

INTER-SOCIETY COLOR COUNCIL

NEWS LETTER

154

ANNUAL MEETING ISSUE
REPORT OF THE 30TH ANNUAL MEETING
SHERATON HOTEL, ROCHESTER, NEW YORK
APRIL 10, 11, 12, 1961

"COLOR IN PHOTOGRAPHY
AND TELEVISION"
FOR 1961 ANNUAL MEETING

"Color in Photography and Television" was the theme of the 30th Annual Meeting at the Sheraton Hotel, Rochester, New York, April 10, 11, 12, 1961. Five speakers led a symposium on this topic Tuesday afternoon and Wednesday morning. By special arrangement, the George Eastman House Historical Exhibit was opened to registrants from 4:30 to 6:30 p.m. The banquet speaker was Mr. C. S. McCamy, National Bureau of Standards. Mr. McCamy presented "A Demonstration of Color Perception with Abridged Color-Projection Systems."

The Board of Directors meeting was held Sunday, April 9; and some of the Problems Subcommittees met Monday, April 10.

Sunday, April 9

9:00 a.m. - 5:00 p.m. Board of Directors Meeting

Monday, April 10

9:00 a.m. - 4:30 p.m. Problems Subcommittee Meetings
(open to all members and friends of the Council)

4:30 p.m. - 6:30 p.m. Historical Color Exhibit and Refreshments,
George Eastman House

8:00 p.m. Discussion of subjects for future annual meetings

Tuesday, April 11

9:00 a.m. Business Session

2:00 p.m. Symposium: "Color in Photography and Television"

(1) "How Color Photography Works"

Dr. R. O. Edgerton, Eastman Kodak Company

(2) Movie, "Blue Angels"

(3) "No Charge for the Picture"

Mr. W. A. Reedy, Eastman Kodak Company

6:00 p.m. Reception

7:00 p.m. Banquet - after which Mr. C. S. McCamy, National Bureau of Standards, will present "A Demonstration of Color Perception with Abridged Color-Projection Systems."

Wednesday, April 12

9:00 a.m. Symposium: "Color in Photography and Television"

(1) "Principles of Color Television"

Mr. W. T. Wintringham, Bell Telephone Laboratories

- (2) "Magnetic Tape Recording for Television"
Mr. John W. Wentworth, Radio Corporation of America
- (3) "Differences in Stage Preparation Between Black-and-White and Color TV Live Shows"
Mr. R. Reid Davis, National Broadcasting Company

NEXT ANNUAL MEETING

The Thirty-First Annual Meeting of the Inter-Society Color Council will be held at the Statler Hilton Hotel, New York City, March 12 and 13, 1962. On Monday, March 12, the entire day will be devoted to subcommittee meetings of the Problems Committee. On Tuesday, March 13, there will be a business meeting in the morning and a symposium in the afternoon which will have the general theme of "Lighting for Color."

DOROTHY NICKERSON
RECEIVES GODLOVE AWARD

The Third Godlove Award was presented to Dorothy Nickerson at the Annual Meeting of the Inter-Society Color Council. The citation was read and the Award presented by Deane B. Judd. The following is the text of the citation:

In 1956 the Inter-Society Color Council accepted a fund established by Mrs. I. H. Godlove to provide for a Godlove award in memory of Dr. I. H. Godlove, Editor of our Newsletter for sixteen years, and former chairman. The Godlove Award is presented biennially to a person selected for outstanding contribution to the knowledge of color.

The committee for the third Godlove Award consists of Deane B. Judd (Chairman) and Ralph Evans.

The third Godlove Award of the Inter-Society Color Council is presented to Dorothy Nickerson in acknowledgment of her valuable psychophysical studies of color spacing, color tolerances, and color rendition; her developments of instruments and methods for color measurement; her studies of light sources for color measurement and inspection; her applications of the Munsell color system in devising systems of color standards for special purposes (cotton, soils, agricultural products, horticulture), and for the unique talent by which she has been able to organize and direct successful cooperative research on the many problems of color measurement and specification.

Dorothy Nickerson joined the staff of the Munsell Color Company in October 1921 where she assisted A. E. O. Munsell, Milton E. Bond, and F. A. Carlson at the Boston Headquarters of the small company. She moved with them to the New York headquarters and when the Munsell Research Laboratory was established in 1922 she acted as secretary and laboratory assistant for Mr. Munsell. In June 1923 when the laboratory and the company were moved to Baltimore Miss Nickerson moved with them, looking after many of the details of the transfer of laboratory equipment and stock of color standards. Here she collaborated with Blanche Robertson (Bellamy) who joined the company in 1924, and with Genevieve Becker who joined in 1925. At the time of her

resignation from the Munsell Color Company in 1926, Miss Nickerson was assistant manager. She took the position of color technologist in the Production and Marketing Administration, U. S. Department of Agriculture, and color technologist in the Department of Agriculture she has been to the present time.

The major responsibility of Dorothy Nickerson in this position was from the start with the Cotton Division, to establish and maintain color standards used in the classing of cotton, and later to set up and carry out by suitable sampling procedures a yearly survey of the color and grade of the entire cotton crop of this country. She developed the Maxwell disk into a practical colorimeter not only for cotton, but also for other agricultural products some of even more pronounced texture than cotton (hay, tomatoes, beets, cranberries, string beans, condensed milk, butter, eggs, apples, potato chips, macaroni, bread, and cake). So that the results would be readily understood, she expressed them in terms of Munsell hue, value, and chroma, finding it necessary sometimes to give Munsell value the new name, brilliance, because, in the U. S. Department of Agriculture, value is not considered an attribute of color, but is expressed exclusively in dollars. By 1935 Dorothy Nickerson had published nine papers and reports on color measurement of agricultural products in terms of Munsell hue, brilliance, and chroma.

Although the disks used for disk colorimetry of agricultural products were Munsell papers, these were standardized at the National Bureau of Standards by spectrophotometric measurements reduced to tristimulus values by means of the CIE standard observer and coordinate system. In 1935, Dorothy Nickerson published an important paper, still frequently cited, on the weighted-ordinate and selected-ordinate methods of reducing spectrophotometric data, showing the relation in practical terms between the number of ordinates used and the resulting errors of integration.

Her concern for the permanence of the color standards used in cotton classing led Miss Nickerson to devise a method for assessing the perceptibility of color differences. This method is based on differences expressed in terms of Munsell hue, value, and chroma. The original account of it was published by Committee D-13, on Textile Materials, of the American Society for Testing Materials, and this assessment has come to be known as the Nickerson Index of Fading, following her account of it in Textile Research in 1936.

Little need be said of Dorothy Nickerson's notable service to the Inter-Society Color Council as its Secretary from 1938 to 1950. This award is not based on such service; but there are those who say that if it had not been for Dorothy Nickerson in the critical years following 1938, there would have been no Inter-Society Color Council in 1961. It is a fact, however, that the scientific and technological interests and achievements of Dorothy Nickerson expanded notably during these years. Perhaps it is not too much to say that the vitality with which our distinguished former secretary imbued our Council resulted in broadened horizons for herself. At the very least, the ISCC has provided the field within which her superb talent for organizing and directing research on problems requiring cooperative effort could be clearly revealed.

Her first new interest related to the specification of artificial daylight by which color inspections of agriculture products should be carried out, and this interest was certainly related directly to her main responsibility. This interest broadened, however, to specification of artificial daylight for color inspection generally, to textile color-matching in particular, and to studies of color rendition in which Dorothy Nickerson is now a recognized international authority. In these studies she has collaborated very effectively with Norman Macbeth, Charles Jerome, and other members of the Illuminating Engineering Society. When the Illuminating Engineering Society and the Research and Engineering Council of the Graphic Arts found themselves at an impasse in their attempts to agree on a specification of artificial daylight for the color appraisal of reflection-type materials in the graphic arts, it was to Dorothy Nickerson that they turned. The specification proposed by her, though an interim one, was accepted with acclaim by all parties concerned. Since then the American Society for Testing Materials has adopted as a recommended practice the specifications developed by her for lighting cotton classing rooms for color grading.

The second new interest lay in color-spacing. She organized a massive appraisal of the spacing of the Munsell colors, a problem proposed to the Inter-Society Color Council but ultimately taken over by the Optical Society of America. In this study she collaborated effectively with Sidney M. Newhall, D. B. Judd, and 39 other collaborators who made observations. The chief result of this study was the development of the Munsell renotations. Incidentally by using these renotations instead of the book notations, the Nickerson index of fading has acquired greatly improved validity. Another result of this study was to lead her into a critical survey of methods of estimating the perceptual size of color differences. Dorothy Nickerson has collaborated in color-spacing and color-tolerance studies with W. C. Granville, I. H. Godlove, C. E. Foss, Keith F. Stultz, and Richard S. Hunter, and has published 7 papers on these subjects.

The third new interest lay in the development and promotion of the ISCC-NBS method of designating colors and its application to the colors of soils and flowers. In this work she collaborated with K. L. Kelly, D. B. Judd, Blanche Bellamy, S. M. Newhall, K. F. Stultz, and a number of soil scientists and horticulturists, producing eight publications on these subjects. With Newhall she computed the centroids of the color ranges for the more than 300 original ISCC-NBS designations expressed in terms of Munsell book notation, and later, when the renotations had been defined, Nickerson and Newhall expressed the theoretical MacAdam limits defining the boundaries of the pigment-color solid in renotation terms. With Bellamy she devised two series of charts showing the colors of soils, and for the American Horticultural Council one set of charts for horticulture, the latter known as the Nickerson Color Fan.

In all these studies of color spacing, color rendition, and color designation, the central basis from which she attacked the problem was the view that the object-color manifold for any given light source is expressible in terms of the color solid; that is, each point in the color solid corresponds to a

perceived object-color, and the length of each straight line, regardless of its direction or location in the solid, is proportional to the perceptual size of the difference between the two colors corresponding to the end points. This view is basic to the Munsell color system, and Dorothy Nickerson saw clearly that the problems of color designation, color spacing, color tolerances, and color rendition, are merely special cases of the central problem of determining how to locate object colors properly in color space.

Color designation amounts merely to proper compartmentalization of color space, uniform color tolerances are those corresponding to points on a sphere in color space centered about the standard color, and color rendition is an assessment of the degree to which the color space for the test light source differs from that for the standard source. Dorothy Nickerson personally explored in a very practical way the various psychophysical systems (chiefly the Munsell, but also the Adams chromatic-value space, the Hunter space, the Judd UCS-space, and the Ostwald space) proposed as having more or less significant correlation with the color-perception solid whose dimensions are hue, lightness, and saturation. This exploration has included the influence of change in light source, and has been carried out in collaboration with Kasson S. Gibson, Kenneth L. Kelly, W. C. Granville, C. E. Foss, S. M. Newhall, D. B. Judd, D. H. Wilson, Josephine Tomaszewski, and Thomas F. Boyd. This information of the relationships of various systems and collections of material color standards to the color perception solid and to each other has been supplied in no less than 13 publications.

Dorothy Nickerson is presently perhaps more thoroughly involved in color work than ever before. She is a member of our own Finance Committee and Newsletter Committee and of our Subcommittee on Color Names, Definition of Color Terms, Color in the Building Industry, and Colorimetry of Fluorescent Materials. She is chairman of the Subcommittee on Color Rendering of the IES Light Sources Committee, and is the American expert on Committee E-1.3.2, Color Rendering, of the International Commission on Illumination. She is a member of the delegation from the Optical Society of America to our Council, and she is a Special Trustee of the Munsell Color Foundation. She is in charge of the color measurements of the cotton crop, and of promoting the use of the Nickerson-Hunter automatic colorimeter for cotton, not only in this country, but also abroad. She is a consultant of the Merriam-Webster Dictionary regarding definitions of color terms. In short, she is the instigator, organizer, director, collaborator in, and doer of, work in color that we have come to love and admire for these many years. She richly deserves to be the third recipient of the Godlove Award for outstanding contribution to the knowledge of color.

Deane B. Judd, Chairman
Ralph Evans

Committee on the 1961
Godlove Award of the
Inter-Society Color Council

From the response it was obvious that those who heard the citation agreed unanimously with Dr. Judd. Dorothy Nickerson's response revealed as the citation pointed out, that, "...the vitality with which ..(she)...imbued our Council resulted in broadened horizons for herself."

She began with "It is my good fortune to have lived and worked in this twentieth century. It provided the opportunity." She explained that color measurement was in its infancy and that color rendition was not yet born.

"As problems came there were no answers, and I had the real privilege of helping to work out the basis of several really practical problems in the field of color measurement and lighting. These were adventures of the mind. The exploration of new fields and the search for knowledge provides a satisfaction that never becomes sated. Of almost everything else in the world we can get too much!"

She named with obvious feeling the "...people I have had the good fortune to work with." She said that Priest gave her the first real glimpse of the scientific attitude, then Dr. Gibson and Dr. Judd.

Of the ISCC she said, "Then the Council was born. I remember the U. S. Pharmacopoeia Color exhibit at the Willard in Washington in 1929 or 30. I recall its early sessions with L. A. Jones, I. H. Godlove, Rea Paul,.. There were only 6 or 7 Member Bodies in the beginning. Everyone got to know everyone else. All worked in such a spirit of cooperation."

She said of her tour as secretary (1938-1952), "It was a pleasure to serve as secretary. I could not have done it without the very capable help of Josephine Tomaszewski, who is here today and who still works with me in the color laboratory."

She talked of her wartime committees on lighting, color blindness and aptitude. They are all wonderful people. Many of them are here tonight. A few have gone - LeGrand Hardy, I. H. Godlove, Dean Farnsworth.

"The ISCC is a wonderfully fine group. Dr. Godlove in whose name this award is given, exemplifies the cooperation and volunteer service of the experts that made it possible. It is a fitting tribute to him that this award has been established in his name. To receive it is an honor I feel deeply. I am proud to stand with Deane Judd and Ralph Evans as its newest recipient.

"It has been a wonderful time in which to live and work in the color field. There still remains such a lot to be done!"

All who know Dorothy Nickerson are influenced by her vital personality. Her abundant energy and dynamic interest in color is amply testified by the attached bibliography.

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 A.S.T.M.--Tentative Recommended Practice for Lighting Cotton Classing Rooms for Color Grading, ASTM D1684-59T.
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 --, Preliminary report of Subcommittee on Color Rendering, I.E.S. Light Sources Committee. (Feb. 1960 draft contains detailed tables and figures used as basis for summary report to I.E.S.) 68 pp. (Mimeo.) USDA, AMS, Cotton
 --, Cotton Grade Studies, Trash and Color. Preliminary report, 9 pp., Appendix A, 17 pp., Appendix B, 8 pp. (Mimeo.) U. S. Dept. Agr., AMS, Cotton (March)
 --, Cotton Colorimeter, an aid in extending knowledge of cotton quality. A report prepared for the Open House of the American Cotton Manufacturers Institute, Inc., Clemson, S. C. (Processed) U. S. Dept. Agr., AMS. 15 pp. (May)

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 June 13, 1960, the Board of Directors held a meeting at the Sheraton Hotel, Rochester, New York. Mr. George T. Eaton outlined plans for the 1961 meeting. Mr. Norman Macbeth reported that nine sets of the centroids had been sold. Mr. William J. Kiernan, Chairman of the By-Laws Revision Committee, indicated that the revised By-Laws were ready for review by the Council's attorney. It was recommended that Problem 17, "Color in the Building Industry" be reactivated because of the renewed interest shown at the last annual meeting.

On November 20 and 21, 1960, the Board of Directors held a meeting at the Sheraton Cleveland Hotel, Cleveland, Ohio. Mr. Evans described plans that had been discussed for a joint meeting of the Optical Society, the Inter-Society Color Council and the Armed Forces - National Research Council Committee on Vision. It was decided that the ISCC meeting would be held during the first part of the same week as the above meeting in New York City which would be on Monday and Tuesday, March 12 and 13, 1962. It was noted that the committee for the Maxwell Colour Centenary would be sending the Council 800 copies of a descriptive leaflet which the Council would mail immediately to its membership. Mr. Erikson appointed Mr. Roland Derby, Jr. as Chairman of the Bibliography Committee. The Board accepted the revisions to the By-Laws that had been proposed by the By-Laws Revision Committee and moved that they be recommended to the voting delegates for favorable action. The "Interim Report of the ISCC Subcommittee on Problem 23, Expression of Historical Color Usage" was accepted by the Board and a motion was made that the report be published by the Council and sent to all delegates and members. Mr. Evans reported that the revision of the Problem 20 subcommittee report, "Basic Elements of Color Education" was progressing very well.

On April 9, 1961, the Board of Directors held a meeting at the Sheraton Hotel in Rochester. The Treasurer's report and the report of the Finance Committee were approved and recommended for favorable action at the Annual Meeting in Rochester April 11. Mr. Charles Jerome and Mr. Warren Reese were appointed co-chairmen of the 1962 Annual Meeting, the topic for which will be "Lighting for Color". Dr. Deane B. Judd was appointed official representative of the ISCC at the Maxwell Colour Centenary to be held in London May 16, 17 and 18, 1961. A motion was made and carried that the new By-Laws for which the Secretary now has adequate proxies be adopted.

REPORT OF THE SECRETARY
RALPH M. EVANS

The Inter-Society Color Council now consists of 27 Member-Bodies. There are 209 delegates and 417 individual members, an increase of 42 individual members over last year. During the year, 40 people were approved for individual membership as follows:

At the Board meeting April 10, 1960:

Howard H. Boxmeyer, Mrs. Marion H. Christman, Hal-Curtis Felsher, Tirey L. Ford, Louis A. Graham, Howard Ketcham, Leon Gordon Miller, William A. O'Brien, Kurt Pfahl, Robert L. Sawyer, Dr. Laurence Schmeckeber, Norman A. Schoelles, W. R. Spiller, Kenneth G. West, John Woschitz, Jr.

At the Board meeting June 13, 1960:

Dr. Carl B. Blake, Francis E. Blod, Randell Cook, Paul Giesecke, Robert I. Goldberg, Peter C. Hereld, Don Francis Hill, O. C. Holland, Mrs. Emma Jambor de Edvi Illes, Mrs. Elizabeth D. Quackenbush, Charles D. Reilly, George W. Reinoehl, Richard E. Seeber, F. Jay Singleton.

At the Board meeting November 20-21, 1960:

Harold E. Baker, Eloise Barnhurst, Rinehart Baron, Luther A. Clement, Mrs. Mary Burnham Fisher, Mrs. LaVonne B. Gable, Thomas L. Jenkins, William O. Kroeschell, William D. Schaeffer, Philip Schuss, Cy Weitzman.

We are sorry to report the loss of the following members by death: Mr. Guy Brink and Mr. Eugene W. Commery.

During the year, the paper "Color Correction in Photomechanical Reproduction" was mailed to the membership, and the book "Color Problems in the Graphic Arts" is at the bindery and will be sent out within the next several weeks.

REPORT OF THE TREASURER
NORMAN MACBETH

The Treasurer submitted a report from Gremmel and Wuerfel, accountants, who had examined ISCC records for 1960.

This report, on file in the Secretary's Office, is summarized as follows.

Balance Sheet as of December 31, 1960

ASSETS

Cash in Bank		\$ 6,769.79
Investments		4,381.43
Dues Receivable - Individual Members	\$ 112.00	
Member Bodies	<u>35.00</u>	<u>147.00</u>
TOTAL ASSETS		\$11,298.22

LIABILITIES AND SURPLUS

Surplus

Balance, January 1, 1960	\$10,770.38	
Add: Excess of Income over Expenses - Current Year	<u>527.84</u>	
Balance, December 31, 1960		\$11,298.22
TOTAL LIABILITIES AND SURPLUS		<u>\$11,298.22</u>

Statement of Income and Expenses for Year Ended December 31, 1960INCOME

Dues		\$ 3,174.00
Publication Sales		
News Letters	\$ 107.00	
Bibliography	52.75	
Centroids	<u>4,513.40</u>	4,673.15
Interest and Dividends		298.73
Premium on Canadian Check		<u>.18</u>
		\$ 8,146.06

TOTAL INCOME

EXPENSES

Newsletter, Printing, Binding, and Addressing		\$ 2,235.41
Other		263.40
Expense Re: Centroids		5,003.27
Annual Meeting		<u>116.14</u>

TOTAL EXPENSES

\$ 7,618.22

EXCESS OF INCOME OVER EXPENSES\$ 527.841960 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	0	100.00
Treasurer's Office	100.00	42.80	57.20
News Letter	2,500.00	1,622.80	877.20
Special Publications	2,000.00	833.21	1,166.79
Annual Meeting	200.00	116.14	83.86
Expense of Centroids	<u>5,000.00</u>	<u>5,003.27</u>	<u>-3.27</u>
TOTALS	<u>\$10,000.00</u>	<u>\$7,618.22</u>	<u>\$2,381.78</u>

I. H. Godlove Award Fund

Statement of Receipts and Disbursements for Year Ended December 31, 1960

Balance, January 1, 1960	\$ 925.58
Receipts	<u>25.00</u>
TOTAL	\$ 950.58
Disbursements	0
Balance, December 31, 1960	<u>\$ 950.58</u>

REPORT OF THE FINANCE COMMITTEE
AND RECOMMENDATIONS FOR A BUDGET
FOR THE YEAR - 1961

The Finance Committee recommended to the Board of Directors and the annual meeting, a budget totalling \$10,000 for the calendar year, 1960.

Based upon the auditor's examination, the total income of the Inter-Society Color Council amounted to \$8146.06. The total expenses were \$7618.22. There was, therefore, an excess of income over expenses in the amount of \$527.84.

We would like to recall that the budget for 1960 included the anticipated expenses of the Centroids, estimated at \$5,000. The actual cost was \$5,003.27. The sale of ten (10) sets of Centroids at \$500 per set was also anticipated. To date, only nine (9) sets have been sold with a total income of \$4513.40. This item will not occur in 1961 and the Finance Committee respectfully suggests to the Board of Directors and officers that they find a means of disposing of the remaining eleven (11) sets of Centroids in various manners so as to produce income for the I.S.C.C. which can be later spent on another important project, such as the development of the Centroids.

The estimated budget for publications was also too high and is being reduced for the calendar year, 1961.

The Newsletter budget of \$2500, recommended for 1960, was based upon actual expenditures in the previous year, with a percentage added to it for additional copies and additional cost. In actuality, this sum also was too large. The actual cost of the Newsletter this year, including issues #145 through #150, totals \$1910.50. There was however a difference of approximately \$100 in the cost of the combined Newsletter and annual report between 1959 and 1960, the latter being lower. The Newsletter Committee, therefore, recommends that because of the possible increase in expense on the combination issue, including the annual meeting report, because of increased membership and because of inflation, which will result in increased cost of publication, that the Newsletter budget be set at \$2300.

A nominal estimate for special publications which will include again more costs involving the reprint, "Color in the Graphic Arts", which should be in your hands by the time this report is given, plus other publications, is estimated at \$800. The budget committee recommends that an additional sum of \$467 be set forth for contingencies or special projects, voted by the Board of Directors during the calendar year, 1961.

The Finance Committee therefore recommends to the Board the following budget:

Income -

417 Individual Members @ \$6.00 each	\$ 2502.00
27 Member Bodies @ \$35.00 each	945.00
30 Newsletter subscriptions @ \$4.00 each	120.00
Estimated publication sales	200.00
Estimated income from investments	300.00
Total Estimated Income	<u>\$ 4067.00</u>

Based upon the above, the following budget is recommended by the Finance Committee:

President's Office	\$ 100.00
Secretary's Office	100.00
Treasurer's Office	100.00
Newsletter	2300.00
Special Publications	800.00
Annual Meeting	200.00
Contingency Fund	467.00
Total Budgeted Expense	<u>\$ 4067.00</u>

As will be noted, the budgets recommended for officers is usually not expended in total and quite often there is an unspent allocation in Newsletter and Special Publications.

This year, the Finance Committee feels there should be an additional item in the budget which has been used in years gone by, namely Contingencies. This budget for Contingencies is for items voted specially by the Board of Directors. Even though the expense budget exactly equals the income budget, it is anticipated that there will be a small excess of income over expenses for the year 1961.

It is further pointed out that we have a commitment from the R & E Council for the purchase of bound copies of "Color in the Graphic Arts" in the amount of \$400. This item has not been included in income.

The Finance Committee, in examining the Treasurer's report, has determined that there are no current accounts payable and that the assets of the I.S.C.C. now total \$11,298 of which only \$147.00 is in dues receivable. The investments of the I.S.C.C. consist of \$3048.75 deposited with the Savings and Loan Association of Newburgh, New York at 3-1/2% interest, payable semi-annually, \$3000 in U.S. Treasury Notes, due February 15, 1963, and 218 shares Affiliated Fund, Inc. of which 18 shares have been received in the form of capital gains. In addition, there is cash deposited with the Council's bank, the Columbus Trust Company, in the amount of \$3642.26. It is believed we can operate the Council without all this cash, in view of this year's commitments. It is recommended therefore that \$1000 be withdrawn from the Columbus Trust Company and added to our current investment in the Newburgh Savings and Loan at 3-1/2% interest.

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

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

Reference is made to the previous report of ISCC Subcommittee on Problem 2, Color Names, published in ISCC News Letter No. 146, page 3, March 1960. Since then Davidson and Hemmendinger prepared and submitted painted papers intended to correspond to the centroid colors. These papers were measured at the National Bureau of Standards, the results compared with the specifications of the centroid colors, and repaints of those that did not meet the specifications were based on these measurements. Of the 319 paintings submitted for centroid colors, 214 were accepted as meeting the specifications and 13 were accepted as guides for information purposes only. A table containing the ISCC-NBS number and color-name abbreviation, the Munsell notation, the chromaticity coordinates and daylight reflectance, and the acceptance criterion for each sample was prepared and distributed to the purchasers of the \$500.00 sets. A paper is being prepared describing the production, measurement, and acceptance of these centroid colors which will contain this table and it is hoped that it will be published in the Journal of Research of the National Bureau of Standards.

A set of blank color-name charts was developed in such a form that it would accommodate 1-by 1-inch samples, would have only one block per color name and would be of such size that it would fit into NBS Circular 553 as a supplement on a future reprinting. A set of these blank charts and a set of the accepted ISCC-NBS centroid color chips were distributed to each member of ISCC Subcommittee on Problem 23, the Historical Expression of Color Usage, in fulfillment of the original charge to Problems Subcommittee 2. This completes the work of ISCC Subcommittee 2, Color Names.

However, there is one more duty of the chairman which is not exactly that of Subcommittee 2; it is the production of these ISCC-NBS centroid-color charts in sufficient number and at sufficiently low cost that they can be obtained and used by anyone either separately or in conjunction with NBS Circular 553, the Color Names Dictionary. It is planned that this set of centroid charts will be bound with NBS Circular 553 at a future reprinting. A contract has been awarded by the NBS for the production of the chart sets and it is hoped that these sets will be completed in about a year.

This completes the work on the charge made to Subcommittee on Problem 2, color names, and I therefore request that the Subcommittee be discharged.

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

The history of Problem 10, The Color Aptitude Test, since its inception in 1940 has been reviewed in some detail in the ISCC News Letter No. 115. A brief summary appeared in the report of the Problems Committee for 1960. Since 1953 when the present version of the test was put on the market through the cooperation of the Federation of Societies for Paint Technology (FPVPC), activities of the committee have consisted largely in furnishing advice and information about the details of its application.

The test has found wide acceptance and a large portion of the original production of test materials has been distributed. Some time ago Mr. Homer Flynn informed me that over 300 sets had been sold. In 1958-59, it seemed desirable to consider the possibility of developing additional or alternative series of colors that might expand the utility of the test.

The first definite proposal, discussed at the 1959 and 1960 meetings of the committee, is to try to use hue series as well as saturation. It was specifically suggested that such hue series be from the yellow-green and the yellow-red regions.

Two pairs of end points were designated, tentatively, and paints formulated for them. Experimental work with the first samples has been in progress and data are now available from which the end points can be located more accurately. It has been necessary to determine with some precision the number of just noticeable differences between the end points.

Mr. Erikson has suggested a third pair of end points in the red-violet region. Discriminations here have been observed to fall off more rapidly with age among paint formulators. It is planned to include these samples as possible additional color test series.

Work on the discrimination of small steps between the tentative end points has been delayed because of reconstruction going on in the laboratory. Unfortunately, it was not sufficiently clear what measurements needed to be made, or how to make them, to enable us to "farm out" the work to other members of the committee.

When new end points have been formulated and their perceptible distances determined we hope to have Dan Smith make up the new series. Then we shall need help in evaluating them.

Subcommittee on Problem 14, The Colorimetry of Transparent Materials,
R. C. Stillman, Chairman

Problem 14 Subcommittee held its annual meeting on Monday afternoon, April 10, in the Sheraton Hotel, Rochester, New York. At this meeting the information already collected by the Committee was discussed and the direction in which future work should be pointed was considered even though changes in the Committee personnel are to be made in the very near future.

Summarizing for this report, it can be stated that nearly all of the single number transparent systems of colored materials have been studied and their trichromatic coefficients established. These chromaticity data have been plotted and are available to anyone who may wish to use them. In some instances it has been necessary for the Committee to obtain these data.

To bring the past work of the Committee up to date, an interim report covering two phases of the problem, will be prepared. These phases are,

- (1) A recommended method for obtaining trichromatic data on transparent materials, and

- (2) Tabular and graphical data on all of the single number systems studied.

If it can be done, prediction curves relating system number to trichromatic values for each system will be calculated and made a part of the report.

Subcommittee on Problem 16, Standard Methods for Mounting Textile Samples for Colorimetric Measurements, Richard Landry, Chairman

At the 1959 meeting of the ISCC Subcommittee on Problem 16, it was proposed that an evaluation of all known methods for preparing textiles for Colorimetric measurement be evaluated and presented in a consumer-report type of analysis. At the 1960 meeting each member was requested to write up the methods in use at their companies, and submit them to the Chairman. These methods were not to be published without the consent of the respective companies, but would provide a basis for determining what working techniques should be evaluated. Several participating members submitted their working methods, but the response was, by and large, poor. The subcommittee met April 10, 1961 for two hours, and those attending were quite enthusiastic about the future work.

The following schedule was worked out:

June 30 was set as the target date for writing up the first four methods:

Roland Derby - Felt Pad and Fabrics
Richard Landry - Guillotine
William Matthews - Willy Mill
Lou Grahm - Sample Rotation

These methods are to be forwarded to the Chairman, who will then set up a program of a Round Robin, whereby each member of the committee will review the methods as written and add his comments, based on experience with the method. Obvious advantages or disadvantages, knowledge of the reproducibility, literature references, etc., should be included in these comments.

September 1961 (AATCC Convention in Buffalo) was the time decided upon for the next meeting of the subcommittee. At this time, the methods circulated would be rewritten, based on the results of the Round Robin, and submitted to the ISCC for publication.

The format for these methods is as follows:

- I Title
- II Literature References
- III Method Description

- A - Brief
- B - Detailed

1. Modifications

- (a) Objectives (Research, Production, etc.)
- (b) Advantages and Disadvantages

C - Statistical Evaluation (if available)

1. Numbers of Samples
2. Numbers of Measurements
3. Numbers of Instruments
4. Standard Deviation
5. Brief Description of Statistical Procedure

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

At the Problem 17 committee meeting during the 1960 annual meeting, Mr. Faulkner led a discussion of methods of color standardization mentioning the British paint manufacturers who agreed on a palette of 101 colors. Many members agreed that the large inventory of colored products was uneconomical. Some mentioned the possibility of an agreed spread variation. Others felt that many manufacturers took pride in developing their own proprietary colors and would object to any standardization.

It was suggested that perhaps both could be served if some identification method could be accepted by the industry so that standardization could be obtained by being able to match colors. Individuality could be expressed with greater freedom because the color could then be identified by the balance of the trade wishing to use the proprietary color. This procedure seemed to be of great interest to those present and the remainder of the session centered on this proposal.

At the 1961 Meeting in Rochester the meeting was conducted by Mr. Milo D. Folley in the absence of Mr. Faulkner and continued with the same proposal which was that of finding a method of identifying color so that others may use it. Committee 23 was represented and suggested that the Centroid samples of the National Bureau of Standards - ISCC color name method of reporting be used as the beginning method of identification of colors. To this could be added either the Munsell or Ostwald systems because more colors were identified. Discussion involved the use of an extended program in areas of color selection where small differences were important, such as in the selection of limestone. It was thought that possibly the various societies of industry groups could supply sections and cross indexes of colors prominent in their area of manufacture. This would provide the architect, the designer, the contractor and others with important cataloging data at the lowest possible cost.

Between now and next year's meeting this group with the A.I.A. and all others who are interested in this program will try to develop a definite proposal to make to industry concerning color identification.

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

At our last meeting, we reviewed briefly the progress made to date in the design of a light source to be used for the colorimetry of fluorescent materials. It was brought out that the Committee does not have the facilities for the construction and testing of lamps.

We have decided to write an interim report on the theoretical work done to date on this problem; the recommendations in this report could then be followed up elsewhere. It was suggested that the next phase of the activity of our Committee be the presentation of the various methods currently used for the colorimetry of fluorescent materials, with mention of the advantages and disadvantages of each.

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

Most of the work this year was of an editorial nature. The Editorial Committee, consisting of C. J. Bartleson, R. M. Evans, R. M. Hanes, and D. B. Judd, met as a whole or in part some half-dozen times during the year. Many changes have been made in the wording of the text in an effort to maintain consistency of terminology. This task has proven to be very difficult, and some passages have been changed repeatedly.

At a meeting on April 10, 1961, final editorial approval was given to the first five chapters, which account for one-half of the pages in the text. It is expected that approval can be given to the remainder of the report in the next few months and that, therefore, the report will be ready for publication this year. While this same expectation has been expressed in each of the past two years, realization seems virtually assured this time.

Subcommittee on Problem 21, Standard Practice for Visual Examination of
Small Color Differences, Norman Pugh, Chairman

The subcommittee met April 10, 1961 for three hours with Mr. Norman Pugh presiding as chairman.

The twenty-eight members in attendance carried on a spirited discussion on mutual problems that led to the following agreements.

1. Membership will be asked to express, by letter ballot, how ASTM D 1729-60T (Visual Evaluation of Color Differences of Opaque Materials) should be modified for ISCC general use.
2. The chairman will contact interested parties for suggestions on the design of experiments aimed at answering pertinent questions in this field, as for example, the effect of illumination level on discrimination of small color differences.
3. The members will be polled on their ideas on a "minus red" standard source for checking metamerism.
4. Information from users of the Macbeth Avelite will be sought, for determining suitability as an intermediate source of illumination between Daylight and Incandescent.
5. A recommendation be made to the ISCC to write a Color Primer, to promote better color understanding on the part of Designers, Color Technicians, and others now concerned with color decisions. This is definitely needed to improve color communications.

Those in attendance listed many color-related problems as follows:

- a) Determination of small color differences for a variety of materials.
- b) Metamerism.
- c) Inadequacy of Color Aptitude Test for choosing color inspector.
- d) Ways and means of selecting a color jury panel.
- e) The effect of fluorescent lighting on color matches made under North Sky Daylight and Incandescent.

The meeting was adjourned at 12:00 PM.

Subcommittee on Problem 22, Material Standards for the Colorimetry of Opaque, Translucent and Transparent Materials, Fred W. Billmeyer, Jr., Chairman

The work of this Subcommittee has progressed somewhat less rapidly than was hoped during the past year, largely due to the Chairman's temporary absence from activity in the field of color measurement. In consequence, the present meeting was largely given over to reviewing current status and setting goals for the year to come.

Initial Objective: Selection of materials for transparent and opaque standards.

Program No. 1. Round-robin studies of instrumental color measurement with materials of known good color stability. This program was undertaken to provide information on the level of precision attainable in instrumental color measurement as an aid in assessing the level of color stability required in candidate materials.

Mr. Hemmendinger reported (in absentia) on preliminary results obtained on glass reflectance standards measured in four laboratories. A few new specimens, possibly Munsell papers, will be selected to broaden the gamut of the test samples. The total number of samples will be minimized. A white calibration standard will be selected and circulated with the test samples, along with instructions for a standard calibration and measurement procedure for use with the G. E. Spectrophotometer. Participants will be urged to make measurements using both the suggested standard procedure and their usual calibration techniques, and to utilize other measuring instruments if desired.

It is hoped that the round-robin study can be initiated by July 1, 1961.

Program No. 2. Studies of the long term color permanence of candidate materials.

It was ascertained that measurement programs are underway in members' laboratories on the following materials: glass, porcelain enamel, ceramic tile, cellulosic plastics, acrylic plastics, acrylic lacquers, high-bake alkyd-melamine enamels, and interference filter coatings.

It was agreed to call for data on the performance of these materials about October 1, 1961. Reports will be distributed to the membership for study prior to discussion at the next annual meeting.

Subsequent Objectives: Specification of sets of standards; arrangement for production of sets of standards; instructions in the care and use of standards.

It was felt that consideration should be given at the next annual meeting to the nature of desirable types and uses of standards. Opinions of the members will be solicited and summarized during the year.

The Subcommittee received a report from Mr. Keegan on the status of glass filters for calibrating spectrophotometers with tristimulus integrators, soon to be issued by the National Bureau of Standards.

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

Problem 23 was accepted by the ISCC in late 1957. Since its inception, the Committee has been extremely active. Council members other than those on the Committee participated in Committee meetings and contributed much to the progress of the Committee.

In November 1960, the Board of Directors of the ISCC approved for publication an Interim Report of this Subcommittee and decided to encourage the publication of this report in the various trade journals of member bodies. Each council member has received a copy of this report. This Interim Report sets forth in complete detail a technique of expressing historical color usage of consumer products that will permit individual companies to compare their use of color directly with other companies or industries.

The use of the term "Interim" was deliberate. While there is no question regarding the method, all concerned agreed that problems might well arise in the years ahead regarding the application of the method in different industries. The term "Interim" permits the continuation of Subcommittee 23 and allows for any changes or additions that might be found to be of value in assisting specific industries in application of this method.

On April 10, the Committee met in Rochester, New York. After a review of the work of the Committee it was concluded that there would be no basis upon which to evaluate the application of this method until many industries adopted it.

The Committee met jointly with Subcommittee for Problem 17 at which time adoption of the method devised by Subcommittee for Problem 23 within the building materials industry was discussed. It was generally agreed that building material manufacturers and architects would benefit by adopting this method. Committee meetings will be held with architects during the coming year in an effort to develop a method of color identification uniquely applicable to architects' needs.

The Committee is now actively concerned with the application of this method in various industries. In this task the Committee welcomes the opportunity to discuss application problems with any industry and of course welcomes all suggestions--especially those pertaining to how the Committee might be of more help.

REPORT OF THE NEWS LETTER
COMMITTEE, WARREN L. RHODES,
EDITOR

November-December 1960. Problems Committee reports were published in Newsletter No. 152, March-April 1961.

Six issues of the Newsletter were published this year including the Annual Meeting Issue and the combined issues 149-150, September-October and

Deane B. Judd found it necessary to resign from the Newsletter Committee. This is a serious loss to the Newsletter because Dr. Judd has been a prolific contributor. In one breath we congratulate Deane Judd on his appointment as Editor of the Optical Society Journal, and in the next we appeal to member bodies and individual members to step up their rate of contribution of items for Newsletter publication.

The Newsletter is continuing to experiment with cover designs. No permanent design has been adopted yet.

The publication of papers presented at the 25th annual meeting, "Color Problems in the Graphic Arts," is either completed or nearly completed. This book will be a substantial contribution to the literature of color in the graphic arts.

NEW BUSINESS

Mr. R. C. Stillman made a motion that was seconded by Miss Dorothy Nickerson that the Treasurer's Report that had been adopted earlier by the Board of Directors be approved by the voting delegates of the Council. The vote was unanimous. Dr. Deane B. Judd made a motion, seconded by Mr. William J. Kiernan, that the Report of the Finance Committee that had been adopted earlier by the Board of Directors be approved by the voting delegates of the Council. The vote was unanimous.

Mr. Ralph M. Evans, Secretary, reported that during the last year a By-Laws Revision Committee under the chairmanship of Mr. William J. Kiernan, Vice-President of the Council, had been working on the revision of the By-Laws of the Inter-Society Color Council, Inc. Since the By-Laws were last revised and reprinted at the time of the incorporation of the Council, a number of suggestions by the Board of Directors and other members of the Council have been made aimed at clarifying and bringing the By-Laws up to date. A final draft of the revised By-Laws dated June 27, 1960, was approved by the Board of Directors at its meeting on November 21, 1960, with the recommendation that these revised By-Laws be submitted to the voting delegates for favorable action. A copy of the revised By-Laws and a proxy statement were sent to each voting delegate with a covering letter dated January 24, 1961. Mr. Evans reported that as of the date of the annual meeting 64 proxies had been returned to him requesting that he vote in favor of the adoption of these revised By-Laws at the corporation's annual meeting at the Sheraton Hotel, Rochester, New York, April 11, 1961. Mr. William J. Kiernan then made a motion, seconded by Dr. Deane B. Judd, that the secretary cast the 64 votes in favor of the adoption of the revised By-Laws. The vote on this motion by the voting delegates of the Council was unanimous, and Mr. Ralph M. Evans, Secretary of the Inter-Society Color Council, Inc., declared that he cast 64 votes in favor of the adoption of the revised By-Laws. He also noted that no negative votes had been returned to the secretary's office in this matter. The President, Mr. G. L. Erikson, then stated that the revised By-Laws were officially approved. The secretary noted that a reprinting of the revised By-Laws would take place within the next several months with a subsequent mailing to all delegates and individual members.

REPORT FROM THE AMERICAN
ARTISTS PROFESSIONAL LEAGUE
DELEGATES, JOHN SCOTT WILLIAMS,
CHAIRMAN

No report.

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

Color is a major problem in the textile industry. A piece of material may be moth-proof, crease-resistant, and last a lifetime, but if it is poorly dyed or dyed an unattractive

shade its potential will never be realized for no one will buy it.

The AATCC has several committees actively developing or improving standard methods of determining color-fastness to light, washing, and other degrading processes. These techniques indicate the suitability of a dye-fiber system for a specific end use. A manual of these procedures is published annually. A valuable but not widely known feature of this "year book" is a detailed bibliography of virtually all articles concerned with textiles published during the year.

A committee on color has been in existence for many years. It is responsible for maintaining a liaison between the AATCC and various color groups throughout the world. In addition, this group recommends techniques of color measurement or specification to other committees. The present chairman is Hugh R. Davidson.

One of the most difficult problems in the textile industry is finding suitable means of automating that part of the process concerned with dyeing and subsequent color control procedures.

At present, this problem is largely dealt with by visual examination. This procedure places severe limitations on improving the efficiency of the process. Considerable research effort is presently being devoted to evaluating some new approaches to this old problem. The merit of these techniques has not been completely determined at this time.

Included with this report was a bibliography of articles on color appearing in "The American Dyestuff Reporter" or "The Journal of the Society of Dyers and Colourists" during 1960 which will appear in the Bibliography section of the News Letter at a later date.

REPORT FROM THE AMERICAN
CERAMIC SOCIETY DELEGATES,
TYLER G. PETT, CHAIRMAN

The American Ceramic Society notes that the surge of interest in color in ceramic building materials continues along with the increased use of ceramic materials for

building purposes. At the last annual meeting of the Society, our Design Division met the problems in a panel discussion of "Ceramics in Architecture". The role that color plays in production, consumption, and with the integration of art was discussed by architects, representatives of ceramic materials, and designers. Probably many are familiar with the fact that a dome on the Iranian Embassy in Washington, D. C., was covered with Persian blue ceramic tile. This project had special problems one of which was the development of a special texture to control sunlight reflection.

In other fields, ceramic materials continue to meet the challenge of other materials by offering greater permanence of color.

A problem is suggested by the recent efforts in the use of tile. The problem involves the effects of the joint width and color on the overall effect of the surface, which is related to the size and color of the modular units. Although not proposing this as a specific problem for Subcommittee 17, they may want to work on this problem. Actually the problem is not specific to the tile field alone but enters the field of brick construction as well. Perhaps certain guides or principles could be set up to help those working in their fields, to achieve various effects.

Other activity which has existed has failed to be reported, since the press of other matters has kept our delegates from getting together. At the same time the delegation is in a state of flux, there having been a number of shifts in employment amongst our personnel.

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

Although there is little to report in the field of color during the past year, there is to be a Conference on Church Architecture in Pittsburgh on April 19.

This conference will be held under the auspices of The Church Architectural Guild of America, The Department of Church Building of the National Council of Christ in the United States of America, the Pittsburgh Chapter of the A.I.A. and the Pittsburgh Architectural Club.

One feature will be a panel discussion on light, color and sound in relation to church architecture. The panelist on color will be Waldron Faulkner. The proceedings of this meeting will probably be available.

An article on Color in the Building Industry by Waldron Faulkner appeared in the February issue of the A.I.A. Journal, a copy of which was attached to this report. This article may be borrowed from the ISCC secretary.

REPORT FROM THE AMERICAN
INSTITUTE OF DECORATORS
DELEGATES, HAROLD W. GRIEVE,
CHAIRMAN

The American Institute of Decorators has put forth intense effort in promoting good color, good design and quality membership; and providing scholarship funds to students for

furthering education in the decorative field.

Many of our color designers have had great influence in setting color trends. The Resources Council of the American Institute of Decorators has been very active and enthusiastic in promoting good color and design throughout the entire home furnishing industry. They attempt to assist manufacturers of home furnishings and offer awards on a national basis in this field. Such distinguished manufacturers as V'Soske in the carpet field and Ben Rose in the fabric field have been recipients of the A.I.D. Award.

Of national interest, the American Institute of Decorators will decorate the Library of the White House for President and Mrs. Kennedy. The committee to serve on this project will probably be selected at the annual A.I.D. Convention this month in New Orleans.

REPORT FROM THE AMERICAN OIL
CHEMISTS' SOCIETY DELEGATES,
RONALD C. STILLMAN, CHAIRMAN

The Color Committee of the American Oil Chemists' Society had two objectives during the past year, (1) investigating methods for reading surface colors, and (2) completion of the work of establishing an A.O.C.S. scale for reading oil colors using Lovibond type. Little or no progress was made on the first objective. On the second objective, final selection of a master set of glass standards was accomplished and it is expected that this problem will be entirely completed within six months. At that time it should be possible for the oil industry to purchase glasses calibrated in accordance with the approved scale. Restandardization to this scale will no longer be necessary.

While only two papers concerning color were published in the Journal of the American Oil Chemists' Society, both are of interest to this Council and they will be listed in the Bibliography section of a later issue of the News Letter.

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

Reports from individual delegates of the American Psychological Association to the chairman of the ISCC delegation summarize the continuing exploration of both the phenomena and mechanisms of color vision. Interest in the neurophysiology of color vision grows both on the part of physiologists and psychologists and in the late summer of 1960 an International Symposium on the Physiology of the Visual System was held in Professor Richard Jung's Laboratory of Clinical Neurophysiology at the University of Freiburg in Germany. American psychologists in attendance were De Valois, Jameson, Teuber, and Hurvich. The proceedings of the Symposium are to be published shortly by Springer.

The specific research efforts of the members of the American Psychological Association encompass a series of varied problems with some indication that contrast is of especial interest at the moment.

Professor Graham at Columbia University reports experiments on color contrast with both spectral and filtered lights (in collaboration with Akita and Hsia); Professor Helson of the University of Texas is investigating simultaneous contrast under somewhat novel conditions with reflecting surfaces as stimuli, and has mapped the domains of classical contrast and its reversal (assimilation effects); J. Kinney at the U.S. Naval Medical Research Laboratory is measuring spatial color induction; and Hurvich and Jameson at New York University have extended the quantitative theoretical account of their opponent process theory to subsume the facts of color and brightness induction. Boynton, it should be noted, has presented a modified version of an opponent colors theory.

Other problems and their associated investigators are: reaction time to various luminances for different colored lights (Diehl, Graham and McGill); hue discrimination as a function of wavelength (Dimmick); wavelength discrimination as a function of luminance and induction (Jameson and Hurvich); binocular mixture: brightness factor (Connors); the shape of the red and green color zone gradient (Connors and Kelsey); binocular color mixture (Thomas, Dimmick and Luria); retinal sensitivity to red and green as determined by red-green mixture (Connors); CFF as a function of luminance level for red and green foveal stimuli--normal and color defectives (Hyman and Drew at Wright Patterson AF base); heterochromatic flicker photometry for red and green targets--normal and color defectives (Hyman and Drew); relationships between voluntarily selected color names and the ISCC-NBS centroid colors (Newhall, Evans, R. Walker); background characteristics and the voluntary selection of color names (Newhall, R. Walker, Ellison, Leta and H. Walker); effects of memory colors in two-color projection (Hanes); problem of absolute color identification (Hanes).

In the area of color defects, in addition to the work of Hyman and Drew already mentioned, the following research is reported: a comparative validation study of pseudo-isochromatic plates (Newhall); binocular color comparisons in acquired tritanopia (Graham, Hsia and Stephan); a study using the Stiles increment threshold technique for the diagnosis of color deficiencies (Boynton and M. Wagner). A related study is Dimmick's measurement of JND's of color discrimination for a new set of Color Aptitude Test Chips.

Many of the delegates and other members of the APA continue their memberships in the Armed Forces-NRC Committee on Vision, subcommittees of the ISCC, Optical Society of America committees and several other standardization committees dealing with problems of light and color. Details of membership in these committees are available from the chairman of the delegation.

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

THERE SEEMS TO BE SOME QUESTION:

This year's reports from ASID
members throughout the country

include a number of diverging responses. Several members, mainly in the Midwest, but including East Coast designers as well, are observing strong, bright colors used over broad areas. The main body of respondents, including this observer, are noting an opposite trend to increasing sophistication, subtler colors and restraint in the broad areas. This group finds the brighter colors confined to accent areas.

On several significant fronts, however, reporting ASID members agree. The increasing importance of color in many areas where it has previously not been a significant factor is noted by many designers in such diverse areas as computers, heavy machinery, school equipment, and architectural applications.

Henry Dreyfuss, Fellow, ASID, points out a color application so widespread that it is almost taken for granted, despite the great change involved. He writes: "Perhaps one of the most interesting experiments in color was the

Telephone Company offering a product that had been black since its beginning in various colors, and finding how quickly people accepted them. Today it is almost chic to have a black telephone!"

Clarence F. Graser, Industrial Design Manager at the Data Systems Division at IBM in Poughkeepsie, points out another extension of color to a new area. "In the field of data processing equipment," he reports, "there is a trend away from the battleship gray and black boxes that have appeared since the beginning of the industry.

"The leading manufacturers are introducing strong primary colors in their data processing systems. At present these are accent panels of red, yellow and blue, etc., to introduce color against the normal gray mass of the machines. However," Mr. Graser continues, "the trend is to full machine colors of a single hue or multi-colored. The original grays and black were intended to provide a rugged color that could take the abuse from machine operators on electronic accounting machines. However, as data processing systems were developed and placed in showplace environments, the equipment was treated with more tender loving care."

Mr. Graser concludes by discussing the potential of color as a conditioner of behavior, noting its ability to influence the user's attitude and handling of the machine. "To further promote this tender treatment of the equipment, designers have introduced colors and off-white areas which encourage the machine operators to treat the sophisticated equipment with the same care that they would use for a precision device, such as a fine camera or precision laboratory apparatus. Here the use of color in itself has changed the attitude of machine operators."

Reporting from Philadelphia, Harper Landell, ASID, writes: "Colors in appliances, which are the major part of our work, are remaining in neutral colors with refrigerators using various shades of blue or yellow in the interiors. A few refrigerator interiors are turquoise or greens. Home laundries are using white, black and gray with accents of gold or chrome in the backsplashes.

"Since almost all the home appliances in this country are going to the built-in look," Mr. Landell observes, "the accent colors used are predominantly white or neutral, since they must harmonize with surrounding cabinetry which, this year, is either wood grain or bright colors."

Mr. Landell also notes that for the European market, the consumer preference is for a lot of accent color, though the products themselves are primarily white.

From Evanston, Illinois, Stowe Myers, ASID, reports the results of a current merchandising survey which indicates a strong return to all white appliances developing in consumer preferences, particularly on the West Coast. This, of course, does not exclude metallic and neutral accents.

The growing importance of color in new areas is exemplified by Don Dailey's account of how architectural color problems were dealt with in his firm's design project for school air conditioning equipment. So central is color in today's school environment that even the air conditioners used in schools must be keyed to architectural color concepts.

An interesting industrial design problem faced by Mr. Dailey's group in connection with color use on the air conditioning units was to develop a design that would provide for color panels on areas of the unit that could be changed without affecting the basic installation and without causing the factory an inventory problem. The colors themselves included two neutral grays and charcoal, as well as pastel blue and yellow, a greyed green and orange, and a clear flame red. "This selection of color was largely influenced by accepted colors in school furniture," Mr. Dailey writes.

From Philco Corporation in Philadelphia, Herbert V. Gosweiler, Jr., ASID, manager of product design for the corporation's Electronics Division, writes as follows:

"Cabinet colors for television and radio are in the lighter pastel tints. Beige is a leader, followed by off-white, gray, aqua, pink and pale gold. Even metallic finishes are lighter with less yellow. Bright intense colors are found only in small accent areas. Deep charcoal and off-black are the most popular dark tones."

This description by Mr. Gosweiler bears out Mr. Dailey's observations about light, clear colors that "go well with". The only dark color mentioned by either is charcoal or off-black.

From Samuel Scherr, ASID in Akron comes the following view of appliance color trends: "Greater use of more subtle, tonal color combinations, using different close values of the same color. Bright colors, if used at all, will be relegated to small accent areas such as handles, trim, etc."

Don McFarland, past president ASID, reports from Los Angeles that colors are getting more conservative. "Pink and yellow houses are seen less in new homes," he writes. Earthen colors such as adobe, soft warm greens, off whites, seem more contemporary. The small cars seem more conservative than their giant predecessors of a year or two ago. Recession psychology may be responsible - but I think it is more a trend to quality and sensibility. Strong colors are used as accents rather than basic color."

Thomas G. Nevell, ASID, reports from New York, a change into "lower key" colors with more warmth and richness. "Gone is the raw high key so acceptable only recently in cars, appliances and interiors."

Mr. Nevell also notes that in business "Even conservative companies that have long resisted anything but the austere now find the wider use of color acceptable in public areas, work areas and executive offices. The day of drab and monotonous color schemes on commercial interiors is past."

Though many progressive companies of all sizes have been using color intelligently in plant and office interiors for some time, there is no doubt that many businessmen have equated drab and monotonous color schemes with conservatism, soundness and reliability. This is an attitude becoming increasingly difficult to maintain in the face of broadening color acceptance and use in such "conservative" environments as banks, bankers' and board chairmen's offices, hospitals and schools. The vast Chase Manhattan Bank headquarters complex in downtown Manhattan with its emphasis on visual clarity and brightness will prove an influential persuader away from drab "dignity".

The increasing use of color as an integral part of architectural treatments was commented on by several ASID members. James K. Fogleman, ASID, design director for CIBA in New Jersey, observes: "Seldom is a building built today that does not include color as an important factor in its appearance. In New York City alone we have blue, black, gold, yellow, green buildings - a fact that would not have been possible a few short years ago."

In a recent study we conducted this winter in Northern New Jersey, we observed that approximately half of all new office buildings were using colored curtain wall materials. Our group was retained to work with the architect in specifying curtain wall colors for the exterior of the client's new headquarters building in Newark. Because of the large areas of glass in this building, we also selected the draperies so that a planned total color effect could be obtained.

Our informants generally agreed in noting a growth of elegance and richness in color use, with metallic accents on appliances and in fabrics gaining in importance.

Several members, however, are observing broader use of strong, bright colors. Richard S. Latham, ASID Ex-President, writes from Chicago: "Newest trend is toward use of many brilliant colors together -- yellow, emerald, royal blue, red, etc. American color, compared with European, has been more flamboyant, color tones less subdued than in Europe. Much of the new trend toward many brilliant colors comes from Asia (India, Siam, Thailand, Japan) although Asians tend to use many colors in a smaller area than we do."

F. W. Priess, ASID, writes from Montgomery Ward in Chicago: "The focus on international events has resulted in an emphasis on a more vibrant color spectrum and darker colors, such as intense blue-red, yellow-green, orange and violet."

Speaking of home furnishings, Mr. Priess continues: "The use of brilliant color in large masses is a trend, as opposed to such color used only as an accent. There is a return to a richer 'look', featuring use of golds and rich accessories."

Mr. Priess also notes the use of "more subtle metallic accents on major appliances" including gold, aluminum, stainless steel and copper, and observes a color trend on refrigerator interiors to high key colors accented with a brilliant color.

Peter Schladermundt, ASID, in New York concurs in observing that brilliant color no longer is considered "daring, faddish, or bizarre. The swing from the neutrals to the more interesting and gay," he states, "has been consistent in interior design for several years. Now even the most conservative bank president is not shocked when the designer suggests brilliant colors for his bank and office."

Though the above three designers are seeing a broader use of intense, bright color than our other respondents, Mr. Schladermundt does observe "a growing new trend back to more subtle, muted tones used in harmony with occasional bright splashes."

William M. Goldsmith, ASID Fellow, writing from Chicago exemplifies several members' comments on colors for packages. He says: "We are even creating a number of new 'staple' color schemes which a few years ago would have been frowned upon as being in 'bad taste'. Sam Scherr in Akron notes "a very obvious trend toward the use of more brilliant, flamboyant, almost esoteric color schemes in packaging, as well as more color on corrugated shipping cartons."

Their observations, which our activities in packaging tend to reinforce, are that the color spectrum acceptable for mass market packages is continually expanding. The stimulation offered consumers by a broader color range is outweighing "traditional" color limitations. Even such conservative clients as du Pont, we have noted, are now ready to accept packaging colors that would have been rejected as off-beat or too special very recently.

On balance, most ASID members see a subtler, less garish color use in large areas. Cars have more self-respect. The acceptance of color as an influencer of human behavior is gaining and with it the extension of color thinking to many new areas. Intelligent color use is increasingly becoming a hallmark of informed, progressive management.

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

In 1960, ASTM continued the prior year's busy pace of work in many areas including those of interest to the Council. Collating these activi-

ties within the total ASTM manifold consisting of about 10,000 members organized into nearly 100 technical committees is ASTM Committee E-12 on "Appearance" Properties of Engineering Materials. Committee E-12 endeavors to work with the various ASTM technical committees to help develop and improve their standards and methods of test of factors of appearance, such as color, gloss, and opacity.

Through its Subcommittee on Intercommittee Relations, Committee E-12 collects information on the color-related activities of the various technical committees. This Subcommittee has a new Chairman whose field is technical publications. With the help of representatives from the technical committees, he will identify developments and problems of interest to E-12, so that they may be properly recognized and assisted. We are continually and agreeably surprised to find previously unknown color-related activities. Among the latest of these is Committee D-27 on Electrical Insulating Liquids and Gases which maintains a sub-section on Color and Visual Inspection. This is still another group concerned with comparator-type readings of yellowness, of mineral oils, and later silicone and fluorocarbon liquids.

In prior years we have reported the impressive progress made by ASTM Committees D-1 on Paint, D-20 on Plastics, D-13 on Textiles, and E-12 on Appearance Properties. These groups continued to be active in 1960. New methods are being developed for yellowness and for haze in D-1, besides the publication of new or revised test methods, covering instrumental measurement of color difference, visual evaluation of color difference, color change in white architectural enamels, and hiding power of non-chromatic paints. A more sophisticated goniophotometric treatment of gloss of plastics was studied in D-20. In D-13 a new appearance specification was issued, a tentative method of test for Neps in Wool Top (D1770-60T); this uses a visual comparator, in contrast to

the standard photographs used in testing for neps in cotton. A tentative four test method for Colorfastness to Commercial Laundering and to Domestic Washing of Tufted Rugs and Carpets (DL778-60T) was also issued; the evaluation is made by reference to the Gray Scales internationally adopted for textile use (see ISO/TC Documents 38/SC 1, or write to secretary of AATC&C, Lowell Textile Inst., Lowell, Mass.).

Committee E-12 made progress in shaping its Manual on Controlling Appearance Properties of Engineering Materials. Other technical societies are becoming aware of this project, may assist in its preparation, and plan to use it in their work. E-12's task force on Carbon Paper and Typewriter Ribbon has shown vitality in recruiting experts in several related fields to solve the long-standing and technically difficult problem of standardizing performance in this important commercial area.

The appearance properties of other engineering materials received continuing attention. The light reflectance of acoustical materials and the distinctness-of-image gloss of architectural enamels, wall-tiles and of evaporated metal coatings on new plastic automotive trim are under study. Committee E-12 is reviewing methods dealing with the appearance properties of shellac, fatty acids, solid aromatic hydrocarbons, glycerin, architectural enamels and plastic sheeting.

In other product areas such as wood, soaps and detergents there is evidence of recognition that existing methods are certainly simple--specifying color as "uniform," "uniformly light," "light" or "colored" or "uncolored"--but hardly quantitative. These contrast reported developments--in some sections of the paint and plastics industries--of measurements of color and color-difference are now automated to speed and quantify color-matching and control. We are certainly in the midst of rapid technological advances in controlling the ancient dimension of color in all products of commerce. In conclusion it is firmly recommended that ASTM continue as a member body of ISCC.

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

For the Color Association of the
U. S. Inc. the year 1960-61 was
important color-wise:

1. Because of the very marked change in colors which came into the picture;
2. Because of the change in tempo and therefore the life of a color;
3. Work with the government on standardizing colors.

After several seasons of darkened tones, influenced by madras and ancient tartan patterns, a radical shift brought clear, clean, whitened colors into the picture. Dull, murky tones were immediately dated and looked dusty and tired compared with the new brights. This return to clarity was spearheaded by hot pinks which swept the market, to be followed by sunny tones of yellow, orange and fresh greens. In a very dull soft-goods market color became the rallying point and bright hope for building sales.

The change in tempo is prompted by our production and distribution system. As previously noted, the mass market now confirms color trends. It is dominated

by giants like Sears, Montgomery Ward, Penney and very large manufacturers. In order to produce and distribute great quantities of merchandise on time, they must work very far ahead. Because of their bigness their weight is felt swiftly and positively. The primary market is therefore working further and further ahead, not because of desire, but because there is no other way they can meet these huge requirements. Thus, color work becomes more and more difficult and complex.

At the other end of the chain is the consumer who, on the contrary, is buying closer and closer to the time of use of the product. This makes an even greater time difference between planning and purchase of the product and multiplies the chance for negative factors to develop and influence the consumer's acceptance of the product.

Some have lamented that when a new color appears and begins to catch the public's fancy, everyone uses it immediately so it sweeps the market and thus rises quickly (and therefore reaches a saturation point faster). This was true of purple. The doubters still can't believe such an upsurge could have happened. With the tendency of the masses to swing from one great color favorite to another and to concentrate on that color almost at the exclusion of others, it becomes extremely important for all items in the competitive field to offer that trend color, or else the business goes to others. This further encourages the mass support of a rising color.

Tempo has a second vital influence. Communications are so instantaneous that news spreads rapidly to all fields simultaneously. Therefore, there is very little difference in the type of colors being used in various fields; or in the timing of their acceptance. No matter which field may first feature a color, if the timing for acceptance is right, it will spread into all fields immediately. With such widespread use of color and so much similarity of colors in various fields, not only the colors, but the way in which they are used becomes extremely important. Currently, the emphasis is on contrast, or no-match effects.

With the pressure to work farther and farther ahead and the emphasis on changing colors, coupled with the huge volumes involved, the color stylist has so much at stake that he can't afford to be wrong. No matter how right the other features of the product may be, the success, in our competitive world, may rest upon the skill of the color styling. This applies to all fields from soft goods to machinery; from tiny accessories to packaging.

Compared to this feverish spinning of the color wheel the area of standard colors seems very sane, well defined and peaceful. It requires only the selection of a standard color and determining how to produce and maintain it. We will shortly issue color cards covering new government standards for threads and tapes.

If we were asked to sum up 1960-61 in a single word we would choose "more" - more color, more fields vitally involved in color, more changes and more pressure for more colors and still more change more rapidly.

REPORT FROM THE FEDERATION OF
SOCIETIES FOR PAINT TECHNOLOGY
DELEGATES, SAM J. HUEY, CHAIRMAN

turing is done by people usually referred to as "tinters" or "shaders". These men are highly skilled, and it takes years of training before they become proficient in their work.

Shading factory batches of paint regardless of size, and doing it rapidly, makes a shader a very important person in paint manufacturing. His work is usually referred to as an art, rather than a science. The fact that it is an art has caused some to question if an art, as such, has a place in modern manufacturing processes. There are those who have accepted the challenge to see if this art could be replaced or supplemented by a more scientific approach.

Some are attempting to shade production batches of paint on a "quantitative basis" by the use of instrumentation. Ten years ago this would have been considered too difficult to attempt, if not impossible. This is not so today.

The President of the Federation has asked the Inter-Society Color Council Committee to study a British test method called "Recommended Method for Assessment of Light Fastness". The method is for determining light fastness of pigment surfaces and pigment systems. The method was submitted by Mr. George A. Campbell of the Oil and Colour Chemists' Association of London. Mr. Campbell stated in a letter to Mr. Adams, then President of the Federation, that he would like to have the Federation review it with the possibility that this could be made an International Method. The Inter-Society Color Council Committee has reviewed the method but could not recommend it in its present form. This group did recommend that the method be investigated more completely and it was thought that this would be an excellent project for one of the Societies of the Federation. The proposed method has been sent to all the Societies with the hope that one of them will accept it as a research project. The results of their work would indicate if the method would be satisfactory for evaluating light fastness of pigment and pigment systems.

The method, as it is now written, was published in the August, 1960 issue of the Journal of Oil and Colour Chemists' Association.

A paper was given by Mr. Mark Morse at the Annual Convention of the Federation. The title of his paper, which was well received, was "Status of Color and Gloss Measurements in Industry".

This committee will be actively engaged in the affairs of the Inter-Society Color Council in the coming year.

Attached to this report was a list of publications concerning color in paint and related industries, which will appear in the Bibliography section of a later issue of the News Letter.

REPORT FROM THE FOLDING PAPER
BOX ASSOCIATION OF AMERICA DELEGATES,
WILLIAM D. HALL, CHAIRMAN

No report

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

The Gravure Technical Association, representing the Gravure Printing Industry, has been under pressure from its advertising clients

concerned with color reproduction of four color newspaper Sunday supplement advertising to get more uniformity in the reproduction of four color national advertising. This has led to the formation of Ink Standardization committees whose purpose was to investigate and evaluate the different inks used throughout the country. In 1958 the industry was found to have considerable differences in hue and chroma of inks used for similar types of publications, most of whom used some form of 32 - 34 lb. newsprint. These differences were due to differences in the amount of pigment and binder content, as well as viscosity or fluidity of ink. Price and editorial and art department preferences, tend to influence the choice of inks in many cases but a survey of all gravure printing plants in 1959 indicated a willingness on everyone's part to standardize on four process inks for gravure.

By comparison with letterpress or offset pigments, the yellow, red and blue inks generally used in gravure are not as bright or clean in appearance. The yellow is more chrome, the red more orangy, less of a magenta, and the blue too warm, more of a Mallory blue and not like a cyan or green blue. To get our hues closer to those of letterpress or offset would involve a prohibitive increase in cost at this time even though the improvement in color separation and reproduction would be noticeable. Some day such changes will be made, but for the present everyone agreed in 1960 to accept a specified standard for gravure process inks. Now however, we are confronted with the problem of standardizing our etchings. A G.T.A. standard tone scale from maximum shadow to highlight density was etched and proofed in the G.T.A. standard inks as a guide for all printers. Preliminary tests among a few printers indicated that due to viscosity and drying problems on the press, the accepted ink standard in the absolute shadow end was difficult to achieve unless etching depths went to 35 or more microns. Since many printers can only print at high speeds from maximum depths of 30 microns, they will have to resort to either improved drying equipment or more pigment in the ink. The increased cost in ink may be offset by the added mileage or coverage a printer can get from increase in pigment. The G.T.A. Ink Standards Committee is continuing its plant tests and studies with the correlation of etching standards to inks standards. It hopes this year to arrive at a solution of the problem so that a standard ink for each color can visually appear to have the same hue and chroma regardless of where it is etched or printed for gravure newspaper supplements.

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

The I.E.S. Sub-Committee on Color Rendering, operating under the Light Sources Committee of I.E.S., held a meeting at the national conference

in Pittsburgh in September, at which time the chairman, Miss Dorothy Nickerson, presented a tremendous amount of data accumulated by her, and also presented most interesting data sent to her by the chairman of the C.I.E. Committee on Color Rendering, Mr. Munch of West Germany. It was the consensus of the I.E.S. Sub-Committee on Color Rendering that in general they approved of the color shift method of determining suitability of light sources for color rendering but that there was not sufficient information at that time available to translate this information from light sources of greatly differing color temperatures and that a report to this effect be made to the Light Sources Committee.

During the remainder of the year, the chairman has been in touch with other members of the C.I.E. Committee on Color Rendering, #E 1.3.2, such as its chairman, Mr. Munch, Professor Manfred Richter, Dr. Hans Bodmann and Dr. Wright, and it was learned that an extensive amount of research and computation had been done by the Philips lamp organization in Holland in this connection and it appeared, as a result, that this research, following the work done by the I.E.S. Sub-Committee on Color Rendering, has definitely seen the preference for determining color rendering changing from the spectral band method to the color shift method.

There also seemed to be more interest abroad in the types of artificial, standard illuminants which are being used in the States than the ones which have been used in the past in Europe and Great Britain.

The chairman had the pleasure of meeting with the Planning Committee of the Maxwell Centenary, to be held in London May 16, 17 and 18. Invitations have been extended to all members and delegates of the Inter-Society Color Council. This will be an excellent meeting, with outstanding speakers on the subject of color.

It is with regret that the chairman has not been able to follow the usual procedure of calling a meeting of the delegates which is most easily called during the national technical conference of the Illuminating Engineering Society but I was abroad at the time.

During the past year, Illuminating Engineering has published two articles on color, namely, "Practical Guide to Colorimetry" and "Color of High Pressure Mercury Lamps."

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

Members of the Industrial Designers
Institute report the current color
applications, developments and ob-
servations encountered in connection

with their activities during the past twelve months.

Human engineering psychologists are accepting more and more the importance of color-engineering values. In the Polaris Missiles Division of Lockheed Aircraft Corporation, color studies are being conducted to determine the best color grouping to facilitate reading of instrument dials. Sears, Roebuck and Company is developing a standard range of colors for use by designers in product development; attractive appearance, distinction, and associations that result from coordinated color planning command premium prices and help sell related merchandise.

Designers still complain about the exceedingly limited color choice available in plastics for knobs on electronic equipment. Choice, for the most part, is limited to 1 red, 2 greys and 1 blue. The same difficulty is reported by designers for enamel colors used for dust covers on electronic equipment. They feel the needs in this field are limited by the present range of available colors.

Similarly, effective color choice and color planning prompts buying in the printing industry. Makers of dyes, paper, ink, and textbooks are improving page appearance to reduce eyestrain and fatigue. Studies show that neither

ink nor paper color should be so different from conventional black on white that attention is distracted, so experiments are being conducted with slightly off-beat colors, for use with various colors in printing ink, to determine which combinations induce easier, more comfortable reading.

In addition there are new whites that are actually whiter than white that afford a crisp new dimension -- both as a striking color and as a base for good printing results. To feature such whites as a basic design element in cartons, packages, labels, brochures, letterheads (both business and social), business cards, bank checks and advertising pages, paper stock itself must be startlingly white, rich and alive looking. When colored inks are properly used as a basic part of the "White Base" color plan the ink colors appear exceptionally clean and clear. "Whitest" whites and positive pastels are prime new tools for designers to steal a march on competition. An example of the difference that such optical brightness can make in white packaging was graphically illustrated by the Dyes Department of American Cyanamid Company at the recent N. Y. TAPPI SHOW. There, paperboard treated with Calcofluor, Cyanamid's optical brightener, was matched against untreated board under lighting tests that simulated actual store illumination conditions. The untreated board looked drab and uninspiring by comparison -- the Calcofluor treated board was not only whiter, under all lighting conditions, but it was actually enhanced by the fluorescent lighting, the most common form of store lighting.

Here again, it is interesting to note that industry is taking steps toward achieving better methods of truer color planning in package design. Both duPont and Cyanamid have recently introduced methods whereby color becomes an integral part of paper manufacture. In the case of Cyanamid, a new promotional program entitled, "Built-in-Color for Tomorrow's Packaging" stresses the advantage of incorporating color into packaging board during manufacture. With color now a basic ingredient, package designers can look forward to even more dynamic exploitation of color. They can capitalize on the pulling power of color to make the package the selling tool it can and must be.

Periodic color changes are being introduced by manufacturers to assure buyers that their products are new: that the latest improvements have been incorporated. Examples: White houses have given way to yellow -- rose -- beige -- and various shades of brown. Pleasure boats are as multi-hued as the spectrum. Shipping cartons, furnaces, telephones, floor tiles, blackboards, metals, etc., all breathe easier through precise color prescriptions. Color helped build plastics into a 3 billion dollar industry -- is largely responsible for starting plastics in product use. The alert and progressive leaders in these competitive industries are constantly seeking new and better color innovations to stimulate sales. Brown, bright blues, bright greens and turquoise finishes spark demand for 1961 cars. These tones top the field of 161 different color offerings in current automobile production. Brown is also the big, new color in dinnerware for 1961 -- ranging from beige to brown, a medium, neutral tone called "Sandalwood" is most important. Even plumbers are finding color applications useful in their work. The West Palm Beach Water Department isn't losing nearly so many tools now that they are painted bright orange. The tools, formerly forest green, were frequently overlooked on grass and among plants and left behind on installation jobs.

Brand names are gaining in significance at point-of-sale. But brand differences are not immediately apparent to all prospective buyers. People think with their emotions 90% of the time so buying decisions hinge on emotional appeal -- here again, color plays the dominant role. Yet this tremendous selling tool is being largely neglected. How? Color should help buyers locate and identify any brand, yet more than 50% of the 6,000 packaged items sold in supermarkets are packaged in red and white containers. Furthermore, the reds and whites are almost identical. Although there are thousands of variations of red and white from which to choose -- follow-the-leader color selection and lack of creative imagination in package research and development continue to prevail. There continues to be too much costly imitation in today's competitive arena. The majority of food packages do not have to be red and white. Fountain pens gain nothing by matching the colors of telephones. What is good for a handset isn't appropriate for a small pen where jewel-like, sparkling colors are more logical. However, in many diverse areas of business, color is continuing to take the "old" out of "old-fashioned." It is injecting new life -- new style -- into products a generation old.

Color continues as the top sales lure in the billion dollar beauty aid industry -- and more adequate training of stores sales personnel is being widely initiated to guide customers in more effective personal color selection.

With this upsurge of color, INDUSTRIAL DESIGNERS are beginning to synchronize their appearance design activities with color specialists. By doing so, they are more effectively serving industry's needs in this highly specialized area of emotional selling.

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

During the past year there has been a concerted effort on the part of groups representing the magazine publishers, the advertising agencies, the printing

industry, and the photoengravers, toward standardizing the hues of the inks used for proofing 4-color process plates to be used for high speed, wet, web-fed magazine printing. These groups asked the NAPIM to investigate the variations existing between the inks now being used for this purpose by the various publishers and printers and to recommend a compromise set for adoption as standard. A set has been chosen and will be submitted to the groups mentioned above at a meeting to be held a few days from now. If this standardization can be achieved, it is hoped that it will go a long way toward easing some of the problems now faced by both the printers and the publishers.

During the summer of 1960 the National Printing Ink Research Institute (NPIRI) sponsored a week long training course on printing ink technology for technical men from the ink industry. G. L. Erikson and F. L. Wurzburg, Jr. both contributed instruction to the group on different aspects of color. The course is to be repeated this summer, again restricted to technicians from the ink industry.

The Rochester Institute of Technology again held a three-day color control seminar for graphic arts personnel in December of 1960. The seminar was well attended, so much so in fact that it was necessary to run double sessions. F. L. Wurzburg, Jr. was the director of the seminar.

NPIRI has been involved in establishing specifications and tolerances (including those for color) for printing ink for the quartermaster department of the Army. Since these specifications are to be such that any ink company, regardless of the type of instrumentation or even lack of instrumentation it possesses can bid; the problem here is to write meaningful specifications based wholly on subjective criteria.

During the year the General Printing Ink Division of Sun Chemical Company retained the services of the well known color consultant Faber Birren to aid them in forecasting color trends.

It is gratifying to report that two of the company members of the NAPIM were among the purchasers of the sets of centroid colors prepared by Davidson and Hemmendinger under the auspices of the ISCC.

Within the past year there has been a very pronounced increase in the use of instrumental color specifications on the part of buyers of printing. Although this is in general a healthy trend and shows an increased awareness on the part of the printing industry of the desirability of taking advantage of the latest techniques, unfortunately many of these specifications have been arrived at somewhat too hastily and without a full awareness of the need for adequate "hitching posts" and other safeguards. There is an obvious need for continued education in the use of color measuring instruments, particularly on the part of the instrument manufacturers, if the buyers of printing and their suppliers are not to become rapidly disillusioned concerning their usefulness.

Finally the NAPIM delegation notes with ill-concealed pride that the current incumbent of the presidential chair comes from within its ranks.

REPORT FROM THE NATIONAL PAINT,
VARNISH AND LACQUER ASSOCIATION
DELEGATES, JOSEPH F. BATTLE, Y,
CHAIRMAN

THE COLOR SURVEY:- The 1961 Color Survey, the ninth in our series of this annual report, was developed from 1960 color sales data of interior and exterior Trade Sales paints

reported by individual manufacturers. It shows color trends for the past five years. It is being prepared for publication at this time.

The following procedures were employed in the conduct of this survey:

All color chips submitted were classified by their Color Difference Meter readings. These readings were converted to Munsell color designations. Then the identification of the colors by official names established by the National Bureau of Standards and The Inter-Society Color Council was followed by classification of the color values in the category of dark if they had a value of 1 through 3 on the Munsell value scale, medium if they had a value of 4 through 6, and light if the value was 7 through 9.

Numbers appearing opposite a color are the ISCC-NBS numerical identification. The complete list of ISCC-NBS Dictionary of Color Names is included in the National Bureau of Standards Circular 553, priced \$2.00, and available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.

Copies of the 1961 Color Survey will be available in June; write National Paint, Varnish and Lacquer Association, Statistical Section, 1500 Rhode Island Avenue, N. W., Washington 5, D. C.

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

The report of the National Society of Interior Designers is based not just upon the accomplishments of our own professional members this past year, but is based upon a privilege and

opportunity enjoyed by the NSID and some of its members from the United States and Canada this last summer, when the NSID was invited as a professional interior designers group to officially represent our profession at the World Design Conference in Japan.

It is this continued influence of the Japanese that is important in this report. Not that the influence is itself news, but the impact at this time is news, for it is more emphatic and more meaningful, and more apt to reflect itself on the American scene than ever before...and to the esthetic advantage of our every day lives. The significant thing about it for the purposes of this report is that this reflection is in the field of color and design, not necessarily in form.

A Japanese regards his surroundings as an extension of himself, which makes his home the symbol of what is good and what is best in his life. Good taste is symbolized by the term "Shibui", which means, quiet, reserved, understated richness which can never be obvious. "Shibui" also means a special kind of beauty that includes the patina and tradition of age, incompleteness, and irregularity of design, suggestiveness, and calmness of spirit that comes with a lack of artifice. Everywhere at the World Design Conference and in Japan we were aware of "Shibui", and especially was this true in color.

This awareness and appreciation of "Shibui" was forcefully brought to the attention of NSID in a commercial sense in the past year when NSID was planning and presented the third annual NSID International Fabrics Fair and Fashion Show in New York. Some 35 national and international fabric firms participated in this annual presentation of NSID. But, a problem arose in planning when so many of these distinguished firms wished to represent their new Japanese color lines, and threatened the "international" theme with the predominance of the "Japanese" theme. At least four of these firms are at present doing national promotions on the Japanese colors and designs, and many, many more have them in their lines.

An additional implication is the space given by the shelter magazines to this influence in color and materials for use in the home. House Beautiful Magazine alone has devoted three issues to "Shibui" and its distinguished editor and NSID Press Member, Elizabeth Gordon, was given the National Home Fashion League's 1961 Trail Blazer Award for cultural leadership and inspiration in the presentation to the American public of the Shibui concept of beauty in living.

Another implication is that "The Status-Seekers", a best seller in today's books, makes the point that the home is the number one status symbol with the type of color used as a further status symbol. With the emphasis of color, these "Shibui" influences are also to be reflected in this number one symbol.

It is hardly possible for any NSID Chapter to present a programmed meeting to its some 3,000 professional members, and some 600 NSID Trade Members throughout the United States, as all of our chapters do on a monthly basis, and not include color as an integral part of the presentation, whether it is by direction or indirection. One of the most significant ones was the Design Breakfasts presented by the Midwest Chapter of NSID in Chicago, the first of which was entitled "Color in Your Life" with the authoritative Walter Granville, the eminent color consultant, as the distinguished speaker. Home furnishings shows and model apartment exhibitions presented for the public further emphasize the commercial importance of color in the life of Americans, when the commercial aspect of its value is also demonstrated by the coordinated color and design lines which bring together the manufacturers of paint, wallpaper, and fabrics, furniture and floor coverings, to present "total design", the forte of the professional interior designer. This point was made by the NSID "Trend Rooms" presented by the National Society of Interior Designers in cooperation with the Merchandise Mart in Chicago at the International Homefurnishings Market in January 1961.

It was summed up by Edward F. White, National President of NSID speaking at the Mart's Official Press Conference in January when he said, "Americans are buying total design, not just merchandise and furnishings, and nothing is a greater part of design than color, and its coordination. American taste is getting better all of the time, and nothing influences taste, good or bad, more than color."

REPORT FROM THE OPTICAL SOCIETY
OF AMERICA DELEGATES, DEANE B.
JUDD, CHAIRMAN

In addition to publishing 44 papers on color and vision in the 1960 volume of its Journal, the Optical Society of America has been officially active in

four areas:

1. Color spacing. The work of the OSA Committee on Uniform Color Scales has been confined to an interpretation of the data collected last year on the influence of altering the reflectance of the specimen chips and the reflectance of a gray surround on chromaticness spacing. This interpretation has been delayed by a mistake in programming the least-squares solution for the IBM-704 digital computer. (Parenthetically it may be noted that the CIE has approved the recommendation of the 1937 MacAdam (u,v) - projection (J. Opt. Soc. Am., 27, 294; 1937) of the standard CIE (x,y) chromaticity diagram for international use whenever more perceptually uniform chromaticness scales are desired than those afforded by the (x,y)-diagram, itself, only one National Committee of the CIE (The Netherlands) having failed to uphold the recommendation.)

2. Color-matching functions for large observing fields. This work is sponsored by CIE Committee E-1.3.1, Colorimetry, and partially sponsored indirectly by the Optical Society of America because of its support of the CIE. Significant, unexplained discrepancies between observed and predicted large-field (10°) color matches previously reported have been confirmed; see Hilton Wright and Günter Wyszecki, Field trial of 10° color-mixture functions, J. Opt. Soc. Am., 50, 647 (1960).

3. Color rendering of light sources. At the request of CIE Committee E-1.3.2, Color Rendering, Dorothy Nickerson has chosen a group of Munsell papers to be used in international studies of color rendering and in the eventual definition of a color-rendering index based on the colorimetric-shift method. Development of a color-rendering index based on the spectral-band method has been set aside pending perfection of the colorimetric-shift method. Dorothy Nickerson (Light sources and color rendering, J. Opt. Soc. Am., 50, 57; 1960) summarized the present status of American work on color rendering.

4. Facts of Color. Following a protest by the OSA Delegation about the terminology used in the first full draft of the report on Basic Elements of Color Education by ISCC Subcommittee on Problem 20 (ISCC News Letter, Issue for Annual Meeting, 1 April 1959, pp. 12-13), an editing committee (Bartleson, Evans, Hanes, Judd) was appointed (ISCC News Letter, Issue for Annual Meeting, 11-12 April 1960, p. 13). Second and third "final drafts" have been completed largely through the efforts of Dr. R. M. Hanes, Chairman; and the fourth draft, which really does promise to be final, is about half agreed upon. The importance and value of this document, as it is shaping up, is so evident, that the OSA delegation will doubtless wish to claim credit for the small part they have played in its editing.

The authors, titles and page references of papers published during 1960 on vision and color in volume 50 of the Journal of the Optical Society of America were appended to this report. These references will appear in the Bibliography section of the News Letter at a later date.

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. L. JEWETT,
CHAIRMAN

We have had no activity judged to be of sufficient general interest to colorists to justify a report.

REPORT FROM THE SOCIETY OF
MOTION PICTURE AND TELEVISION
ENGINEERS DELEGATES, RALPH M.
EVANS, CHAIRMAN

The motion picture industry as a whole has long since committed itself to color as everyone knows. It is interesting, therefore, that the problems of the use of color photography are not

an important part of the activity of our Society. Our Color Committee, in fact, has been quite inactive for some years. The reason for this, of course, is that the large manufacturers who supply the materials or processes are in a position to themselves solve the problems as they arise.

With the advent and progress of color television and the increasing use of color photography for this medium a situation is arising when the Society may

find itself in position to play an important part. This situation is made more imperative by the increasing extent to which professional productions are being released both for TV showing and for prints for use by individuals in their own homes. Recent improvements in the 8mm field may soon make this a very important field.

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

Once again we are happy to report a year of progress in the application of color technology to photographic science and engineering. This is evidenced by the growing number of papers being presented

and/or published through this society.

A successful meeting was held last May in Santa Monica where several papers of interest to ISCC members were presented. These will be listed as they are published in Photographic Science and Engineering.

A bibliography of articles of interest which appeared in Vol. 4 (1960) of Photographic Science and Engineering is attached as part of this report. (These references will appear in the Bibliography section of the News Letter at a later date.)

We are looking forward to our Annual Conference which will be held this year in Binghamton, May 22-26. At that time two complete sessions will be devoted to color photography with twelve papers scheduled for presentation at this time. Many of these will concern color technology as applied to photographic problems.

An invitation is extended to all members of the Inter-Society Color Council to attend this meeting.

We wish also to thank the Council for the recognition given to the relationship that exists between color and photography in the program of this meeting and look forward to further activities of this type.

REPORT FROM THE TANNERS' COUNCIL
OF AMERICA, INC. DELEGATES,
HELEN D. TAYLOR, CHAIRMAN

No Report

REPORT FROM THE TECHNICAL
ASSOCIATION OF THE GRAPHIC
ARTS DELEGATES, WARREN L.
RHODES, CHAIRMAN

The TAGA delegation to ISCC is the nucleus of a committee of the Technical Association of the Graphic Arts. The committee met at the Annual Meeting in Washington in June 1960 to consider again the problem of designating the color printing inks. Several organizations in the United States are moving towards the standardization of printing ink color, and it is becoming increasingly important to develop methods for designating the color of the ink.

One of the most important difficulties is the problem of relating ink properties to the color of prints made with that ink. The principal factors contributing to this difficulty are:

1. Variation in ink film thickness
2. Method of application
3. Effect of paper absorbency
4. Effect of paper surface characteristics

The principal discussions in which the committee has engaged are concerned with the differing objectives in designating ink color. The objectives as stated are:

1. Maximum gamut
2. Importance of various zones in the color solid
3. Color correction requirements

Discussions involving methods have been extensive. At the present time three methods are proposed and some of the members feel that none are at present suitable.

1. C. I. E.: The difficulties with the CIE system are: poor correlation between purity and saturation, especially in dark blues; obtaining data requires complicated equipment, skilled technicians, and ordinarily takes considerable time; colorimetry requires the use of prints, and there is poor correlation between the CIE data and ink characteristics.
2. Munsell: Although the Munsell system is better in many respects, it is still difficult to get data. It is probably necessary to obtain CIE data and transform it to Munsell. Again this is pointed out the Munsell designation does not correspond well to the color of the ink.
3. Arbitrary 3-filter densitometry: In this case the filters are selected to match the spectral characteristics of the densitometer to the spectral characteristics of the photographic system. This method of measurement is simple, convenient, and fast. It can be done on available equipment. One member pointed out that within limits calculations using colorimetric density change little with variations in ink film thickness. The objections to this system are that the spectral sensitivities are not transformations of color mixture curves. One member pointed out that the error due to this fact seems to be small, and he pointed out that in order for a photographic system to be effective, the spectral characteristics should be linear transformations of color mixture curves.

The discussions resulted in an unresolved difference of opinion. Various members were asked to prepare drafts of their views. These drafts have been distributed to the committee. At the Annual Meeting in Columbus this year the committee will meet again to discuss these prepared statements. The committee will prepare a publication for the proceedings of the Technical Association of the Graphic Arts. In this publication will be these discussions, summaries of existing methods for specifying color of inks, and a selected bibliography.

REPORT FROM THE TECHNICAL
ASSOCIATION OF THE PULP AND
PAPER INDUSTRY DELEGATES,
D. NOEL OBENSHAIN, CHAIRMAN

In the paper industry, the major concern with color is the relation of paper attributes to color printing. A great deal of research in the area of color printing is being performed both within

and independent of the TAPPI organization.

The group in TAPPI which keeps contact with the ISCC is the Optical Methods Committee in the Testing Division which is concerned primarily with laboratory test procedures. This group has an active project on the evaluation of optical brighteners. This is the area of concern in ISCC Problem 18. Other active projects deal with illuminants for color matching, standardized tangent illumination for examination of surface texture by microphotography, and the measurement of high gloss inks on paper.

In the association's journal "Tappi", there have appeared papers on the whiteness of pulp, on two Zeiss instruments for measurement of reflectance through color filters, and on color control in paper manufacturing, which will be listed in the Bibliography section of a later issue of the News Letter.

REPORTS OF ISCC
REPRESENTATIVES AND
DELEGATES

ASA Sectional Committee A13:
STANDARDIZATION OF SCHEME FOR
IDENTIFICATION OF PIPING SYSTEMS,
M. Rea Paul and Harry J. Keegan,
Representatives.

ASA Sectional Committee Z48: MARKING COMPRESSED GAS CYLINDERS, Harry J. Keegan, Representative.

ASA Sectional Committee Z53: SAFETY COLOR CODE FOR MARKING PHYSICAL HAZARDS AND THE IDENTIFICATION OF CERTAIN EQUIPMENT, Harry J. Keegan, Representative.

There is little to report on these three committees at this time. Specifications have been prepared and issued on all three. These specifications are several years old and are considered to be current.

However, a great number of specifications of interest to safety color marking have been issued in the past two years by military organizations who have disregarded the necessity for national and international agreement for the use of color for specific information.

To resolve this problem the Society of Automotive Engineers, Aerospace Division has sponsored a committee to establish a national color code particularly applicable to the color of aero space equipment under Mr. Fred J. Liberman, as chairman. Mr. Liberman is employed by Rocketdyne Division, North American Aviation, Inc., Canoga Park, California. Your representative to the ASA has been appointed a representative to this committee.

Newsletter Committee:

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

William J. Kiernan
Dorothy Nickerson
Helen D. Taylor

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