.

The list of OSA representatives to the Inter-Society Color Council remains unchanged for 1965.

Bibliography submitted.

REPORT FROM THE PACKAGE  
DESIGNERS COUNCIL DELEGATES,  
KARL FINK, CHAIRMAN

No report.

REPORT FROM THE PACKAGING  
INSTITUTE DELEGATES, F. L.  
WURZBURG, JR., CHAIRMAN

No report.

REPORT FROM RESEARCH AND  
ENGINEERING COUNCIL OF THE  
GRAPHIC ARTS INDUSTRY, INC.  
DELEGATES, C. M. FLINT,  
CHAIRMAN

No report.

REPORT FROM THE SOCIETY OF  
MOTION PICTURE & TELEVISION  
ENGINEERS DELEGATES,  
R. M. EVANS, CHAIRMAN

The report consists of a list of papers published during the year in the Journal of the Society of Motion Picture & Television Engineers which will appear in a later issue of the News Letter.



REPORT FROM THE SOCIETY OF  
PHOTOGRAPHIC SCIENTISTS AND  
ENGINEERS DELEGATES, ALBERT  
J. DERR, CHAIRMAN

To The Inter-Society Color Council:

Thank you for the opportunity to report  
the activities of the S.P.S.E. which are  
of interest to the Members of the Council.

First, as is customary, we are submitting a bibliography of those articles of interest which appeared in Volume 8 of Photographic Science and Engineering during 1964.

Second, our fall symposium in Washington, D. C., October 29-31, 1964, was concerned with unconventional photographic systems. It was extremely successful and the papers will be published in the journal.

Third, the Annual Conference is scheduled for May 17-21 in Cleveland, Ohio. The theme of the Conference is "Frontiers in Photography." While the preliminary program has not been released, it is expected that some of the presentations will cover future prospects for color considerations in photography.

Lastly, I am pleased to announce that the S.P.S.E. has tentatively agreed to co-sponsor the symposium "Instrumental Color Formulation" scheduled for February 6-9, 1966, subject to ratification by the Board of Directors at their meeting on May 16.

We hope for an increased interest within our Society in the work of the Council.

REPORT FROM THE SOCIETY OF  
PLASTICS ENGINEERS DELEGATES,  
FRED W. BILLMEYER, JR., CHAIRMAN

The activities of the Coloring and  
Finishing of Plastics Professional  
Activities Group of the Society of  
Plastics Engineers during the past

year were largely educational. The objectives and plans of the group were well summarized by its (now past) chairman, M. M. Gerson, in the Society's SPE Journal, 20, 430 (1964). The Journal also published in 1964 (page 1211) the article, "Coloring of Unsaturated Polyester Resin Laminates and Gel Coats," by R. M. Johnston and R. E. Park, reviewed in the previous report of the SPE Delegation (ISCC News Letter No. 171, p. 43).

At the SPE's Annual Technical Meeting in Boston, March 1-4, 1965, four papers on color were presented:

"Colors for Food Packaging and FDA Regulations" - M. J. Dunn;

"Colorants for Rigid Thermoplastics" - F. J. Nadolski;

"Pigment Dispersion in Plastisol and Calendered Vinyls" - T. B. Reeve and R. H. Zabel;

"Evaluation and Description of Metallic Colors" - H. C. Felsher and W. J. Hanau.

The presentation of these papers was followed by a panel discussion on "Quality Control of Color," with William Bednar and John Dickinson, representing colorant users and colorant manufacturers, respectively, speaking. The



highlight of this session, to your reporter, was the following doggerel contributed by Mr. Bednar, the moral of which is clearly not limited to the plastics industry: "If your product is color, it may say to you, 'Color me red, or color me blue, but color me the same, whatever you do.'"

On May 12, 1965, the Rochester Section of the SPE will hold its Second Regional Technical Conference on the Coloring of Plastics. Four of the seven papers to be presented (ISCC News Letter No. 174, p. 5) are authored by ISCC members.

At the 1966 Annual Technical Conference of the SPE, to be held in Montreal, March 6-11, 1966, the SPE and the ISCC plan to hold a half-day joint session on color problems of mutual interest. The subject for this joint meeting will be an informal presentation by ISCC Problems Subcommittee chairmen of the history and status of their committee work. Speakers will include Problems Committee Chairman Derby and Subcommittee Chairmen Kelly (Problem 2), Foss (10), Allen (18), Huey (21), and Billmeyer (22).

REPORT FROM THE TANNERS' COUNCIL  
OF AMERICA, INC. DELEGATES,  
MRS. RUTH H. K. FRIES, CHAIRMAN

No report.

REPORT FROM THE TECHNICAL  
ASSOCIATION OF THE GRAPHIC  
ARTS DELEGATES, E. JAFFE,  
CHAIRMAN

Both the TAGA Color Committee and its subcommittee on ink color standardization have been relatively inactive during the past year. Additional items have been incorporated in the "Working List for a

Bibliography on Ink Color Standards," kept by the Chairman. However, no further meeting was held during 1964 to discuss additional ways of handling this material.

Work was still being done on two new methods of evaluating the color gamut of a set of printing inks. However, no conclusions have been reached in terms of their relative values as a standard means of plotting color gamut that would be acceptable to the graphic arts industry.

One of the reasons for the lack of activity of the TAGA Color Committee was due to the Chairman changing positions during the course of the year. This job change-over prevented meetings from being held. It is planned, however, that in 1965 more formal activity will be generated.

REPORT FROM THE TECHNICAL  
ASSOCIATION OF THE PULP AND  
PAPER INDUSTRY DELEGATES,  
H. C. BRILL, CHAIRMAN

The major area of concentration for the past year in TAPPI relating to color was again centered around the Optical Methods Committee of the Testing Division (Chaired by H. Brill, Pigments Dept., E. I. du Pont de Nemours & Co.)

Meeting twice during the year this Committee was concerned primarily with the preparation and evaluation of Test Methods for measuring the appearance attributes of paper and pulp. Methods under consideration include those utilizing both Spectrophotometer and Tristimulus colorimeters. Other items brought up for discussion were: Brightness (blue reflectance) Measurement of both fluorescing and non-fluorescing materials using both single and multilight



sources; white reflectance standards (it is interesting to note that an excellent grade of pressed powder was found to be the most permanent in property retention of any of those tested), opacity, and the urgent requirement for good gloss standards. Active work is continuing on the optical evaluation of ink-paper combinations.

In TAPPI's technical publication, there were three papers on color, one on gloss, one on opacity and two on brightness.

REPORT OF TREASURER  
AND BUDGET COMMITTEE

At the Business Meeting the Report of the Treasurer and of the Budget Committee which was presented by Mr. Norman Macbeth, was accepted by the voting delegates. The Board had recommended favorable action on these reports following their review at the Board Meeting, Sunday, April 25.

The next Annual Meeting will be held in New York City at the Statler Hilton Hotel, Monday and Tuesday, April 18-19, 1966.

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