

M. Balcom

# INTER-SOCIETY COLOR COUNCIL

## NEWS LETTER

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NUMBER 171

May-June 1964

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ANNUAL MEETING ISSUE  
REPORT OF THE 33RD ANNUAL MEETING  
STATLER HILTON HOTEL, NEW YORK, NEW YORK  
MAY 4, 5, 1964

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33RD ANNUAL  
MEETING

Problem Subcommittee activity highlighted the 33rd Annual Meeting of ISCC May 4 and 5 in New York City. Ten subcommittees held sessions. The only complaint heard was that it is impossible to be in two or more meetings at once.

The reception and tour of Cooper Union Museum for the Arts of Decoration added a great deal to the meeting. A part of the original color exhibit (reported in Newsletter #165-6) was set up. The museum exhibit was very interesting to most visitors. It is obvious why the Committee to Save Cooper Union did not want the collection dispersed. Edward Kallop and Christian Rohlfing of the Museum staff were charming and delightful hosts.

Reports of member body delegates seemed especially interesting this year. Egmont Arens and Mrs. Ruth Kerr Fries added verve and spice -- a relief from the technical reports of many societies.

Francis Wurzburg's Symposium, "Color in Education," pinpointed a need for better education in color usage, technology and psychology. Dr. Randall Hanes, Johns Hopkins University, added immeasurably to the value of his committee's book, Color: A Guide to Basic Facts and Concepts. His review of the trials and tribulations involved in such a project makes the work seem even more valuable than a perusal of the report.

The banquet committee made sure that no one would doubt that this was a color meeting. No banquet was ever more colorful -- in decoration or in content. The speaker, Dr. Robert L. Feller, National Gallery of Art, succeeded in bringing together the diverse interests of ISCC members in his topic, "The Scientific Examination and Technical Study of Museum Objects."

Immediate Past President William Kiernan and his co-workers did a remarkable job on the 1964 meeting. They were not at all outshone by New York's big attraction for 1964 -- the World's Fair.

ANNUAL REPORT OF THE  
BOARD OF DIRECTORS,  
RALPH M. EVANS

The Board of Directors has held three regular meetings since the last annual meeting. On May 29 the Board of Directors held a meeting at the Statler Hilton Hotel in New York City. An item that was discussed was the relation between the Council and its member bodies. It was recommended that a committee be appointed by the President to promote the cooperation between member bodies and the Council which should also study possible future activities of the Council. Mr. Kiernan had written a proposed recommended practice which could be used as a guide for future Godlove Award Committees in the selection of suitable nominees for the award. Comments were requested from Board members before final adoption. An Election Committee was appointed consisting of Walter C. Granville, Chairman, Roland E. Derby, Jr., and Charles W. Jerome. Plans were discussed for the 1964 annual meeting which would include a reception and open house at the Cooper Union Museum for the Arts of Decoration.

On October 14-15, 1963, the Board of Directors held a meeting at the Statler Hilton Hotel, New York City. Mr. Kiernan read a letter from Professor Manfred Richter announcing plans for an international color meeting in 1965. It was agreed that the ISCC should be one of the co-sponsors of this meeting subject to further information on the sponsorship by other organizations. Mr. Derby, Chairman of the Problems Committee, gave a detailed report of the progress to date of the various subcommittees. The report of the Nominating Committee was submitted and approved by the Board. Mr. Christian Rohlfsing and Mr. F. L. Wurzburg, Jr. gave a progress report on plans for the 1964 annual meeting, and Mr. Rohlfsing said it would not be possible to undertake the color exhibit at the Cooper Union Museum for the Arts of Decoration but it might still be possible to have a reception there and he would advise the Council at a later date about this. The recommended practice governing the Godlove Award Committee including several changes suggested by Board members was adopted. Mr. Pike brought up the subject of the 1965 meeting and said he would like to suggest the theme "Colorants in Materials" for that meeting.

On May 3, 1964, a Board Meeting was held at the Statler Hilton Hotel in New York City. Twenty-eight applications for individual membership were approved. The reports of the Treasurer and of the Finance Committee were approved and recommended for favorable action at the business meeting of the Council on May 5. The annual meeting in 1965 will be on April 26-27 in New York City.

REPORT OF THE SECRETARY  
RALPH M. EVANS

The Inter-Society Color Council now consists of 29 member bodies with 237 delegates and 490 individual members, which is an increase of 32 delegates and 65 members over last year. Twenty-three new members were approved at the March 10 Board of Directors meeting, 21 at the May 29 meeting, and 19 at the October 14 meeting. These names have been listed in the News Letters following the Board meetings. It is with regret that we report the death of Mr. C. H. Flynn who for many years was the Executive Secretary of the Federation of Societies for Paint Technology.

During the year the revised By-Laws were sent to the membership. By special arrangement between the Council and the publisher, John Wiley & Sons, Inc., the report of Problem 20 Subcommittee entitled "Color: A Guide to Basic Facts and Concepts" was sent to all delegates and members. The manual "Color

Planning for Hospitals and Schools" prepared for Martin Marietta Company by Walter C. Granville, was also mailed to the membership. The reprint from the Digest of the FSPT "Fundamentals and Problems of Color" was sent out as well as the booklet "Come Catch a Rainbow" which was prepared by the Pittsburgh Plate Glass Company and copies of a pamphlet entitled "Illustration of Bronzing" were provided by the Color and Chemicals Division of Interchemical Corporation.

The election of officers for 1964-65 was held in January. The following officers of the Council are elected for the next two years.

President	Ralph E. Pike
Vice-President	Warren L. Rhodes
Secretary	Ralph M. Evans
Treasurer	Norman Macbeth
Directors	Fred W. Billmeyer, Jr.
	Milo D. Folley
	Randall M. Hanes
	William J. Kiernan
	Warren B. Reese

REPORT OF THE TREASURER  
NORMAN MACBETH

The Treasurer submitted a report from Gremmel and Wuerfel, accountants, who had examined ISCC records for 1963. This report, on file

in the Secretary's office, is summarized as follows.

Balance Sheet as of December 31, 1963

ASSETS

Cash		
The Columbus Trust Company		
New York Savings Bank		\$14,387.38
Investments		3,333.89
Dues Receivable		146.00
Advance Tickets - 1964 World's Fair		<u>202.50</u>
TOTAL ASSETS		<u>\$18,069.77</u>

LIABILITIES AND SURPLUS

Dues Paid in Advance		\$ 18.00
Accounts Payable		623.26
Surplus		
Balance, January 1, 1963	\$15,055.09	
Add: Excess of Income over		
Expenses - Current Year	2,373.42	
Balance, December 31, 1963		<u>17,428.51</u>
TOTAL LIABILITIES AND SURPLUS		<u>\$18,069.77</u>

Statement of Income and Expenses for Year Ended December 31, 1963INCOME

Dues		\$3,575.00
Publication Sales		
News Letter	124.00	
Bibliography	22.50	
Miscellaneous	<u>28.60</u>	175.10
Interest and Dividends		785.45
Annual Meeting		<u>682.49</u>
TOTAL INCOME		5,218.04

EXPENSES

Secretary's Office	38.00	
Treasurer's Office	49.80	
Special - By-Laws	348.60	
News Letter	2,367.70	
Miscellaneous Publication Expense	<u>40.52</u>	
TOTAL EXPENSES		2,844.62

## EXCESS OF INCOME OVER EXPENSES

\$2,373.421963 Budget Analysis

	<u>Budget</u>	<u>Expenses</u>	<u>Under or Over Budget</u>
President's Office	\$ 100.00	\$ 0	\$ 100.00
Secretary's Office	100.00	38.00	62.00
Treasurer's Office	100.00	49.80	50.20
News Letter	2,400.00	2,367.70	32.30
Special Publications	500.00	389.12	110.88
Annual Meeting	400.00	- 682.49	1,082.49
Contingency Fund	<u>705.00</u>	<u>0</u>	<u>705.00</u>
TOTALS	<u>\$4,305.00</u>	<u>\$2,162.13</u>	<u>\$2,142.87</u>

## I. H. Godlove Award Fund

Statement of Receipts and Disbursements for Year Ended December 31, 1963

Balance, January 1, 1963	\$ 1,000.58
Receipts	<u>25.00</u>
TOTAL	\$ 1,025.58
Disbursement	<u>20.00</u>
Balance, December 31, 1963	<u><u>\$ 1,005.58</u></u>

REPORT OF THE FINANCE COMMITTEE  
AND RECOMMENDATIONS FOR A BUDGET  
FOR THE YEAR - 1964

The Finance Committee has examined the Treasurer's report of the Inter-Society Color Council for the fiscal year, ended December 31, 1963, and

the statement of income and expenses shows an excess over expenses of \$2373.42. The surplus, as of December 31, 1963, amounts to \$17,428.51, most of which is either in cash or investments. The majority of the cash is deposited in a New York State Mutual Savings Bank where it is earning 4-1/4% and is insured up to \$10,000 by FDIC. Since there is an excess of \$1483.33 above the \$10,000 insurance, referred to just above, the Finance Committee recommends to the Board of Directors, for their approval, the opening of a new savings account with another New York State Mutual Savings Bank, namely, the Bowery Savings Bank, and suggests that the Treasurer maintain balances in each account below \$10,000.

It is further suggested that any cash balance, after the annual meeting, in excess of \$2,000, not remain in a non-interest bearing checking account but be deposited in either of the Savings Banks, referred to above, one existing, one to be established with Board approval.

Total income for the year ended December 31, 1963 amounted to \$5218.04. Expenses were \$2844.62. There were two areas where there was a deviation from the budget proposed this time a year ago for the calendar year 1963. It was anticipated that the annual meeting would cost in excess of \$400 over income. Actually no Council income was involved in the annual meeting and there was an excess of income over expenses of \$682.49, thus the annual meeting budget is under budget by \$1082.49. There were no expenses charged to the contingency fund which was budgeted at \$705, thus it was under budget by this amount.

For 1964, the Finance Committee has estimated income as follows:

459 Individual Members	\$ 2560.00
29 Member Bodies	1015.00
Publication Sales *	175.00
Interest and Dividends	<u>800.00</u>
TOTAL ESTIMATED INCOME	\$ 4550.00

The Finance Committee recommends the following budget for expenses:

President's Office	\$ 300.00
Secretary's Office	100.00
Treasurer's Office	100.00
Newsletter	2500.00
Special Publications **	1000.00
Annual Meeting	400.00
Contingency Fund	<u>150.00</u>

TOTAL ESTIMATED EXPENSES: \$4550.00

\* The income for Publication sales does not include any estimate of income from royalty paid to the Inter-Society Color Council by John Wiley & Sons, Inc. in connection with the publication of the book, "Color - A Guide to Basic Facts and Concepts." It is expected there will be income in 1964 for the reason that the sales of books have been sufficient that we should expect to receive some income after the sale of only a few more books, based upon a statement sent to us by John Wiley & Sons, Inc., dated December 31, 1963. At this time, there was no royalty payment and it was an excess of charges over credits in the amount of \$10.53.

\*\* A larger sum is allocated for Special Publications to cover a new membership list and new Council stationery. It is evident from the Treasurer's report that the I.S.C.C. is in good financial condition and has reserves which can be specially appropriated for significant projects of vital interest to the I.S.C.C., its member bodies and its individual members. One of the items which could probably be considered as a major project during 1964 is the purchase of the Color Charts, being printed and published by the National Bureau of Standards, in connection with the work done by the Committee on I.S.C.C. Problem 2. This will be a significant expense.

The Finance Committee requests approval of the recommended budget and the acceptance of this report.

Respectfully submitted,

Norman Macbeth, Chairman  
Dorothy Nickerson  
Roland E. Derby, Jr.

PROBLEMS COMMITTEE  
REPORT

Subcommittee on Problem 2, Color Names,  
Kenneth L. Kelly, Chairman

Activity of ISCC Subcommittee on Problem 2, Color Names, has been limited to the Chairman's assistance in developing the ISCC-NBS centroid colors by the Tobey Color Card Company. Following the kind offer of technical assistance by Mr. W. N. Hale, Jr., of the Munsell Color Company, all of the centroid colors which had been accepted were reviewed. Also, all centroid colors of Munsell value 8 and above, have been reworked using acrylic base instead of the usual nitrocellulose base to reduce yellowing, especially with the lighter colors. It has been decided to use in addition to the centroid colors (those meeting the stipulated tolerances), any color very close to the pigment gamut which

falls certainly within a block to illustrate that block instead of leaving it empty. These colors will be called guide colors and will be marked with an asterisk, in contrast to the centroid colors. A table will be attached to each set of centroid-color charts containing the centroid number of each color, its ISCC-NBS color designation, the Munsell renotation and the asterisk indicating a guide color when necessary. These guide colors will serve a very useful purpose by extending the coverage of the color solid into areas which would not otherwise be illustrated. Guide colors will be replaced by centroid colors as suitable pigments are developed.

Mr. Jesse Levine, of Pantone Press of New York City, has generously donated to the centroid cause a beautifully executed variable gray background for use with the centroid colors. The necessary photographic plate will be made by Tobey Color Company and the better of the Tobey or Pantone background will be used in the chart sets.

A study is being made of the relationship throughout the color solid between the Munsell renotation spacing and the  $\Delta E$  unit of color difference based on the MacAdam  $u, v$ -transformation of the CIE-- $x, y$  diagram. The Subcommittee has continued to act in an advisory capacity to ISCC Subcommittee on Problem 17, Color in the Building Industry, and to ISCC Subcommittee 23, the Expression of Historical Color Usage.

Subcommittee on Problem 7, Survey of American Color Specifications,  
Francis Scofield, Chairman

The original intent of the Subcommittee 7 was simply to bring the report published in 1955 up to date, but more extensive examination of the nature of the problem has convinced the Subcommittee that a new start and a differently organized report would be much more useful.

It is the intent of the Subcommittee, therefore, to make an alphabetical listing of all color standards and specifications used in the United States, with adequate cross references and guides to sources where the originals or more detailed information may be obtained.

The chairman will soon submit a list of standards that should be covered to the Subcommittee for discussion, and then once the skeleton is established the details will be filled in.

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

The Committee on Problem 10 was called to order at 10:00 A.M. on May 4th. No roll call was taken, but about a dozen members were present during the course of the session, including the two Co-Chairmen, Dan Smith and S. L. Davidson, representing the Federation of Societies for Paint Technology.

Materials for the 1964 Edition have been completed and several sets have been assembled. One was on display at the meeting. Standardization is under way and data is being obtained to prepare the "Scoring Key." Up to this point, no abnormalities have appeared in the color series. It is expected that the sets will be ready for distribution during the summer.

Co-Chairman Foss made a proposal that the Committee undertake development of a related test using color series in three dimensions. He has developed the techniques necessary to produce series of this type in any chosen triad of dimensions. The Committee evinced great interest in the new material and urged Mr. Foss to make a presentation and demonstration of his development. It was moved, seconded and voted unanimously that the regular meeting of the Committee on Problem 10 next year be devoted to Mr. Foss' presentation.

The Meeting adjourned at 11:00 A.M.

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

Three committee members and two visitors met in the Hudson Room of the New York Statler Hilton on the afternoon of May 4, 1964. Ex-officio member, Ralph Pike, also dropped in for part of the time.

There was a discussion of possible future activity of the committee. The suggestion receiving the most favorable comment was to explore the need for material standards to be used as anchor points in some of the single-number color systems. It was voted, however, that the committee at present regard itself as serving on a stand-by basis until some reaction is obtained from publication of its report in the Official Digest of the Federation of Societies for Paint Technology.

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

The subcommittee has on hand seven methods for mounting textile samples. These methods will be circulated among the subcommittee members this summer and fall. A preliminary report will be ready for discussion at the next annual meeting.

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

During the past year the Subcommittee has not been active. Perhaps one item that might be mentioned because it is related to the work of the Subcommittee is a paper by its chairman which was read at the 1963 Annual Meeting of the National Paint, Varnish and Lacquer Association on "The Use of Plastics in Building."

This paper appears in the January 1964 issue, "The Construction Specifier," the magazine of the Construction Specification Institute under the title, "Plastic Wall Coverings and Paints as Surface Finishes."

At the meeting of the subcommittee on May 4 there was a lively discussion of the identification and standardization of the color of building products, and the following motion was passed: "This committee recommends that the building industry be encouraged to supplement the color identification of their products by use of the Munsell color notation."

The purpose of this recommendation is to provide a common notation that will allow the cross indexing of the color of products used in the building industry. They might start with their important or large volume colors.

This action implements the work of subcommittees on Problems 2, 7, 23.

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

Within the last year the subcommittee circulated a questionnaire which was designed to determine the preferences of American users and manufacturers of fluorescent substances with respect to light sources, both natural and artificial. Answers were received from manufacturers of fluorescent whitening agents, detergent manufacturers, textile mills, paper mills, and manufacturers and users of colored fluorescent materials exclusive of fluorescent whiteners. The results of the questionnaire were used by Dr. Deane B. Judd in formulating his recommendations to the CIE, who are currently deliberating changes in the standard light sources.

Nine fluorescent samples were measured by the Bureau of Standards by two methods: the Donaldson Colorimeter, and a specially designed reflectotransmissometer. The same samples were then measured at the Aeronautical Materials Laboratory, Philadelphia Navy Yard, by use of the Beckman DU spectrophotometer and reverse optics method. The agreement among the three sets of results was fairly good, and the reasons for the lack of exact agreement will be further explored in the subcommittee in an effort to put ourselves in a position to recommend methods which can be accepted as standard.

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

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.

At the subcommittee meeting on May 4, these objectives were discussed at length. There was general agreement that accurate basic information in an easily comprehensible form is badly needed, but there was considerable doubt about the possibility of fulfilling this need in a single book or report, especially as a committee effort. There was discussion of several current attempts to produce elementary material to fill the needs of workers in specialized fields of color, and it was suggested that the outcome of these efforts might well serve as a guide for the direction to be taken by the subcommittee.

The need for documentation of the present report by means of additional illustrative material was generally recognized, and it was suggested that there should be consideration of a new subcommittee for that purpose.

The suggestion for the preparation of a catalog of illustrative aids for teaching color produced mixed reactions, but the sense of the group was that it would be useful if it could be done well.

Written comments or suggestions relating to any or all of these objectives, from interested individuals, will be welcomed by the committee as a guide toward further committee activity.

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

The work which this committee has done to date was reviewed by those present. After much discussion it was determined that a reevaluation of the scope of this group be made.

Mr. Warren Reese read the scope that was given to this committee in 1957 by the Council. The group agreed that we should follow as closely as possible the original charge given us. Once we have arrived at practical recommendations referred to in the scope, then we could investigate some of the other facets of this complex problem.

As stated in the original scope, it is believed that disagreements between parties interested in visual evaluation of small color differences could be diminished if there existed standard procedures for:

1. Illuminating and viewing specimens and standard.
2. Instructions for observers in making panel judgments.
3. Rating observers for skill in color matching and/or color vision.

Task groups were set up for the three main objectives. The chairman of each task group will have a report by the next meeting.

A copy of ASTM Method "Recommended Practices for Visual Evaluation of Color Differences of Opaque Materials" will be circulated to all members present at this meeting. They were asked to evaluate it, make suggestions which by their use could broaden the method, making it useful for materials other than paint. A copy of the original scope of this committee will also be circulated.

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

Acting for a majority of the Subcommittee, the Chairman recently asked the Board of Directors of the ISCC to approve a new objective for the Subcommittee. The Board took the view that the new phraseology represented a clarifying re-statement within the scope of the original objectives, and on May 3, 1964, gave its approval on that basis. The Subcommittee unanimously concurred at its May 5 meeting, and the objective of this Problems Subcommittee now reads:

"To study and recommend suitable material standards, procedures for their use, and other pertinent techniques for the calibration of spectrophotometers and colorimeters for improved precision and accuracy in industrial color measurement."

The Subcommittee felt that the title of the problem, and hence the name of the Subcommittee, should similarly be clarified. The Chairman suggested "Procedures and Material Standards for Accurate Color Measurement." This title was approved by the Board of Directors and becomes the new official name of this Subcommittee.

The Board likewise approved, pending minor editorial changes, the Subcommittee's report "Precision of Color Measurement with the G.E. Spectrophotometer." After its open meeting, the Subcommittee considered and made the necessary editorial changes in a closed working session. The report is now ready for circulation to the Voting Delegates of the ISCC member bodies.

The Subcommittee approved the following objectives for the coming year:

1. Produce and test a calibration and operating procedure for the G.E. spectrophotometer meeting rigid requirements for high precision and accuracy.
2. Define and obtain material standards to implement the above procedure.
3. Test the procedure in a round-robin program.
4. Extend the above techniques to other spectrophotometers and to colorimeters.

Item 1 was implemented by the appointment of a task group consisting of Johnston (PFG), Dummer (G.E.), Hemmendinger (D & H) and the Chairman who will draft and test the proposed calibration and operating procedure.

The Subcommittee was alerted to the possibility that ASTM Committee E-12 may ask its assistance in undertaking specific experimental problems of mutual interest, to be defined in the course of E-12's revision of the ASTM Methods dealing with spectrophotometry.

Subcommittee on Problem 23, Expression of Historical Color Usage,  
Everett R. Call, Chairman

When Problem 23 was accepted by the ISCC in late 1957, the objectives were "to derive compatible methods for recording historical consumer color preferences for products in individual industries, to publicize these methods and encourage all industries to adopt them so that (1) useful historical records of consumer preference trends of their products may be available within individual industries, and (2) the interrelationship of consumer color preference of one product upon the choice of another product may be established among industries."

In November 1960, the Board of Directors of the ISCC published the method developed by this Subcommittee.

Since November 1960, many individual companies and industries, on the manufacturing level as well as the retail level, have adopted this method for internal use. Further, a good many of these are currently involved in a program where the interrelationship of consumer color preference of one product upon the choice of another product may be established among industries utilizing the method developed by this Committee.

At a meeting of the Color Marketing Group in November 1963, Kenneth L. Kelly, William N. Hale and Everett R. Call spoke regarding the necessity of industry adopting a standard color identification system and Committee 23's method for establishing color trend developments.

On April 21, 1964, Kenneth L. Kelly, Walter C. Granville and Everett R. Call spoke to the Annual Meeting of the American Ceramic Society again urging adoption of a standard color identification system as well as Committee 23's method.

This Committee believes that for the foreseeable future, there is little or nothing the Committee could do to improve the method as approved in November 1960.

The need for further application of the system by manufacturers and retailers is absolute. This effort is being carried forward by the Color Marketing Group where the entire effort of its membership is devoted to the problems involved in the merchandising of color.

In view of the stated objectives that govern the activities of the Committee and in view of the increasing activities of the Color Marketing Group, the membership of Subcommittee for Problem 23 respectfully request that the Subcommittee for Problem 23 be put on an inactive basis.

Elizabeth Burris-Meyer  
Walter C. Granville  
Carl E. Foss  
Elschen Hood

Martha Jungerman  
Kenneth L. Kelly  
Frederick H. Rahr  
Mary J. Shannon

William M. Stuart  
Ouida M. Wessman  
Beatrice West  
Midge Wilson

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

A.A.P.L. wishes to record its vote of approval of the work done by the I.S.C.C. during the past year. Along with official approval of our delegation, we wish to applaud in particular the work of the

I.S.C.C. in giving cohesive relevance to otherwise highly fragmented, compartmented, and necessarily specialized work of the several committees and technical working groups assigned to special projects.

Each of these worthy technical efforts would be without general meaning and value to the fine arts if it were not for the strong cohesive cement, the semantic interpretation, the planning and focussing of goals, and most of all the high motivation given by the I.S.C.C.

John Scott Williams, one of the delegates from the A.A.P.L., is now in process of building such a meaningful bridge between the arts and the sciences, each of which has been drastically fragmented, and diffused in recent years. His findings indicate that the bridge is basic design.

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

During 1963, color problems received an increased share of attention from members of the AATCC. The introduction of an ever increasing range of man-made fibers and the resultant

permutation of color range has been a major factor in this increased interest in the application of color science.

The belated recognition by the industry of the need for skilled color-matchers has resulted in widespread experiments with the feasibility of instrumental color-matching using computers of various types. This approach has also increased the demand for a broader knowledge of color. In this respect, the ISCC report of the Subcommittee on Problem 20 is most timely.

An AATCC color committee, under the chairmanship of Dr. Eugene Allen, is specifically concerned with color problems pertinent to the dyeing and finishing of textiles. The committee is presently concerned with three problems. They are:

1. Supervising the construction of a new set of grey scales equivalent to the Society of Dyers and Colorists grey scale. These scales have been widely used to visually equate color differences arising from light or chemical exposure. The supply of these scales has been inadequate. The new scales will be available shortly.
2. The present scale consists of five pairs of chips illustrating constant multiples of color difference. Interest in an expanded scale, wherein finer gradations would permit fractional evaluation, has resulted in the construction of experimental scales. These are being evaluated.
3. The increased use of spectrophotometers to check deliveries of dye-stuffs for strength has led to a demand by both suppliers and purchasers for an authoritative statement as to recommended procedures and expected tolerances. This problem has been taken under advisement by the color committee.

A bibliography of pertinent articles appearing in The American Dyestuff Reporter, The Journal of the Society of Dyers and Colorists, and The Textile Research Journal during the past year was submitted to the Secretary.

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

Color has continued to play a vital role in the ceramic industry during 1963, as indicated by the introduction of new shades in structural clay products, dinner-

ware, porcelain enamel, and glass.

During the 1964 Annual Meeting of the American Ceramic Society, held in Chicago April 19-22, the following members of the ISCC participated in the Symposium On Color:

1. K. L. Kelly
2. Everett Call
3. Walter Granville

Mr. Kelly reviewed problems in color nomenclature and presented the ISCC-NBS Centroid System; Mr. Call delineated the use of color trends in marketing through color; and Mr. Granville demonstrated and discussed metamerism in detail.

Speakers from the American Ceramic Society included H. D. Bixby, Chairman of the ACS delegation to the ISCC; Harry Holscher, Senior Scientist, Owens

Illinois Technical Center, who traced the history of glass container decoration; and Charles Rickey, Ceramic Engineer, B. F. Drakenfeld and Co. who discussed problems in the development of ceramic pigments during the past 40 years.

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

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

Dominick and Waldron Faulkner, Chairman.

There were no activities especially devoted to color in the course of the past year.

However, the Journal of the A.I.A. published book reviews in the November 1963 issue on: "Color for Interiors" by Faber Birren and "Color - A Survey in Words and Pictures from Ancient Mysticism to Modern Science," also by Faber Birren.

In the December 1963 issue there was a review of "Color: A Guide to Basic Facts and Concepts," by Burnham, Hanes and Bartleson, which was the outgrowth of the report of the I.S.C.C. Subcommittee on Basic Elements of Color Education.

The April 1964 issue carries an article by Howard Ketcham called "Human Needs Demand Effective Color."

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

This has been a very colorful year for the A I D. Many color trends have been created ... the consumer's response has been enthusiastic ... and the press has been generous with their comments.

The A I D's National Committee on Restoration has 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 the Blair House, the nation's guest house in Washington, D.C. The overall effect creates a colorful background of elegance, graciousness and refinement.

The Decoration and Design 1964 show at the New York Coliseum surpassed anything done before. Color trends showed increasing use of brighter, deeper, royal tones such as emerald green, orange, sapphire blue and American beauty reds, plus black and white. A greater use of painted furniture and color in floors predominated.

The National Paint, Varnish and Lacquer Association's half-hour color and sound film, "Color Newsreel - 1964," was staged in the Grand Ballroom of the Waldorf Astoria with a seven room house built on the stage, each room designed by A I D members. Orange was predicted as a leading color. Color prints are available for viewing by groups within the paint industry, women's clubs, professional groups, schools, as well as television. Aim of the film is to show how color ... in furnishings, finishes and fashions ... dominates the current scene.

The 1964 Awards Program was expanded tremendously to better promote the works of A I D members to the American public. Awards went to products such as Formica and Amtico for their special designs and colors. The Award winners will be exhibited at the various Design Centers in Chicago, New York, Miami and Los Angeles and will form a permanent exhibit at the New York World's Fair in the Pavilion of American Interiors, in addition to being shown in various major stores throughout the country.

At the Chicago market tie-in with the Merchandise Mart and the American Furniture Mart, the A I D once again came before the public eye. The twelve rooms designed by members for the program received tremendous newspaper coverage and were considered so successful that over sixty rooms will be featured in future markets. The effect of all these displays and model rooms has great influence on public taste.

Just 25 years ago, Du Pont launched nylon as a newcomer in the 1939 World's Fair. When the 1964 World's Fair opened in New York, Du Pont's nylon was featured in 14 rooms of the Pavilion of American Interiors designed by A I D members. Due to nylon's excellent ability to be dyed, a variety of styles and color, ranging from subtle to vivid, can be seen. Each section of the United States is represented by rooms indigenous to a specific area's climate, needs and atmosphere. For example, the New York chapter room was designed in rich brown and copper paneling, champagne colored carpeting and bright orange upholstery. The Chicago room used shades of red and orange, representing a wonderful glow of warmth. Florida's room was designed in bright sunny colors, appropriate to Florida's sunny weather. The Houston, Texas room is in shades of avocado and San Francisco's room in shades of blue and lavender, reminiscent of earlier San Franciscan decor. Other rooms are just as exciting with color.

On May 18th through 19th, the semi-annual meeting of the COLOR MARKETING GROUP will be held in New York. The group represents all industries which deal in colored products and members are actively engaged in all phases of the marketing aspects of color. In response to the expressed needs of Members, CMG establishes and promotes projects and workshops to fulfill these needs on an inter-industry level, without intruding upon the competitive aspects of individual company operations. One of the projects was the COLOR FAIR last fall, the first time such an undertaking was made in the history of color marketing. This semiannual COLOR FAIR provides a visual color trend gallery of actual product colors, representing both the recent past as well as the predictable future, and will reveal the color story from year to year. Members of the A I D, who are the decision makers for color in their organizations, are also members of CMG. Two of their members are CMG Board Members.

Generally speaking, A I D members have had a tremendous influence on the taste of the American public. Many members are retained by leading builders to color coordinate model houses, model apartments, lobbies, typical floors and whole housing developments. Other members who "design with color" have made news with their work in hospitals, schools and industrial buildings, all working on the premise, in both residential and commercial work, that one of the most important design factors that motivates sales is color.

Shelter magazines have helped to develop a better understanding of color by presenting the A I D work in a creative and colorful manner to the consumer.

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

The Color Committee of the American Oil Chemists' Society met during the national convention in New Orleans in April, 1964. There were no problems to be settled by

the committee at that time. Any new work undertaken will depend upon future needs of the Society. The FAC Color Subcommittee has completed its work and submitted a formal report recommending the adoption of solid glass standards.

The following articles appeared in the Journal during the 1963-64 year.

Bleaching of Refined Cottonseed Oil with Modified Alumina Adsorbents. Pons, W. A., Jr., Kuck, J. C. and Frampton, V. L., JAOCS 40, 10, (1963)

Bleaching Off-Colored Cottonseed Oils with Activated Alumina: A Preliminary Cost Study. Decossas, K. M., Molaison, L. J., Eaves, P. H., Pons, W. A., Jr., and Patton, E. L. JAOCS 40, 218, (1963)

Gaseous Ammonia as a Refining Agent for Cottonseed Oils. Zeitoun, M. A., Harris, W. B. and Harris, W. D., JAOCS 40, 279, (1963)  
(NH<sub>3</sub> efficient in removing phospholipids, but not for removing color bodies.)

Bleaching of Wool Grease. Anderson, C. A., and Wood, G. F., JAOCS 40, 333 (1963)

Fluorescent Agents for Detergents. Zussman, H. W., JAOCS 40, 695, (1963)

Report of the Instrumental Techniques Committee, A.O.C.S., 1962-63. JAOCS 41, 158, (1964)

Some Basic Factors in the Bleaching of Fatty Oils. Rich, A. D., JAOCS 41, 315 (1964)

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

Over the span of a single year the work of psychologists in the area of color vision may be expected to show little change. Although true in the large this past year, there have been some noteworthy

events. The laboratories that continue to be active in the psychophysics of color vision are much the same ones. There are those at Brown, Columbia, Kansas State, Ohio State, the University of Pennsylvania, Rochester, and the U. S. Naval Submarine Base at New London. Of particular interest is the establishment of a new Center for Visual Science at the University of Rochester with Robert M. Boynton as director.

Psychophysical problems related to complex spatial and temporal fields continue to receive major emphasis. The spurt of interest in color discrimination in lower organisms noted in last year's report continues. J. L. Brown and Jeri Sechzer of the University of Pennsylvania, for example, have just reported results in Science that may help resolve some of the disagreement about color vision in the cat. Their study demonstrates color vision capacities in this animal but it also seems clear that the cat avails itself preferentially of brightness cues if such cues are present in the discriminative situation.

Dr. Armington and Dr. Biersdorf at the Walter Reed Army Institute of Research and Dr. Riggs at Brown University continue in their efforts to unravel the mysteries of the ERG in the intact human. Dr. Riggs reports a breakthrough with the use of oscillating grid type color stimuli. The results indicate that color rather than luminosity seems to determine the major portion of this form of electrical recording.

In a climate of conferences, seemingly without end, it is not surprising to find that such conferences, many of them interdisciplinary, have continued to be held and others of interest to researchers in color vision are imminent. A Symposium on Competing Theories of Receptor Excitation in the Retina was held at the 1962 meetings of the American Psychological Association in St. Louis, with Helson as Chairman, and with Drs. Enoch, McConnell, Boynton, and Blackwell as participants. This meeting was not noted in last year's report. A full account of the Symposium has just appeared in the April issue of the Psychological Bulletin. A conference was held at Brown University in January of this year on the Physiological Basis for Form Discrimination. Color problems were not the focus of interest at this meeting but the subject of color kept appearing throughout the discussion of form perception. The Institute for Research in Vision at Ohio State reactivated, under Dr. Blackwell's guidance, the Renshaw Vision Conferences both last year and this year. This year's meeting, the twenty-second in the series of informal conferences initiated by Dr. Renshaw in 1941 brought together some thirty investigators. One full day of papers and discussion was devoted exclusively to the problems of adaptation.

Psychologists working in vision are following closely important developments at the receptor level in the work of biochemists, electrophysiologists, and biophysicists. W. A. H. Rushton whose work on reflection densitometry shot him into prominence in the color vision area in the last decade has now dramatically disclaimed some ten years of interpretation of the photolabile substances in the fovea. In a recent letter published in the Journal of the Optical Society of America (54, 273, 1964), he has explicitly stated that he now gives no references to this earlier work. At the same time, a competitive scramble for priority has developed in connection with the actual spectral distribution functions of photopigments in single rod and cone elements in the eyes of man and other primates. This research depends on the development of precision apparatus and techniques in microspectrodensitometry and once the priority issue is out of the way, we may expect the important scientific issues to receive the solid care they deserve. Electrophysiological work that is of particular interest to the psychophysicist--even though much of it is not at the moment necessarily directed at the color mechanism itself--includes that of Benolken, DeValois, Hartline and Ratliff, Svaetichin, Wagner and Wolbarsht, and Wiesel and Hubel, to cite a few.

The following items are from the individual reports submitted to the Chairman by the delegates.

Dr. Boynton reports that his research in color still proceeds along two lines: (1) color-naming responses are being used to identify the unique spectral wavelengths, and changes in them are being observed as a function of basic flash parameters and chromatic adaptation; (2) a variation of the two-color threshold method is employed where the HTRF is being used to determine the effects of selective chromatic adaptation under steady and transient

Ask Dr. Haworth.

adaptational states. Judith W. Onley's work on various aspects of saturation matching and scaling also continues.

Dr. Graham writes that the Vision and Visual Perception volume that he has been working on has been completed and will be out within a year. Mr. Oyama, a Fulbright fellow from Japan, and Dr. Hsia have completed a study on color contrast effects due to separation between the inducing and test fields and Dr. Jean Pollock has completed her research on reaction time to various color luminances. A study in collaboration with Dr. Riggs and Dr. Siegel of New York University Medical School on an atypical achromat also has been completed.

Dr. Rita Halsey and C. R. Pettie at IBM have completed a pilot study on the chromaticity requirements for display systems which use three primaries to produce up to seven colors for coding of information superimposed on multi-color map colors.

Dr. Helson whose new book on Adaptation-Level Theory has recently appeared is still working with J. A. Steger on the problems of von Bezold mixture and classical contrast. Also under study are the relations of sources and background colors and pleasantness of object colors.

The Hurviches and their students pursue their investigations on time dependencies in color vision, effects of retinal localization, and relations between just discriminable differences and supra-liminal equally large steps in perceived color space. They are continuing their studies of behavioral indices of color discrimination in different species of fish. Harvard University Press will shortly bring out their translation of Ewald Hering's Grundzüge der Lehre vom Lichtsinn, and they are currently writing a book on problems of visual brightness perception.

Dr. Jo Ann S. Kinney, now Head of the Vision Branch of the U. S. Naval Medical Research Laboratory at New London, reports for the first time in Dr. Dimmick's stead, the following research in progress or completed during the past year in this laboratory. Studies of differential sensitivity in the purple region, temporal factors in simultaneous color induction, color mixture functions with different desaturants, color sensitivity to blue and yellow in the periphery, and at low luminance levels, and finally, sensitivity as function of wavelength.

Dr. Riggs' novel and important finding on the ERG reported recently in Science is based on work done jointly with E. Parker Johnson and Amy M. L. Schick.

The above report is by no means exhaustive. The list of publications in vision submitted to the Secretary is highly selective and includes only those papers called to the Chairman's attention by the individual delegates.

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

explicit interest to ASTM. In addition, I have stated the organization of ASTM to manage activities related to these properties:

In recent years, I have reported to you the very broad interests of ASTM concerning color and related optical properties for the many materials of

1. Committee E-12 on "Appearance of Materials" is one of twenty committees with primary responsibility for pertinent technical disciplines; E-12 studies specific materials only when there is no established and interested material committee.
2. The materials committees now number seventy-two; each is concerned with all the properties and related test methods of commercial interest to a class or sub-class of material.

The total membership of ASTM, in materials committees, in those like E-12 concerned with specific technologies and in others concerned with specific uses of materials, is now about thirteen thousand and includes technical representatives of consumer, producer and general interest.

As in prior years, interest in color and its satellite properties continues to be very strong. For the purposes of this report, it will suffice to mention only highlight activities, some of which are continuations of those reported last year:

#### Within E-12 Itself

Subcommittee III on Pictorial Representation has prepared the first draft of a recommended practice entitled "A Proposed Coordinate System for Specifying the Geometric Relationship of Camera, Subject, and Lighting"; this aims to introduce a useful degree of standardization to industrial photography.

Task Force 1--Manual on Appearance--has for some years been working on a Manual of Appearance Properties and Test Methods. Most recently it has become evident that the growing body of recommended practices for appearance properties, being developed by E-12, contains most of the desired information. Collation of these is being considered as an alternative format to the manual as originally conceived.

Task Force 5 on Typewriter Ribbon and Carbon Paper has most recently prepared a revision of the Proposed Method of Test for the Curl Resistance of Carbon Paper for consideration by the Society for adoption as a Tentative Standard, at this year's Annual Meeting at Chicago. At last year's Annual Meeting, tentative definitions of terms relating to carbon paper and ink ribbon products and images made therefrom were accepted. The current work of this group includes preparation of a Proposed Method of Test for Determining the Slip Resistance of Carbon Paper as well as tests for determining the smudging and erasability of images made by carbon and ink ribbons. A review has been made of the various methods for measuring sharpness of images and it is hoped to publish the report at a later date. A test panel survey of the consumer reaction to the question of cleanliness of carbon paper has been conducted to provide guidance for developing a test method for this attribute.

Task Force 7, which is concerned with the Definitions of Appearance Characteristics of Objects and Materials, has accepted a major assignment for the collation and improvement of a large number of definitions, of various appearance properties which are distributed widely throughout the Society's standards. This project has started well and could provide a major advance in improving understanding of concepts and of quantities measured.

Task Force 9 has prepared a third draft, as a Recommended Practice for Spectrophotometry, which combines the essence of existing ASTM methods D-307 and D-791 and other methods which are basic to this important technology. This draft includes the most recent advances in this field. It is being prepared for simultaneous consideration by ASTM and by the International Organization for Standardization, specifically Technical Committee 61 on Plastics.

As an alternative to accepting responsibility for sponsoring the American Standards Association's Sectional Committee Z58 "Standards in Optics," E-12 prepared and submitted a list of thirty-two ASTM methods, fourteen of which are applicable, regardless of material, for consideration for issue as ASA standards. There is an equal number of additional ASTM methods, generally characteristic of one material and thus not germane to ASA's broader interests in optics at this time. A list of these ASTM methods (by title) is appended.

As part of E-12's responsibility to maintain contact with color-related activities in ASTM, a conference organized by Committee D-10 on Packaging was attended. Concerned with "Methods of Measuring Prominence and Legibility of Label Copy on Packages," this conference included factors within the psychology of packaging. Many of these parameters are outside the realm of E-12 but of real interest to ISCC, for example, "eye dwell," "color contrasts," "depth perception," "flash perception," "visual impact," etc. Perhaps, in time, interest in, and possibilities for, measuring these factors will justify study by E-12 personnel.

#### Color-Related Activities within ASTM but Outside the Immediate Jurisdiction of Committee E-12

Committee C-20 on Acoustical Materials has prepared a "Proposed Tentative Method of Test for Light Reflectance of Acoustical Materials by the Integrating Sphere Reflectometer."

Committee C-22 on Porcelain Enamel is developing two test methods, one of which involves the visual evaluation of distinctness-of-image gloss. The second method deals with the color stability of yellow, orange, and red porcelain enamels based on cadmium-sulfoselenium pigments.

In Committee D-1 on Paint, Varnish, Lacquer and Related Products, the traditional concern with color continues unabated. The five separate methods now published for color difference measurements with various instruments are being combined into one method. A method is being developed for the measurement of the hiding power of colored paints; like that earlier developed for white paints, the new method also exploits Kubelka-Munk mathematics. In addition, this Committee is changing Method D-1544, which is concerned with the color of transparent liquids, to make glass discs the primary standards, thus relegating liquid standards into a secondary status.

Committee D-6 on Paper reports the revision of the Tentative Method of Test for Specular Gloss of Paper at  $75^{\circ}$  and at the same time, withdrawal of the companion method for contrast gloss of paper at  $57.5^{\circ}$ , because the instrument required for this test appears to be no longer available. The first of these two methods, plus method D-589 on Opacity of Paper, and a third dealing with pin holes in glassine and other grease-proof papers have been submitted to the American Standards Association for adoption as their standards.

Committee D-13 on Cotton Fibers has drafted a method of test for the color of raw cottons, using the Nickerson-Hunter Cotton Colorimeter; this method may be ready for adoption as a Tentative Standard at the June meeting of ASTM. A task group within this Committee is studying a method for evaluating the color of wool. Another task group is concerned with "Grading Appearance Retention of Carpets." A task group has been appointed to review D1684-61, Recommended Practice for Lighting Cotton Classing Rooms for Color Grading, in order to incorporate in its tolerance specifications the recently proposed CIE test color method for specifying color rendering properties of light sources.

Committee D-20 on Plastics has determined that so long as the yellowness of translucent plastics is judged by transmitted light visual ranking will correlate well with selected instrumental measurements; on this basis D-1925, the Method of Test for Yellowness of Transparent and Opaque Plastics, has been revised to include translucent specimens.

### Publications in 1963

#### New ASTM Standards Related to Color

Recommended Practice for Goniophotometry of Transmitting Objects and Materials designated E-166-63T.

Recommended Practice for Goniophotometry of Reflecting Objects and Materials designated E-167-63T.

During 1963, the ASTM journal "Materials Research and Standards" included no article concerned specifically with color. One article, however, did include changes in color and in other factors of appearance, among the "Effects of Seven Year Marine Exposure on Organic Materials" by R. A. Connolly, Volume 3:193-201 (March 1963).

#### ASTM Methods of Test, Definitions of Terms, Specifications, or Recommended Practices Related to Color or other Aspect of Appearance, For Classes of Materials or for Illustrative Specific Materials

- |          |  |
|----------|--|
| C286-61T | Terms Relating to Porcelain Enamel                                   |
| D16-59   | Terms Relating to Paint, Varnish, Lacquer, and Related Products      |
| D29-57T  | Test for Color of Orange Shellac                                     |
| D123-60  | Terms Relating to Textile Materials                                  |
| D156-53T | Test for Saybolt Color of Petroleum Products                         |
| D279-31  | Test for Bleeding of Pigments  |
| D307-44  | Test for Spectral Characteristics and Color of Objects and Materials |
| D332-57T | Test for Relative Dry Hiding Power of Paints                         |

- D351-62 Specification for (Color of) Mica, Natural Muscovite, Based on Visual Quality
- D387-60 Test for Mass Color and Tinting Strength of Color Pigments
- D523-53T Test for Specular Gloss
- D564-47 Test for (Color of) Liquid Driers
- D589-44 Test for Opacity of Paper and Paper Products
- D637-50 Test for Surface Irregularities of Flat Transparent Plastic Sheets
- D659-44 Evaluating Degree of Resistance to Chalking of Exterior Paints
- D660-44 Evaluating Degree of Resistance to Checking of Exterior Paints
- D661-44 Evaluating Degree of Resistance to Cracking of Exterior Paints
- D662-44 Evaluating Degree of Resistance to Erosion of Exterior Paints
- D673-44 Test for Mar Resistance of Plastics
- D717-45 Test for (Color of) Magnesium Silicate Pigment
- D791-61T Test for Luminous Reflectance, Transmittance, and Color of Materials
- D881-48 Tests for Deviation of Line of Sight Through Transparent Plastics
- D853-47 Test for Color of Industrial Aromatic Hydrocarbons
- D883-61T Nomenclature Relating to Plastics
- D985-50 Tests for  $45^{\circ}$ ,  $0^{\circ}$  Directional Reflectance for Blue Light (Brightness) of Paper
- D986-50 Preparation of a Magnesium Oxide Standard for Spectral Reflectivity
- D1003-61 Test for Haze and Luminous Transmittance of Transparent Plastics
- D1011-52 Test for Night Visibility of Traffic Paints
- D1209-54 Test for Color of Clear Liquids (Platinum Cobalt Scale)
- D1222-52T Test for Contrast Gloss of Paper at  $57.5^{\circ}$
- D1223-52T Test for Specular Gloss of Paper at  $75^{\circ}$
- D1260-55T Test for Color Difference Using the Hunter Multipurpose Reflectometer
- D1365-60T Test for Color Differences Using Color Difference Meters of the Hunterlab or Gardner Types

- D1455-56T Test for 60° Specular Gloss of Emulsion Floor Polish
- D1467-61 Test for Color of Fatty Acids Used in Protective Coatings
- D1471-57T Test for Two Parameter 60° Specular Gloss
- D1482-57T Test for Color Difference Using the General Electric Spectrophotometer
- D1494-60 Test for Diffuse Light Transmission Factor of Reinforced Plastics Panels
- D1495-60T Test for Color Difference Using the Color Eye
- D1500-58T Test for ASTM Color of Petroleum Products (ASTM Color Scale)
- D1536-58T Test for Color Difference Using the Colormaster Differential Colorimeter
- D1543-60T Test for Color Change of White Architectural Enamels
- D1540-61 Test for Effect of Staining Agents on Organic Finishes Used in the Transportation Industry
- D1543-60T Test for Color Change of White Architectural Enamels
- D1544-58T Test for Color of Transparent Liquids (Gardner Color Scale)
- D1684-61 Lighting Cotton Classing Rooms for Color Grading
- D1729-63 Visual Evaluation of Color Differences of Opaque Materials
- D1738-60T Test for Hiding Power of Nonchromatic Paints
- D1778-60T Test for Color Fastness to Commercial Laundering and to Domestic Washing of Tufted Rugs and Carpets
- D1834-61T Test for 20° Specular Gloss of Waxed Paper
- D1866-61T Test for Translucency of Metal Aggregate for Use on Build-up Roofs
- D1889-61T Test for Turbidity of Industrial Water
- D1925-62T Test for Yellowness Index of Plastics
- D1981-61 Test for Color of Fatty Acids after Heating
- D2108-62T Test for Color of Halogenated Organic Solvents
- E42-57 Operating Light and Water Exposure Apparatus (Carbon Arc Type for Artificial Weathering Test)
- E97-55 Test for 45°, 0° Directional Reflectance of Opaque Specimens by Filter Photometry

- E166-60T Goniophotometry of Transmitting Objects and Materials
- E167-60T Goniophotometry of Reflecting Objects and Materials
- E179-61T Selection of Geometric Conditions for Measurement of Reflectance and Transmittance
- E187-61T Conducting Natural Light (Sunlight, Daylight) Exposures under Glass
- E188-61T Operating Enclosed Carbon Arc Type Apparatus for Artificial Light Exposure Tests

REPORT FROM THE AMERICAN SOCIETY  
OF INDUSTRIAL DESIGNERS DELEGATES,  
EGMONT ARENS, CHAIRMAN

PERMANENCE AND CHANGE

Some Questions:

Each year, as we poll members of ASID for their observations on color, attitudes and problems involving color use are often expressed which outline areas of controversy and difference.

One such area this year involves the question: Should industrial designers be concerned with changing trends in consumer color preferences? If so, are such changing trends as important as basic principles of skillful color organization? Or are changing trends more important than basic principles--or less important?

Several designers queried expressed the view that changes in public color preference were of little concern to them, since they are designing objects for long continued use and since the public will find any skillfully organized color presentation appealing.

Considerable divergence also appears in current and projected forecasts of the direction color preferences are likeliest to take. Are clearer, brighter colors a significant trend? Are vivid accents and brilliant color important? Or is the trend toward subtlety and subdued color ranges?

The third area of difference mostly concerns this observer, for whom travel and Americans' growing leisure activities are vital factors in today's color scene. Despite specific query in this area, no other designer commented on travel and leisure as influencing current color trends.

Interiors and Exhibits:

Perhaps the strongest statement about permanence as opposed to color change comes from Robert J. Harper, ASID, partner of Walter Dorwin Teague Associates. Mr. Harper writes: "At WDTA we are somewhat leery of the word 'trends' as applied to color. If colors of a product, an office, a store, a package or an airplane interior are chosen for right and logical reasons, we believe they will set the trends."

Mr. Harper continues, "In the exhibits we have designed for this World's Fair, we have chosen colors for a number of reasons, none of which have to do with 'trends.' For the AMF Monorail, the basic scheme is AMF red and white.

Inside the car are soft ochres and greens, so that visual emphasis is placed outside on the spectacular view 40 feet below.

"In the design of both the Schaefer Center 'Restaurant of Tomorrow' and the Festival of Gas 'Pavilion Restaurant,' however, other criteria prevailed.

"Our design for Schaefer beer packaging using a motif of circles in gold, vermilion and white has been echoed in Schaefer Center where the pavilions are circular and the interior colors are those of the package.

"For 'The American Restaurant' that is housed in the Festival of Gas," Mr. Harper explains, "we had a completely free hand. The only colors on the outside are the vibrant colors used on fiberglass horses that prance around the red center Carousel. Gas, however, burns with a blue flame. So for the graphics, carpeting and scheme of the glass-enclosed restaurant, we chose a scheme incorporating a bright blue and light green combination. In both cases, it seems to me we have used colors that are vivid in keeping with the bright splashes of color seen everywhere."

Mr. Harper concludes his observations with this statement: "Our choice of colors has been dictated by intrinsic factors basic to the total design and to its purpose. Often we find that an approach as simple, yet obvious, as this is overlooked in the effort to be different or new, or to anticipate what is going to be saleable a year or more from now. Unlike fashion designers, industrial designers have the satisfaction of knowing that their work is going to be around for a while. They cannot afford to accept the tyranny of style."

Another viewpoint on color use and color change comes from Paul McCobb, ASID, who observes: "The colors that were considered designers' colors or decorators' colors five or six years ago are now being found in most of the products commonly being used in today's home. Bright tangerine, lemon yellows, blue-green and even raspberry can be seen on department store counters throughout the country. In the home furnishing field where color plays a major role in any design effort, the direction has been toward clearer and brighter colors. The clarity of color in many of the synthetic yarns has inspired a new adventurous attitude toward color."

Mr. McCobb, whose organization is a pace-setter in the home furnishing field, continues: "A whole category of new color or the latest color palette shows the emphasis being placed on a wide variety of blue-green combinations. The trend has gone from earth colors to the colors of the sea and sky. Notable accent colors that have become popular are lettuce green, blue-purple, turquoise, aster blue, azure blue and jade.

More interesting combinations of color have been the point of interest in the latest color trends. Combinations such as tangerine and raspberry, azure blue and moss green, lettuce green and jade, have had the greatest acceptability in the color palette for today's interior," he concludes.

Dave Chapman, Fellow ASID, writing from Chicago, sees things differently: "Last year I stated our conviction that natural materials such as wood, leather, cork, marble, stone, etc., would become increasingly important in our environment. Because of this I predicted an increased use of softer, muted colors.

"We have been specifying such colors," Mr. Chapman reveals, "and our clients and consumers seem to love them. Muted, even greyed tones, earth colors, all seem to be highly acceptable at this time.

"I think too bright colors often identified with synthetic materials -- plastics, fiberglass, vinyl -- are retreating at this time and probably will be used only for occasional accents."

Henry Dreyfuss, Fellow ASID, writes from California: "In years past we often recommended to our clients colors that related to the geographical and climatic areas of the country and the world generally. But for one reason or another -- perhaps fast transportation and more general communication -- we do not find that it is necessary today.

"Colors seem to have more universal appeal," Mr. Dreyfuss observes. "A tendency that goes from coast to coast is for brighter and lighter colors."

In the high style home furnishings field, Jens Risom, ASID, writing from New York, has these observations on clients' color preferences for textiles: "Based on sales during the past fiscal year, we find that the seven most popular colors, listed in the order of their popularity, are:

1. Pumpkin
2. Moss-Olive (a very close second)
3. Gold
4. Blue-Green or Turquoise
5. Beige
6. Brown
7. Black

"It is interesting to note," Mr. Risom comments, "that for the past three years the Pumpkin group has been the most popular. The Gold and Moss-Olive groups have either been second or third during that time. This seems to indicate a constant desire on the part of our customers for warm colors of medium value and chroma."

Frederick W. Preiss, ASID Chicago, design director for Montgomery Ward, forwards this report from Mrs. Margaret Scrapper, home furnishings coordinator: "Currently preferred interior colors are Avocado Green, White, Pale Yellow and Gold, with Blue-Greens becoming stronger. Leading high fashion color choices are Black, White, Deep Blue, Pale Blue, with growing popularity for Brilliant Red. Mr. Preiss' findings re appliances will be quoted in a later section of this report.

Nationwide color findings for the mass market come from James D. Floria, ASID, design director for B. F. Goodrich Co. "According to our product analysis tapes, which reflect nationwide sales in color and volume," he reports, "wall covering sales are continuing strong in off-whites and beige for major wall surfaces. Limed white and egg shell seem to be in demand also.

"We are becoming aware of an increase in the use of blue and green color ranges," Mr. Floria continues. "These two colors have been slow movers during the past two years. Natural shades are most popular in grass cloth and burlap

textures. Gold and gold-white combinations are quite popular in accent or high style decor. Texture patterns are active in tans, beige, flax, tangerine, surf green and blue green combinations."

Colorist Faber Birren, one of this year's two non-ASID contributors, whose specialty is the study of mass market color preferences, reports: "After World War II, there was a sudden rage for colors with character such as forest green, chartreuse, bright yellow, flame red, with gray as a foil. Such colors sold well in all types of home furnishings."

"Then followed a preference for pastels. Beige seemed to come out of nowhere and became a top seller, whether in paints, textiles, telephones, or what have you. Five years ago, beige, sandalwood and nutria accounted for over 50% of all volume in carpeting.

"Today there is a rapid and decided shifting of loyalties. The big volume color has become off-white. In paints and automobiles off-white now accounts for over 25% of total volume. Yet as off-white dominates the scene, it becomes a foil for a more vivid display of rich colors in other home furnishings."

Mr. Birren's checklist of current color preferences follows: "Off-white as best for walls. Rich golds, fern greens and vivid blues as best for furniture, textiles and carpeting. Orange and burnt orange are a temporary vogue following the recent liking for lilac."

A variant on the "Permanence and Change" motif is introduced by Peter Schladermundt, ASID, who comments from New York: "In the designer's never-ending search to provide industry with creative color applications, it is becoming more apparent that almost any color, if tastefully applied, can reach the consumer's buying whims. We are still aware, however, that fads do exist to play an important role in consumer spending and probably will continue to invade the market periodically. Our main concern is one of taste and widening the consumer's level of acceptance in all fields of purchase.

"In interiors," Mr. Schladermundt observes, "Industry's competitive environment has led to significant advances -- new floor tile patterns, rapid growth of the vinyl wall-covering industry, the brilliant colors of carpet dyes. This field has become a strong influencing force to both designers and architects who find a free hand with an almost endless palette of colors. It is no longer a question of what color to use, but rather how tastefully we can use it, how far we can go in achieving something creative and still remain at that precarious level of consumer acceptance."

#### What Are Fads?

Marianne Moore titled one of her collections of poems: "What Are Years?" Perhaps we may ask, "What Are Fads?" Are fads in color (which may be called, more neutrally, trends or changes in color preference) basically non-essential to intelligent color planning? Do they denote weakness and immaturity in public taste? Or are they a basic part of our culture, symptomatic of its mobility and fast changing orientation?

Certainly there have been color fads that outraged the sensibilities of the great majority of colorists. The most notable was the rage for two-and-three-toned cars in violently combative chroma of almost a decade ago. Yet even this public outcry for the violently flamboyant had something to tell us.

That something is the human need for stimulus. In a static environment, the human eye is drawn by movement; in a dull grey environment, the eye craves the stimulation of bright color. But the repetition of the same movement of the same color for too long causes a reaction of disfavor. Hence there is a constant change in public response to color. New colors are loved; old colors cast aside. Thus there comes to be a color tide. Each color has an ebb and flow over the years.

It would seem that successful design marketing would demand a basic familiarity with this color tide, though it is an inchoate force which cannot be pinpointed precisely. No chart of current color preferences can ever replace the skill of the designer or architect who must organize an effective and pleasing interior, product, or exhibit. Nevertheless, it is interesting to note that our first respondent, while disclaiming his interest in color trends, has used several very popular color combinations indeed.

#### Appliances and Machines:

Eugene Bordinat, vice president and styling director for Ford Motor Company, is our other non-ASID contributor. His color summaries provide a valuable cross-section of public taste in an area of relatively free consumer choice.

Mr. Bordinat reports: "As in the past, automobile companies in 1964 have produced cars in the standard colors looked for every year by the auto-buying American public. White, black, blue, red, maroon and beige appear in this category.

"As indicated last year, and historically, white is still at the top of the list country-wide. Black is second, but challenged by blues with the maroons remaining strong. Beige variations in both metallics and straight shades balance any intense colors available and are more in evidence than gray tones.

"Red, traditionally a convertible color, still is; however, yellow and turquoise have cut its popularity slightly.

"Soft silver greens in muted metallics," Mr. Bordinat notes, "in addition to gold tones of this type, have attracted many car buyers preferring quite zephyr-like colors."

Commenting on regional preferences, Mr. Bordinat writes: "We find where the sun shines most intensely, brighter, lighter colors and light interiors are preferred, while black and dark exteriors combined with like interiors are not as much in demand. Super-highways and extensive tourism participated in by motorists today, we believe, are fast contributing to the combining of tastes in car color selection. Preference for conservative or vivid colors, by areas, is actually becoming more difficult to define.

"Ford ... has made available two or three intense colors on ... the Mustang... We expect them to spark trends in this direction for small and medium-sized cars, at least.

"The highest priced and larger cars will continue to appear in dark colors as well as in soft-tone metallics in the full color ranges. Clearer and brighter colors will become more evident throughout the industry," he concludes. (Ed. ital.)

Donald L. McFarland, ASID, president of Latham, Tyler, Jensen in Long Beach, California, has these observations on auto colors: "The all white or off-white automobile seems to be on a decline from a dominant position a year or two ago. The soft metallics, particularly in beige, are very significant. The deep colors, such as burgundy, brown, and charcoal, have been tried on family sports car versions (with black upholstery) and look great, but no one seems to be following. (Ed. Note: Mr. Bordinat observed this about places where the sun shines intensely, as in California.)

Continuing, Mr. McFarland observes: "Architecture out here continues to exhibit poor color taste. It is heavily influenced by Spanish ancestry (pinks, hot adobe, etc.)... On the 'gooder' side, a nice champagne color is showing up on large buildings here and there with white and/or olive trim. I think last year I mentioned the olive color as a trend.

"In housewares and other small products, a soft yellow ochre keeps happening. I do not know whether or not it is significant nationally." (Ed. Note: Contributors here say it is.)

From Arthur N. BecVar, Fellow ASID in Louisville, who serves General Electric as design director for major appliances, comes this word: "Copper color continues its rise in popularity among consumers of major appliance equipment -- especially built-in units. Although this color was initially a regional preference on the West Coast, it has gained in favor the past few years and has spread in acceptance across the country."

Mr. BecVar explains: "The trend toward Early American and other period decors has helped to spur copper in popularity with two side effects: One has been the gradual decline of pink, which doesn't blend well with copper colors or with traditional furnishings; the other has been the coming preference for warm pink and orange accents which do blend with copper and wood finishes.

"White continues to lead all other colors in free-standing equipment and will probably do so in the future because of the increased ability of the American housewife to handle white with colorful accents. However, colored appliances are a significant selling point in new construction, modernization, and mobile home sales," Mr. BecVar notes.

Returning to some of our earlier contributors for their comments concerning appliance colors, we note the following:

F. W. Preiss, Montgomery Ward: "In kitchen appliances coppertone is very strong. Wood tones are preferred for kitchen cabinets. Cherrywood leads in provincial decors. On the West Coast Mahogany, and in the Midwest Ash, are regional preferences."

Faber Birren: "In major home appliances, look for the demise of pink, yellow and (very likely) turquoise. Here coppertone hues take over, and demand for color has doubled in the past six months! The appliance industry at the moment is researching the color problem, and a whole new look is to be expected."

Peter Schladermundt: "There will always exist the range of debatable colors, particularly in the field of appliances used in the home. Yet manufacturers have gotten away from the conservatism of all-white kitchens and introduced a variety of colors. The choice of color for a long-term investment such as refrigerators or carpets needs more careful study than do transitional uses."

Robert Hose, Fellow ASID, writes from New Jersey: "There seems to be an interesting trend in the use of warm pastel colors on small appliances."  
(Noted by McFarland.)

"On commercial office equipment," Mr. Hose continues, "I have noted the use of more white or off-white than we have seen in the past. On industrial equipment and machinery I have been specifying strong accent colors for such items as valves and controllers used in the fluid process industries."

From Connecticut, Raymond Spilman, Fellow ASID, reports: "We have noticed a considerable interest in bronze and satin paint finishes for metal in mass production low-end products. This is a distinct change from the polished chrome prevalent for so many years. In addition there is a return to red in low-end lines, which had completely died out prior to the rejuvenation of red as a high style color in the lush market shortly over a year ago."

"Strangely enough," Mr. Spilman observes, "Turquoise does not die out. It has been pronounced dead in several areas of the housewares field, yet continues to be one of the best sellers in some of our houseware products."

"White, both as off-white and as bone-white, is continuing to be a solid seller in practically every level of our design activity. We have been interested to note that color is finally becoming a factor in precision and professional equipment, and find that there is a predominant taste for 'pick the colors.' The preference for blue is quite positive over any other colors suggested in this area of our activities."

According to Mr. Spilman, "There has also been more color used in the development of instrumentation than in previous years, characterized by a distinct acceptance of the gray and off-white combination for read-out dials, in preference to the black-on-white and white-on-black that prevailed for so long."

Harper Landell, ASID Philadelphia, reports: "From our experience it appears that exterior colors in major appliances such as refrigerators, freezers and ranges for the present have reached a level where the dominating color (other than white) blends into the natural wood-finish cabinets. For the interiors of appliances in the U. S., the colors have zeroed in on clear blues and pastel greens."

As for other products, Mr. Landell finds, "An increased use of color for portable hand and stationary tools sold either to consumers or industry. A

certain percentage of this color is used functionally to point up danger areas, controls, etc." (Ed. Note: This trend was also noted by Mr. Hose.)

From J. McLeod Little, ASID in Maumee, Ohio comes this word: "Even heavy industry is undergoing some color change. .. Our heavy equipment clients have been increasingly receptive to middle to lighter tones with definite but neutral chroma. Accents are being effectively provided and balanced by the use of dark (even black) and very light tones. This in contrast to drab, non-committal schemes heretofore deemed suitable for much of the industrial field product."

Mr. Little further notes that "Brass serial switch plates, often an eyesore, are fast giving way to anodized aluminum providing neutral tones--and lower cost."

An interesting summary of consumer appliance color preferences comes from Herbert V. Gosweiler, Jr., ASID, who manages product design for the Consumer Products Division of Philco Corporation.

Mr. Gosweiler reports the following developments: "Popular colors in radios are the whites, beiges and browns. New colors are yellow and blue. Every effort is being made to have the plastic radio cabinet look more furniture-like; therefore the wood tones are most popular. Actual wood cabinets are increasing in sales.

"Portable television shows the same trend to wood grains. Our 19" portable wood-grained plastic cabinet with five different wood grainings available has met with great public acceptance. Medium brown values are preferred in all-wood console cabinets for hi-fi and television.

"Major appliance colors are increasing in percentage of industry sales. The leading color, the 'Antique Copper' finish, is the same as last year, however, its percentage has risen. Here again its popularity is great because of blending with wood kitchen cabinetry." (Ed. Note: All respondents are agreed on this.)

"Major appliance line accent colors are brighter and gayer," Mr. Gosweiler notes. "There is a greater appearance of metallic blues, greens, golds and pewters for accents used in small areas. To sum up the color trend in the appliance industry, design is making every effort to cancel out the cold metal look and replace it with new textured materials and colors that blend with the furnishings of the living area of the home."

#### Whither 1965?

As the investment analysts so glibly counsel, "The market surely is headed for higher ground unless it encounters resistance." Are colors going to be brighter and clearer, or subtler and more subdued? In our own practice this past year, we have been using lots of greens and blues--light clear blues and lettuce greens, subtle mossy greens and slate blues--for packages, choice depending on the type of product and area it is to be displayed.

This editor's guess would be that barring war, or severe financial distress, the trend toward clearer, brighter color in many areas will be dominant, particularly in mass market fields. The rage for wood in kitchens can give this trend considerable impetus. Metallic colors, a growing trend since 1960, will grow faster. Already, more and more expensive cars are appearing in these new "misty" metallics.

We also believe that Americans' exposure to winter resort areas and to the hundreds of new hotels and motels built during the past five years, as well as the influence of the 1964 New York World's Fair which will publicize the brighter look to millions of Americans, will exert a continuing influence toward the selection of clearer, brighter colors. The office equipment field, we think, will be particularly affected since buying decisions are relatively centralized.

Certainly our respondents indicated by their replies their particular awareness of the problems posed by these new trends and by the new brighter color palette. Nothing can replace the designer's skill and discrimination in applying the wide range of available materials and broadened color range to today's and tomorrow's interiors, equipment and appliances.

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

In addition to the WOOLEN and  
WORSTED COLOR CARD, the MAN MADE  
FIBERS and SILK COLOR CARD, the  
MILLINERY COLOR CARD, the GLOVE

COLOR CARD, the HOSIERY COLOR CARD, the MISSES' and CHILDREN'S SOCK and ANKLET COLOR CARD, the MEN'S WEAR COLOR CARD and the MEN'S and BOYS' SOCK COLOR CARD, which the Association issues twice a year, we continue working with the government, United Nations, schools and colleges in developing standards to meet their particular requirements. The Association also represents the United States on the new International Commission for Fashion and Textile Colours, established in September 1963. Details of this new organization appeared in a recent NEWSLETTER. Ten countries participated as charter members. As color groups are organized in other countries it is anticipated that they, too, will join the Commission.

Our foreign members show increasing interest in the United States color trends and in our use of color in merchandising and advertising as well as styling. Rather than following Europe, as was the case for so many decades, our stylists are now leaders and color trends which start here reappear in Europe six months later.

In styling we are now experiencing the phenomenon of seasonless seasons - with light, bright and dark colors used throughout the year. Rather than neutrals sparked with color, we have color with color and emphasis is placed on the way in which color is used rather than concentrating on a specific color family. This is coupled with wider interest in the application of color in allied fields - plastics, automobiles, home furnishings accessories, boats, packaging, business equipment, cosmetics, etc.

The length of color cycles has also changed. Some colors last several seasons, while others are "burned out" quickly - the result of having the same colors used simultaneously in several fields, thus quickly saturating the market.

The increasing use of electronic computers narrows the range of colors being used and tends toward stereotyped styling and buying. The consumer is reacting to this sameness and turning to color as a means of expressing individuality. Thus, color continues its ambivalent influence by increasing the means of coordination on one hand and of expressing diversity and individuality on the other. In a previous report we observed that the issuance dates of cards had been advanced to accommodate the market. This situation continues and is spreading into accessories and other fields, so that for each industry we must issue the card very early.

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

During this period the activities of the Dry Color Manufacturers' Association in relation to color technology were divided between: a) the work of its Technical Committee and b) a program of invited

speakers at the regular meetings of the D.C.M.A.

The past year saw the completion of the cooperative work of the Technical Committee of the D.C.M.A. with the authors of "Clinical Toxicology of Commercial Products" which was recently published in its Second Edition by Williams and Wilkins. The D.C.M.A. cooperated in providing data on the acute toxicity of a large number of pigments. In addition, help was given in the clarification of nomenclature used in describing colorants.

For the coming year the Technical Committee has two active programs. The first is a program involving the investigation of the practical experience of its members in using color measuring instruments to examine proposed shipments to meet customer specifications. A special point of interest is an attempt to compare data obtained with the aid of instruments by both the manufacturer and the users of the same materials. It is hoped that, when enough data have been compiled, publication either in a journal or in the form of a booklet will be provided.

The second program under way is a cooperative effort with the New York Printing Ink Production Club in its work to provide the Printing Ink Industry with a comprehensive listing of pigments used in that industry, along with technical data on these products. This program has just started and as yet is limited to circulation of questionnaires, the answers to which will be provided from information already compiled by the suppliers.

Its regular meetings have had during the past year, the following speakers:

Mr. John Dickenson, Harshaw Chemical Company, on the subject of "Metal Decorating,"

Mr. Jose Fumero, Chief Stylist, Collins-Aikman Corporation, on the "Styling of Automotive Fabrics,"

As a feature of its two-day meeting in Cincinnati, a lecture by Dr. Isay Balinkin, Professor of Experimental Physics, on the general subject of color.

In addition to these technical activities, the Dry Color Manufacturers' Association has maintained its regular activity in connection with the forthcoming negotiations on changes in the U.S. tariff structure and has provided expert witnesses before the Tariff Commission and the Trade Information Committee hearings on these matters.

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

While there were no talks presented to the constituent Societies during the year, the Annual Meeting of the Federation spent considerable time on various aspects of color.

Dr. Gaertner of Ciba presented a paper, "Modern Chemistry of Organic Pigments" and Dr. Madson presented a paper, "Hiding Power, Ingredients, and Cost Consideration."

The Los Angeles Society presented a paper, "Color Correction by Three Filter Colorimetry" and the New York Society presented a paper, "So You Want To Set Color Tolerances."

There were two sessions of a Work Shop devoted to Color Measurements.

The Armin J. Bruning Award for outstanding contributions in the field of color to the Coatings Industry was presented to Dr. Forrest Dimmick.

This delegation is reviewing the interim report of Problem 14 Subcommittee - "A Study of Transparent Standards Using Single Number Specifications" so that it can be published in the Official Digest.

A bibliography of papers published in the Official Digest, the Journal of Paint Technology and Engineering is attached.

It is with deep regret that I must announce the passing of Mr. C. Homer Flynn, the Executive Secretary of the Federation of Societies for Paint Technology, on January 31, 1964.

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 Ink Committee and Standards Committee of the Gravure Technical Association this past year completed the reprinting of color tone

scales which have been in use in the gravure industry for the past few years. Some changes had to be made from the old format due to technical adjustments in the tone or density ranges of positives which are now considered standard for the industry. Ink changes were also made by some publications to either improve their reproduction, or to get closer to standard for their group of publications as in the grocery books. This tends to reduce the difference in appearance of the same product being advertised in different magazines and pleases the advertiser no end.

The tone scales are 13 step wedges running from a gravure solid to the lightest printable highlight, and they are proved on different stocks representative of those used for the various magazines as well as newsprint. Essentially, there is only one G.T.A. ink standard for all supplement and other publications using newsprint. Magazines on the other hand have notoriously been individualists using such hues and values as pleased an editor or art director or in many cases a printer concerned with costs. Their paper, too, varied from super-calendered stock to machine coated stocks which also vary often in price and appearance. As a result there are no standards with either ink or paper in the magazine field. Woman's Day, Family Circle, McFadden Publications and Dell Publications use about the same hue and value of yellow, red and blue. Seventeen and TV Guide use more of a magenta red and cyan blue. The key or black ink varies from brown black to blue black of varying intensity.

The tone scale swatches have been proofed in all the above inks and distributed to engravers, printers and ink manufacturers to be used to check out value and hue of inks as received before going to press. Secondly, they are also used by printers to check quality of gravure positives received from suppliers to see that they conform to the values in color of each progressive proof as approved by the advertising agency. It is hoped, thereby, to improve the uniformity of advertising reproduction in magazines and newspapers which at times can be quite divergent even if only because of ink and paper differences let alone engraving problems all of which are inherent in any of the graphic arts printing processes.

The G.T.A. Bulletin for February 1964 carries articles on "Three and Four Color Gravure Publication Printing," "Color Copy Preparation for Packaging," "Controlled Lighting and New Light Sources" and "A Preprint Case History and a Look at the Future." The latter is a report on the growth of color gravure inserts in our daily newspapers.

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

In 1963, of greatest interest to the Inter-Society Color Council and the Illuminating Engineering Society, with respect to color, was the International

Meeting of the C.I.E. in Vienna. A very good representation of I.S.C.C. members attended as they were primarily interested in C.I.E. Committee E.1.3.1, Colorimetry, the International Chairman then being Dr. Deane B. Judd, and Committee E.1.3.2, Color Rendering of Light Sources, the International Chairman being Mr. W. Munch of Germany, and the U.S. Expert being Miss Dorothy Nickerson.

Both the pre-session and actual meetings of the C.I.E. were held during June, the pre-session meetings being June 15th and 17th, and the regular meetings being June 18th through June 26th.

As reported in my previous annual report, several groups throughout the world were collecting spectral energy data for various phases of daylight, these measurements being made in England, U.S.A. and Canada. This data was discussed at length at the pre-session meetings. As a result of the extensive meetings, the following four (4) recommendations were agreed upon and recommended to the C.I.E. and approved.

1. The color matching functions  $\bar{x}_{10}, \bar{y}_{10}, \bar{z}_{10}$  proposed in 1959 were recommended as a supplement to the 1931 C.I.E. color matching functions, whenever more accurate correlation with visual color matching of fields of large angular subtense is desired (more than  $4^\circ$  at the eye of the observer).
2. In the development of any standard sources for colorimetry to supplement C.I.E. standard sources, A, B, and C, it was recommended that the supplementary sources be defined by spectral energy distribution and that artificial sources be recommended for actual laboratory and inspection use which duplicate the specified distribution within prescribed tolerances.
3. It is recommended that definitions of standard sources of four correlated color temperatures, 3900, 5500, 6500 and 7500 K, be developed to supplement C.I.E. standard sources, A, B, and C. With the exception of the source of correlated color temperature 3900 K, these supplementary standard sources are intended to represent phases of daylight over the spectral range 300 to 830 nm.
4. Pending the development of an improved coordinate system, the use of the following coordinate system is recommended whenever a three-dimensional spacing perceptually more nearly uniform than that provided by the XYZ system is desired.

$W = 25 Y^{1/3} - 17, 1 - Y - 100; U = 13 W (u-u_0); V = 13 W (v-v_0)$  where  $u$  and  $v$  are defined as follows:

$$u = 4X/(X + 15Y + 3Z)$$

$$v = 6Y/(X + 15Y + 3Z)$$

Color rendering of light sources has been a problem of a subcommittee of the I.E.S. for over ten (10) years. In July 1962, the I.E.S. committee's recommendations, following approval by the Council of the I.E.S. were published with the committee's full report in ILLUMINATING ENGINEERING. During the ensuing year, a three-man sub-committee, consisting of the Experts of Germany, The Netherlands and the United States succeeded in working the proposals of each country into a single proposal that might be stated to be almost identical to that originally proposed by the I.E.S. sub-committee on color rendering. This is, at the moment an interim proposal and the rating consists of a "General Color Rendering Index," based upon sets of eight (8) test color samples, recommended in the method. These samples include selections of hues that represent the entire hue circuit, each in moderate chromas, and all approximately the same in lightness (Munsell 6 value, 4-8 chroma). In the General Color Rendering Index, variations caused by lightness are not taken into consideration.

As one being reasonably close to the three-man committee, Dr. J. L. Ouweltjes, Mr. W. Munch and Miss Dorothy Nickerson, I can state that an excellent job was done by all and we can be especially proud of our U.S. Expert and former President of the I.S.C.C., Miss Dorothy Nickerson. This report has been forwarded to the Central Committee for acceptance under the three months rule.

With the approval of the Council of I.E.S. and the I.S.C.C., there will be a joint meeting of I.S.C.C. and I.E.S., to be held at the National Technical Conference of the I.E.S. in Miami, Florida on August 31, 1964.

REPORT FROM THE INDUSTRIAL  
DESIGNERS' INSTITUTE DELEGATES,  
HOWARD KETCHAM, CHAIRMAN

New uses of color in product design, industry and science continued to make the 1963 color scene interesting and exciting. More and more, com-

panies are beginning to utilize the dynamic potential of color in corporate identity programs. Color features prominently in each of the 39 ways used by corporate leaders to make their firms "unforgettable." Corporate color is now a prominent part of the design concept for: business aircraft, buildings, signs, emblems, tags, bank checks, company cars, press release forms, etc.

The corporate identity color is used impressively and with rewarding results. One comes to identify certain firms with their colors, as the lavender trucks used by Sherry's-- when you see the truck you immediately know it is Louis Sherry. (The name "Sherry" is then associated with the color "lavender" and is indelibly stamped on the mind of the average consumer.) In the same way, the Air Reduction Company's yellow-orange presents its corporate image.

Customers buy much more than a product. Today we have a situation in which the customer tends to "buy" the company that makes the product. They "buy" its character, its size, its sincerity, the confidence it inspires. Good corporate colors can constructively influence the image of any firm. Repetition of corporate colors on all portions of a firm's accoutrements that meet public scrutiny is a powerful basic selling and advertising force. The accumulative sales effect of corporate color usage can be dynamic providing every company doesn't elect red and blue symbols which are becoming too prevalent these days. The impact color has on a corporate image can be compared to the impact it has on product appeal.

Color not only stimulates the selling potential of merchandise -- it dramatizes values. For example: Color adds an "expensive look" to products. Scripto, Inc., markets pens in three general price classes. Rich, smart, luxurious-looking colors are featured exclusively on the new \$1.98 pens. Distinctive, but less glamorous colors represent the 98¢ line -- and pastels are used exclusively for the low cost (49¢) pens. Here color is utilized to inflate the appearance image of the top price merchandise in the customer's eye -- to sell beauty at a competitive price.

In many ways a small Scripto pen is not unlike a large building -- the first thing we see when we look at both is color! Building designers know you can carry all of the paint needed for a large building in a small truck. The actual color used on a building inside and out costs considerably less than 1% of the total investment in land, building materials, labor, interest and services, but color establishes our immediate reaction to its overall appearance -- good or bad! Color complements or negates architectural design as well as product design. American Cyanamid Company, manufacturer of acrylic plastics for architectural facings, is devising a new range of compatible colors appropriate for building exteriors in keeping with this idea.

Designer Belle Kogan reports many exciting new uses of color in houseware designs were presented at the recent Housewares Show. Beautiful colors were shown in such mundane articles as vacuum cleaners and carpet and rug cleaners. Colors such as yellow, Persian Blue, soft terra cotta, bright terra cotta, olive green, brown, dark hunter green, turquoise and other unusual colors for

this kind of work-a-day appliance were featured, affording a range of choice to fit every taste and decor. No longer need a housewife concern herself when confronted by an unexpected caller while vacuuming the front hall. Her new vacuum cleaner now blends artistically with the color plan of her home and does not look unsightly or out of place.

Other items which now feature brighter colors are garden tools, record players, blenders, bathroom accessories and Styrene drinkware. The trend in china and glassware is toward bright gold, blue, purple, orange and topaz.

One aspect that makes the use of colored products very difficult for the interior designers is the irregular and rapid rate of color obsolescence. Since there is a definite lag between the time a fashion color becomes popular in clothing and the time it reaches home furnishings, the appearance of new colors varies greatly in different products. By the time a popular color has been introduced by a floor tile manufacturer, for example, it may have been discarded by the makers of draperies, appliances or area rugs. It therefore, becomes extremely difficult to coordinate any but the most commonplace colors. This is especially unfortunate when public buildings, such as schools, and hospitals are color styled.

The problem of inadequate color coordination by suppliers is acute, says Designer Elizabeth Dralle. According to Miss Dralle, companies whose products are not going to be used alone but are, rather, to be an integral part of one room (such as a kitchen), are making colors incompatible with the other products to be used with it. For example, a manufacturer of refrigerators will adopt a pink color to their line, but, they fail to consider the difficulty involved in matching this particular pink with the pink developed by a manufacturer of stoves. The stove will be next to, if not near, the refrigerator and the coordination of the two colors is very important. The stove color may be porcelain enamel and the refrigerator colors sprayed enamel, with the result that the two colors do not match. Manufacturers of plumbingware, such as Eljer, do this job of color coordination much better -- but, they have the advantage of being able to sell all of their bathroom fixtures in one package.

The manufacturers of household products should get together to establish compatible color standards in spite of failures in the past to achieve this objective. There is immediate need for a central color clearing house to link the color offerings of different manufacturers serving common markets. Manufacturers are developing colors with imagination but not cooperation.

Today there is too little color organization in some product areas. For example: a plumbingware fixture manufacturer turned out basins with floral designs. These became so popular that there soon was an explosion of floral designs in bathroom accessories so that the floral theme became monotonous. This basic new idea should have been supported by accessories colored to pick up the theme but not match it. A supplemental line in coordinated solid colors should have been introduced to complement rather than distract from the basic floral motif.

Wall-to-wall carpeting manufacturers should develop area rugs which contrast effectively with their wall-to-wall carpets so that they can be used successfully with them.

The designers and colorists of different firms should get together to promote better product planning to simplify color planning and selection for the customer and to cut waste for the suppliers. Designers Kogan and Dralle believe that designers responsible for new products, and not too sure of their own color planning and color trend information, should be alert to the help they can get from working with color specialists.

Most manufacturers don't employ professional colorists, but rely on their designers, or their wives and secretaries.

In the molded plastics field, most raw material manufacturers are negligent about color service. They will match any color you bring them, but provide little in the way of color trend guidance or constructive merchandising suggestions. They could do much to serve designers. Dow Chemical Co. is an exception. Dow provides exceptional color advisory service and is most cooperative in working with product designers. They provide a well balanced line of thousands of colors. Most plastic suppliers restrict their color service to providing technical information.

Designers of housewares are often confused by conflicting color trend claims made by suppliers of basic materials, paint, plastics, etc. There has been a tendency in the past to assume that manufacturers of basic materials have adequately checked color trend information or made adequate market research upon which to base their predictions of consumer color wants, when in reality many colors in current color lines are backed solely by guesswork and hunch. Acceptance or adoption of colors on such precarious evaluation is not constructive or profitable.

There is no service in this country comparable to the British Color Council to effectively control product color planning for manufacturers. American manufacturers and designers for the most part depend too much on the precarious color offerings of competing suppliers. Too much color selection is based on no more reliable procedure than hit-or-miss color choices from color cards or copying the color plans of other designers once they are on the market. According to designer Alan Berni, while these color planning procedures may prove relatively safe for small scale production and for suppliers who lack facilities and staff to make really reliable color forecasts and back them with formidable sales propaganda, it can be suicidal for volume manufacturers who seek to dominate the mass market, when their color offerings fall short or overshoot customer taste or preference.

The use of color in cosmetic surgery is a fascinating new field. It creates new problems for colorists since medical science has made it possible to replace limbs and reconstruct faces. Matching skin colors correctly, especially in facial areas, is a delicate but important domain. It is a field that has been neglected too long by manufacturers of hearing aids.

Mr. Joseph Coppolino is Head of Restorations Technicians Unit of the Veterans Administration Hospital, a unit which coordinates skin color with artificial limbs and prosthetic devices. Each color is custom-made and custom-matched, as effectively as possible, with each patient's skin color. Since the cosmetic aspect is important both psychologically and physically, this job entails great precision. Since skin changes color 10 times a day, and since more than 28 varieties of caucasian coloration have been measured, the job is not easy.

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

Although the work that was done by NPIRI for the Quartermaster Corps on specifications for characterizing a set of

base offset inks was completed as reported a year ago, acceptable specifications based on this work have yet to be prepared.

The past year has been a very active one in the ink industry in respect to the introduction of matching systems making use of from 8 to 12 base colors. The majority of them show how to formulate from 400 to 500 or more colors from these relatively few bases. They also present the colors in a more or less systematic arrangement to facilitate selection of the colors desired.

Lew Wurzburg again took part in the Color Control Seminar for Graphic Arts personnel held annually by Rochester Institute of Technology. Also, Tiny Erickson presented a series of lectures on color to the Society of Reproduction Engineers.

The ANPA-AAAA ROP Color Book was reprinted. During this reprinting, NPIRI supplied the inks and aided in their control during the run.

The ink industry will be represented at the World's Fair through Interchemical's Color Center in the Hall of Science. This Center will stress, appropriately enough for this meeting, color education through the use of many color demonstrations. A model of this Color Center is outside of this room right now.

There is no new progress to report on the activities of the joint groups representing the advertising agencies, magazine publishers, photo-engravers, and the magazine printers towards standardization of the hues of 4-color proofing inks for high speed magazine printing.

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

The most outstanding effort in the field of color by the paint industry was also the high point of NPVLA's program during the past year.

At the Association's Annual Meeting in New York last October, a two-story, seven room cut-away house was constructed on the stage of the Waldorf-Astoria. Each of the seven rooms was created by an outstanding interior designer.

A film -- "Color Newsreel" was taken as the various rooms were presented to audience. The film is a 16mm, 28 1/2 minute, sound and color presenting the use of color throughout the house and in fashions as displayed by models.

While the colors represent a primarily autumn range, the intent of the film is not to encourage the viewers to imitate the designs and colors, but rather to encourage them to make full use of paint and color to develop their own color schemes.

Color Newsreel is being viewed by a wide variety of audiences, including high school home economics and art classes, trade associations, women's clubs, civic organizations, church groups. It is expected that by the end of 1964 more than several million people will have seen the film.

The reaction to the film has been uniformly enthusiastic. The Association has received letters of praise from manufacturers, teachers, dealers, contractors, students, customers, etc.

The film itself is supplemented by color chips, brochures, and color slides of the features of the individual rooms.

The film is available from the National Paint, Varnish and Lacquer Association.

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

Sessions on color were held during each of the semiannual meetings of the Optical Society in 1963. David L. MacAdam presided at a session on

Color and Photometry during the spring meeting held in Jacksonville, Florida, March 1963, and Walter C. Granville presided at a fall session on Color and Photography, October 1963, at which Hugh R. Davidson was the invited speaker, his subject: The Use of Instruments for Industrial Color Control. At the 1964 spring meeting held in Washington, discussions following several of the papers on the color session, Fred W. Billmeyer, chairman, made it seem quite like the old days when more time seemed available for this important part of OSA meetings!

During the 1964 spring meeting, delegates to the Inter-Society Color Council held a luncheon meeting to which members of the USNC-CIE Colorimetry Committee E-1.3.1 were invited. Since the next CIE meeting is scheduled for 1967 in Washington, D.C., we feel it none too soon to make sure that CIE activities and procedures become increasingly well known to members of all CIE member societies in this country.

The Optical Society's closest interests within the CIE relate to committees whose work in one way or another concern photometry and colorimetry. At our luncheon meeting (attended by 8 of 10 OSA delegates to the ISCC) a brief description of the structure and procedures of the CIE was followed by a summary of recommendations agreed to in Vienna by the color rendering and colorimetry committees (see News Letter 165-166 for details). The color rendering committee's recommendations were forwarded to the Central Committee only in April, so have not yet been circulated to the National Committees, but the four recommendations made in Vienna by the Colorimetry Committee already have been circulated and are now officially approved, following confirming votes by CIE member countries. Of the four recommendations, only on the one concerning large field color matching functions were there any negative votes, or any question raised. At our luncheon meeting this recommendation was discussed. It was pointed out that the recommendation concerns use of large field color matching functions only as a supplement to the 1931 functions. It is intended, and expected, that the 1931 data will continue in general use. Much more experimental evidence is needed before questions raised by the studies on large fields can be fully answered. Meanwhile, in the few cases where more accurate correlation with visual color matching of

fields of large angular subtense are needed than are supplied by the 1931 data, the data provided in the 1964 recommendation is the best available at the present time.

The OSA Committee on Uniform Color Scales, Deane B. Judd, chairman, and Gerald L. Howett, secretary, during the past year completed statistical plans for collection of experimental data on a new set of tile samples. The experimental observations are now under way. Five sets of tiles are being circulated, and the committee hopes to begin assembling the data in early July.

Colorist members of the Optical Society have always been active in the Society's affairs: Deane B. Judd, editor of the Journal of the Optical Society from 1961 through 1963, is now followed as editor by another capable colorimetrist, David L. MacAdam. Each has served the Optical Society in many capacities, including that of president.

Leadership in publication of research papers on color and vision has been maintained during 1963, as may be seen from the list of thirty-two reports that appeared in 1963 in the Journal of the Optical Society of America and which were submitted to the secretary.

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 AND TELEVISION  
ENGINEERS DELEGATES, RALPH M.  
EVANS, CHAIRMAN

Color photography, of course, has become a must for high budget theatrical motion pictures and has been so for some time. The same situation is gradually developing in color televi-

sion as is shown by the fact that four of the seven papers dealing with color published in our Journal last year dealt with color television. For some years now, as a matter of fact, many of the television series that are produced for broadcast in monochrome have been photographed in color to make possible their rerun when color sets become more numerous.

The Society maintains a standing committee on color. The major work of this committee over the last year has dealt with the technical details of how to make and use colored motion pictures for color television.

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

Once again I am happy to report continuing activity in S.P.S.E. toward the solution of Color problems.

A bibliography of five articles of interest to the I.S.C.C. which appeared in our 1963 volume of PHOTOGRAPHIC SCIENCE AND ENGINEERING is attached.

An extremely fruitful Symposium on "Color Photographic Systems" was held October 17-19, 1963 in Washington. The papers will be published in forthcoming issues of PHOTOGRAPHIC SCIENCE AND ENGINEERING. Last week, April 26 - May 1, the 1964 Conference of Photographic Scientists and Engineers was held in New York City with a full program of many interesting papers.

We are looking forward to continued fruitful participation in the Council.

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

The Coloring and Finishing of  
Plastics Professional Activity Group  
of the Society of Plastics Engineers,  
with M. M. Gerson (SPE), Sandoz,

Inc., chairman, maintained close contact with the field of color during the year. Highlight of the group's activity was a symposium of three papers (all by ISCC members) on the coloring of plastics, followed by a panel discussion on "How to Select and Train Color Matchers," presented at the SPE's Annual Technical Conference in Atlantic City on January 29, 1964.

In the paper "A Study of Some Variables Affecting the Coloring of Unsaturated Polyester Resin Laminates and Gel Coats," R. M. Johnston (FSPT) and R. E. Park, Pittsburgh Plate Glass Co., explored the repeatability of the coloring processes leading to these plastic articles, and the effect of processing variables on their color. Measurement repeatability, sample uniformity, and sample preparation repeatability were found to have standard deviations usually less than one MacAdam color difference unit, but different for different colors. Even these small, and often visually imperceptible, color differences were significant in the study of processing variables, as pointed out in Miss Johnston's earlier paper (Official Digest, 35, 259 (1963)). It was interesting to note that they corresponded, in some cases, to variations in colorant concentration of only 1-2 parts per million of the overall composition.

W. G. Huckle (IMG), G. F. Jones, and W. H. Tichenor, Imperial Color & Chemical, described the "Use of Pigments in Plastics" in a well-organized review paper, covering such topics as the roles of light scattering and absorption, refractive index, particle size, and dispersion in determining the color of pigmented compositions. We in the plastics industry feel that it is essential to hear papers of this sort every so often as a reminder of the importance of these basic principles in the coloring process.

W. J. Kiernan (ASTM), Bell Telephone Laboratories, closed the session with the paper "Color Specifications for Telephones." He described the method for color control for thermoplastic materials used for some years within the Western Electric Company and its suppliers. Basically, the system involves color measurement with colorimeters using "local" calibration with material standards. The method is technically sound and has been successful, but the selection and

calibration of standards, often made of materials other than the plastics being produced to obtain improved stability, has occasionally proved difficult.

In the panel discussion on "How to Select and Train Color Matchers," Miss Johnston again spoke, describing the procedures used by a large company (PPG) using computers for color control (see "Computers Make the Batches Match," Chemical Week Magazine, Sept. 21, 1963, p. 107). Here, the presence of trained, educated personnel is essential to success. The basic concepts used by Miss Johnston are (1) it is possible to teach someone to be a better color matcher in a shorter time by teaching him to understand what he sees in terms of the science of color, and (2) an intimate knowledge of the behavior of the product, as well as of color science, is essential. Each PPG plant has one graduate chemist or engineer, trained in color science at their central research laboratory, in charge of color matching and supervising skilled technicians who do the actual work. Experienced visual color matchers are not sought for these positions, since it has been found that an intelligent technician can be taught both the instrumental and the visual approach more readily than a conventional color matcher can be converted to the technical approach.

G. K. Short, Bee Chemical Co., then spoke on training in a small company. As in Miss Johnston's experience, high school or college graduates are initially selected by intelligence and color aptitude tests. Basic training at Bee Chemical is, however, directed more towards the psychophysical aspects of color. A good share of the time is spent on visual color matching techniques. The Munsell system is used to demonstrate color order; the CIE system is defined so the student will recognize it. Spectrophotometry is described and used for avoiding metamerism, and other measurement and computing methods are mentioned briefly. A considerable part of the training is in the laboratory.

W. N. Hale (SPE), Munsell Color Co., added the following comments: Color matchers should be upgraded in education and pay wherever possible. They should be carefully tested for color vision and color aptitude. They should be taught the visual aspects of color, especially the concepts of hue, value and chroma; color mixture characteristics with the colorants and resin they will be using; the effects of different light sources on their materials; and the importance of metamerism and of the effects of gloss, texture, and viewing geometry.

The following discussion, led by R. E. Dunning (SPE), centered around testing for color aptitude. The speakers described and commented on the Munsell-Farnsworth 100-Hue test and the ISCC Color Aptitude Test. While there was not general agreement on the practical usefulness of the tests, the interest of the audience in this subject was evident.

A list of articles on color, published in the Society's SPE Journal, vol. 19, 1963, was submitted to the secretary.

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

Trade observers outside the leather and allied industries have been watching with close interest this past year, as confrontation took place between natural leather products, and the much heralded new Poromeric

products along with a bevy of other man-made materials. They came along for the ride on the ground-swell of a fabulous promotional campaign that launched the new Dupont synthetic shoe material. This is of particular interest to this audience today, since color - color in fashion ranges - plays an important role in first results of this confrontation.

While it is much too early to determine precisely what the total effects will be on marketing and consumption of natural leather when the new materials have been fully tested in full-scale production, it is not too soon to evaluate certain tangible gains for natural leather. American tanners have been preparing for the entry of new materials for three full years. They started in 1962 by emphasis on a whole new range of fashion colors (selected in 1961) - "natural" colorings of soft natural leathers suitable for the burgeoning hand-sewn casual shoe production. These colors are still important and hard to copy in synthetics.

Natural leather colors have been in the fashion spotlight in recent years at the same time that natural linen, silk and wool fibre colors have been popular. Like certain textile weaves, and natural materials such as wood, cane, marble and slate used so widely in home and building decor, these natural leather and fibre colors have been described as expressions of the spontaneous revolt against synthetics, and machine-made products, of a mechanized society.

Tanners also stepped up experimentation on new surface textures. In 1963, a year ago, they featured upwards of forty new fashion effects on various types of leathers for apparel, shoes, handbags, gloves, upholstery and luggage. For spring 1964 they added a group of new soft-textured leathers--exotic new "jungle grains," new patent leather finishes, and up-dated versions of ancient natural Indian tannages, also a clutch of new reptile leathers, and several painted, printed and gilded leathers.

Color research has provided new findings on types of colors best adapted to specific leather finishes. Consequently the Color Bureau of the Tanners' Council, color committees and individual tanners have pinpointed promotions of color groups in specific types of leathers for specific uses in shoes. All of this is reflected in the actual color cards issued each season by the Color Bureau, which now show colors swatched in the types of leathers for which they are suited. A most bewildering arrangement to duplicate in synthetics!

This new merchandising of color began right after the restrictions were lifted in post-war years. You will be interested to learn that one notable addition to the color ranges was started when Helen D. Taylor headed the T.C.A. Color Bureau. She introduced the first group of special colors for children's shoes in the 1950's, when the accelerated birth rate pointed the way to new directions in promotions of fashions for Young America.

Formerly there was no recognition of the need for a special group of colors beamed at this group of consumers. Children's shoe colors were rather limited, and of very little interest except to mothers and the children themselves. Today the variety of specialty leathers made for children's shoes and shoes for older 'tween teen and teen age groups embodies the new approach to styling for young people. Tanners make specific colors for shoes for young people--hidden persuaders for sales of leather in competition with synthetics.

It is cheering to report that more extensive promotion of color has resulted in expanded sales. Too often in recent years production of fashion colors in fields such as textiles as well as leathers has been increased, but retail stores have failed to merchandise color successfully. But this spring the leather tanners sold more color and the customers in the stores were able to buy more color. Special colors for children's shoes made up a healthy portion of this color increase. Product planning to reach a particular marketing group can be traced in the following figures based on actual colors chosen over the past decade for T.C.C. seasonal color cards:

1954-1960 - four to six basic children's shoe colors each season.

1960-1964 - ratio of colors for children's shoes to colors for men's and women's shoes shows big increase. This is period when children born in years 1940 to 1959 have vastly enlarged the market potential for sales of juvenile footwear. Color cards issued by T.C.C. for fall and winter seasons during this period show the new emphasis on children's colors.

Fall and winter 1960: Women's colors - 17; men's colors - 16; 13 colors for children and teens.

Fall and winter 1961: Women's shoe colors - 24; men's colors - 15; 11 children's colors.

Fall and winter 1962: Women's colors - 20; men's colors - 11; 11 colors for children and teens.

Fall and winter 1963: Women's colors - 26; men's colors - 18; 13 children's colors.

Fall and winter 1964: Women's colors - 27; men's colors - 18; 13 children's colors.

(The new Spring and Summer 1965 card will show 27 women's colors, 23 men's colors and 14 children's colors, swatched in leathers of different finishes for casual, dress, tailored, campus, active sports, cruise, evening, and at-home wear shoes, also rain boots and soft slippers.)

The above figures might point the way for more extensive study of the youth market in relation to particular color requirements. There is such a surfeit of color, often undisciplined use of color, all around us today, that young people brought up in this environment may react unpredictably when purchasing color. After all, color is a fact of their lives; they take color for granted just as they take TV, astronauts and space travel. This is the first year since 1939 that the birth rate is on a downward curve. Meanwhile, colors for Young Americans provide a provocative subject for study, with two more decades to carry on with living models ages 5 to 25.

Trends in living like trends in fashion have helped the leather tanners make sales gains this past year. Leather tannages made for hand-sewns, for casual shoes for men, women and children, also soft pliable boot leathers, special lubricated leathers for hunting, fishing, country walking - all of these in compatible colors made sales gains. Sales of leather gloves went up, and apparel leathers spiralled in sales due to new fashion emphasis here and in Paris on all types of leather clothing.

All of these end products require special types of leathers processed from a wide variety of raw hides and skins. Automotive leather, for example, which showed a sales gain of 9% this year, is made to the rigid and exacting standards set up by Detroit manufacturers. Leather tanners must produce upholstery leathers to complement colors of exterior, interior, door panels, headliners, dashboard and carpeting of automobiles.

The tanners of automotive leathers must now gear to a new era in automobile styling - what they call the sports-car craze. It is well to remember that the young, sixteen-to-twenty-four year age group demands a new, sleek and "fast-back" look in styling, colors and general appearance. In two more years fifty percent of the buying public will be twenty-four years or younger. Over 70 automotive leather colors are used now, and next year there may be more. Nothing can give the same thrill, when you're buying a new car, as that status symbol, genuine leather upholstery.

Color-matching leather upholstery is on the increase in the auto industry. Chevrolet two years ago went back to leather - started out with one color - Saddletan. After six months five more colors were added - black, red, blue, silver and white. Cadillac has new perforated (hole-y cow!) leathers that breathe comfort and luxury in every bump. Other makers have such leather colored upholstery as Nassau blue, silver turquoise, sable tan, rose beige, palomino, silver blue, gold, holiday red, regal red, platinum, jade green, parchment white, midnight blue, sandalwood, lime, cadet blue and many more.

"Whatever you make we can make better" is the siren song of makers of substitute materials to lure manufacturers and customers away from natural leather. But the copying of such a multitude of products now offered by tanners in various categories creates terrific production problems for makers of leather substitutes. The competitive strength of leather for all types of end use - shoes to clothing to hunting gear to accessories and automotive upholstery and industrial equipment - derives from leather's amazing ability to take on many faces, many colors, in many weights and a host of fashion guises. People like leather - they proved it this past year by buying more leather. And who ever loved a plastic!

American leather tanners continue to be plagued by the nagging problem in color production and marketing - maintaining uniform illumination through all the steps from color matching in the plant to sales of end-use products in the retail store. Most tanneries are equipped with special daylight lamps, or they use daylight when color matching. However, larger tanneries have installed elaborate new fluorescent lights in areas where leathers are sorted and shipped.

Shoe factories often install special lights for their receiving and storage room, but cutting of leather uppers may be carried on in north light, under incandescent lights or fluorescent lights. Varied illuminants prevail for matching of upper pieces in the fitting and stitching rooms. In most modern shoe factories the preferred lighting is all fluorescent type, except in sample rooms where a combination of incandescent and spotlighting may augment banks of fluorescent lights.

Hotel rooms and showrooms where shoes are shown to retail buyers are badly lighted, over-illuminated, or the shoes are shown in natural daylight. By the time the finished shoes reach the store customers the true color of the leather may appear distorted to the customers trying on the shoes. Under fluorescent lights, with varying backgrounds and a light grey carpeting, which is almost standard in shoe stores, they cannot judge leather colors accurately. Retailers are often amazed because a color change took place between the time the shoes were packed and shipped and the day they are shown to the store customers. Sometimes they send the shoes back - wrong color!

Class example of unsolved problems related to illuminants, influence of surround, etc., etc. which will continue to be discussed and possibly resolved by ISCC members continued study and research.

REPORT FROM THE TECHNICAL  
ASSOCIATION OF THE GRAPHIC  
ARTS DELEGATES, J. A. C. YULE,  
CHAIRMAN

The TAGA Color Committee has been studying methods of evaluating the color gamut of a set of printing inks. We had intended to publish a full report this year, but the conclusions

would largely have been negative; namely, that we were unable to agree on a satisfactory method. However, two new methods have just been proposed, and since both of these seem worth exploring, we should like to postpone our full report on this problem until next year.

Both of the new methods are based on the Munsell system. In the first, proposed by Milton Pearson, the hue and chroma gamuts are calculated for various levels of Munsell value, and these are plotted on a conventional Munsell diagram. The calculations are based on the Neugebauer halftone equations. This method is described in a paper to be given at the TAGA meeting in June, 1964.

In the second method, proposed by the writer, a color is expressed in terms of Munsell hue and two modified parameters, strength and inefficiency. These correspond roughly to the visual impressions of strength and dirtiness of the color. Strength is a combination of value and chroma and represents how much the color differs from white. To calculate the inefficiency, the color is compared with the optimum color of the same chromaticity, as in the DIN system. One usually finds that the color is darker than it theoretically needs to be. This excess darkness is expressed as a percentage of the strength. This percentage is the inefficiency, which is very conveniently almost independent of ink film thickness. Instead of plotting hue against chroma, we plot hue against inefficiency on a color circle. The parameters are calculated as follows:

$$\text{Strength (S)} = \sqrt{(10-v)^2 + c^2/4}$$

$$\text{Inefficiency} = 100 (v_0 - v)/s$$

where c and v are the chroma and value of the sample, and  $v_0$  is the value of the color of maximum visual efficiency of the same chromaticity.

We hope to explore these methods further during the year and give a full report next year.

Other color activities at TAGA have been as follows:

We have started a subcommittee on ink standardization, headed by Erwin Jaffe of ANPA. This subcommittee will not attempt to set up any standards, but will merely keep in touch with all the ink-standardization activities of various organizations and collect information about what is being done along this line. We hope that this information will be useful to Mr. Scofield in revising the ISCC report on Problem 7, "Color Specification."

The following five papers on color were presented at the 1963 Annual Meeting of TAGA: (Proceedings of TAGA, 1963)

"Color Process Control from Copy to Press Sheet,"  
by Karl L. Thaxton, Page 1.

"A Color-Correcting Halftone Scanner," by Herbert  
Paschel, Page 15.

"The New Agfa Verimask Color Correction Method,"  
by Fred Noemer, Page 41.

"Problems and Techniques of Producing and Inserting  
'In-Register' Preprinted Color Material into a News-  
paper," by Gerard Larocque, Page 305.

"The Universal ROP Color Book," by Morris Friedland,  
Page 319.

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

During the past year the major activity relating to color in TAPPI has centered in the Optical Methods Committee of the Testing Division, now chaired by Harold Brill of the du Pont Co. This

committee has met twice during the year. It has planned a series of papers on color instrumentation to be presented at the TAPPI Testing Conference this coming September in Portsmouth, N. H.

Active interest has continued in the problems of measuring blue light reflectance (called paper brightness). An alternate test procedure developed in Sweden and based on the Zeiss Elrepho instrument has been competing for favor in this country and especially Canada with the older TAPPI procedure. The TAPPI standard method was developed at the Institute of Paper Chemistry, Appleton, Wis. and is based on an instrument designed by them. It is expected to feature a comparison of these methods at the TAPPI annual meeting in New York, February, 1965.

There is active work on the gloss of various ink-paper combinations and on the gloss uniformity of paper surfaces. Increased demands for quality color printing are chiefly responsible for this continuing concern with paper surface quality.

At the present time the Optical Methods Committee is organizing task forces to prepare test methods for color of pulp and paper by both spectrophotometer and

tristimulus colorimeter methods. The work of ASTM will be used as guides on these projects.

#### NEW BUSINESS

The Treasurer's Report and the Report of the Finance Committee that had been adopted earlier by the Board of Directors was given a vote of acceptance by the voting delegates of the Council.

#### NEXT ANNUAL MEETING

The 34th Annual Meeting of the Inter-Society Color Council will be held at the Statler Hilton Hotel, New York City, on April 26-27, 1965.

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#### Newsletter Committee:

Warren L. Rhodes, Chairman  
Katherine Chandler  
Waldron Faulkner  
Calvin S. Hathaway

William J. Kiernan  
Dorothy Nickerson  
Helen D. Taylor

Send Newsletter Items to Editor,  
Warren L. Rhodes  
Graphic Arts Research Department  
Rochester Institute of Technology  
Rochester 8, New York

Other Correspondence to Secretary,  
Ralph M. Evans  
Color Technology Division  
Eastman Kodak Company  
Rochester 4, New York

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