

Inter-Society Color Council *Newsletter*



ANNUAL REPORT ISSUE

NUMBER 212
May-June 1971

REPORT OF THE PRESIDENT, RANDALL M. HANES

This has been a hectic year for the ISCC Board. For the first time in many years, all Council officers were new. The loss of the Secretarial services of Ralph Evans and George Gardner, plus the loss of Norman Macbeth as Treasurer, will not easily be assimilated. In addition, it should be noted that the Newsletter editor had only recently taken over in that capacity at the beginning of the year. As a result of all these changes, we had problems.

Fortunately, I can report that we are still functioning. That this is so is due in large measure, I believe, to the ability and hard work of our new Secretary, Fred Billmeyer; our new Treasurer, Warren Reese; and our Newsletter Editor, Bob Burnham; plus the very capable continued service of Roland Derby as Chairman of the Problems Committee. These individuals are responsible for the most demanding jobs in the Council and deserve much credit. I shall not elaborate upon their activities, for each will present his own report.

As might be expected during a period of change, some critical questions of policy and procedure arose during the year. I should like to report that all such questions were resolved quite satisfactorily for all concerned, but that would be to express only a fond hope. What I can report truly is that the Board members showed a high degree of sincerity in their deliberations and soundness in their decisions. I shall report briefly on Board actions that dealt primarily with matters of policy, presenting first those that resulted in decisive action, and secondly those that resulted in no, or only interim, action.

1. With respect to finances, the Board adopted, for the future, the fiscal policy "that operating expense budgets not be approved unless they remain in balance with income" and are such as to maintain surplus

funds equal to "about twice the annual operating budget." Such a policy was thought to be necessary for sound operation without unnecessary increases in dues during a period of rapidly increasing costs.

2. With a view to enlarging the working scope of and providing a feasible operating arrangement for the Committee on Publications, the Board approved a policy statement calling for a Committee membership embracing "the range of specialties and interests of the ISCC membership" and granting to the Committee "broad authority to determine both the content and format of the Newsletter within the limitations of the annual budget."

3. For the purpose of providing a more permanent and lawful mechanism by means of which the participation of Individual Members could be better maintained, the Board established a standing Committee on Individual Members. Nick Hale, who has served as liaison between the Board and Individual Members for several years, has agreed to serve as the first chairman.

4. With a view to providing a permanent means whereby skillful arrangements for meetings can be left to experts, the Board has established a standing Committee on Arrangements. Midge Wilson, who has done an outstanding job in the past, has been persuaded to head this committee.

5. In order to facilitate the publication of some of the reports by the Subcommittees on Problems, the Board approved a procedure whereby those reports not requiring endorsement by the Council as a whole can be released with a disclaimer of ISCC endorsement and with submission of only a brief description of the report to voting delegates.

You will note that some of the preceding actions suggest a policy of what might be called, in the terminology of the times, decentralization of decision-making. It seems to me that such a policy is desirable. The Board should, I believe, confine its deliberations, insofar as is possible, to the establishment of policy, and policy statements should be recorded in convenient form for subsequent use. In no sense is such a philo-

sophy meant to imply that any one Board can dictate to any later one, but it does mean that each new Board would have readily available a summary of the policies subscribed to in the past.

Among matters of policy that have been discussed during this year but have not been resolved are the following:

1. Annual and special meetings. Consideration has been given to a variety of suggestions concerning format, length, frequency, and content, as well as to whether or not we should have a standing committee for programs, as we now have for arrangements.

2. The Information Bureau. The status of this standing committee has received very considerable review by the Board, which has taken an interim position as follows: "although the total task that has been outlined (see Newsletter No. 207) is both too large for one person to manage and too expensive for the present financial resources of the Council, nevertheless some of the stated objectives are both important and feasible." Therefore, for the present, "the structure of the Information Bureau should be kept intact" and "effort should be concentrated on finding means to implement specific projects, including the education survey by Mr. Hunter, the list of audio-visual aids -- by Mr. Hale, and the badly-needed collaboration with the Cooper-Hewitt Museum." The last named activity will be directed by Mr. W. J. Kiernan.

3. The "Two Worlds:" Art and Science. The difficulties of communication between people in the arts and those in the sciences are widely recognized and talked about. Within the ISCC we have both the problem and the mechanisms for studying it. Therefore, it has been proposed that a subcommittee of the Problems Committee be formed to study this problem.

In summary, then, with respect to policy matters, I think it can be fairly reported that your Board has been active in addressing itself to both specific and general problems, solving some, making a promising start on others, and finding still others intractable. In their efforts they have been aided very substantially by the sound advice of former officers and directors.

In conclusion, to complete the coverage of Board activity during the year, I am pleased to report the following successful functions of individual Board members. Your Vice-President, Dick Hunter, as liaison officer for Member-Bodies, completed a survey of Member-Body interests, activities, and suggestions. Part of his results have already been reported in the Newsletter, and more will be forthcoming. Bob Feller served as co-chairman with Dusty Rhodes in developing the program for our current meeting. Ray Spilman, with the able services of Professor Redmann and students at the University of Bridgeport School of Design, produced a very handsome and distinctive symbol for the Macbeth Award. And George Gardner

served as chairman of this year's very efficient and successful Godlove Award Committee.

REPORT OF THE VICE PRESIDENT, RICHARD S. HUNTER

The Vice President of the ISCC has responsibility for liaison with member bodies of the ISCC. Last November I mailed a letter and questionnaire to the chairman of each of the member bodies of the ISCC. There has been an unusually good return with all but two of the member bodies responding.

Since we are presently giving particular attention to the problems of communication between the art and design oriented groups with the technology and science people in our diverse Council. I thought it might be interesting to learn from the responses which came in what sort of a breakdown of interest in the two areas I found.

Of the member bodies, five said they were interested primarily in art and design questions. By contrast, 15 of the member bodies said that their interests were primarily in the technical use of color. There were 8 organizations, among them the Color Marketing Group, the Paint Federation, the Ceramic Society, and most of the graphic arts and packaging groups, which said they had active interest in both art and technological aspects of color.

It seems to me that the ISCC promotes basically two types of effort. (1) The careful analysis of color and appearance. (2) Communication between different people interested in this special area of the Council.

Where people of nearly identical channels of thought seek to communicate together, they find this communication generally easy. In the ISCC, however, with the very diverse activities of the different groups represented and the strikingly different points of approach, communication is quite difficult. Although communication is difficult, the opportunities are much greater within the Council for effective cross-fertilization because of the broad spectrum of ideas and experiences which is available in our group. The liaison work with the member bodies certainly leads me to recommend that we expend real effort during the next few years to further communications and understanding about not only color but appearance also, between the art and design oriented organizations, and those whose interests are more scientific and technical.

College Survey Report -- I also gave a very brief report on the college survey project, pointing out that we had had a return of about 1/3 on the 180 questionnaires sent out, that we found subject matter on color in a great variety of teaching courses in arts and the applied arts divisions of the schools, although to date we have received information on very few of the

scientific and technical courses from the colleges queried. Only less than 200 of the total 800 on the list of American colleges have been circulated.

Before we go further, I think, on the basis of our experience so far, that in order to get results of value to us, we will need to present a simpler questionnaire and to separate those college courses on which a major fraction of a semester is devoted to the subject of color from those courses in which there is only a brief (perhaps one or two weeks) study on the special subject of color.

Both Mary Egan and Alex Styne (of Toronto and Miami, respectively) have agreed to work with me on this college survey project.

REPORT OF THE SECRETARY, FRED W. BILLMEYER, JR.

During the past year, the Tanner's Council of America resigned as a member-body, making the number of member-bodies in the Council 30 at this time. The number of new individual members has substantially exceeded losses in that category due to resignation, death, nonpayment of dues, and failure to provide a valid address, but exact figures have not been compiled.

Since the printing of the last membership list three years ago, the Secretary's Office has uncovered a total of 175 changes in member-body delegate membership: 16 new chairmen, 72 retiring delegates, and 87 new delegates. The number of address changes among delegates and individual members is too great to enumerate. The Secretary would hope that he could be informed of even a small number of these changes in the future, rather than discovering them in unexpected ways.

The current membership of the Council is now approximately 665 paying individual members, plus the following non-dues paying groups: 239 delegates, 30 member-body officials, and 18 honorary members. In addition, non-paying memberships are being extended to other national color societies who are members of the International Color Association, and to editors of member-body journals where specifically requested. The actual mailing list of the Council differs in number from the total of the above because some delegates also maintain individual memberships, much to the satisfaction of the Treasurer.

Vital statistics on all these, plus others such as problems subcommittee memberships, are being established with a reasonable expectancy of accuracy as rapidly as possible, so that the manuscript for the long overdue new membership list can be sent to the printers. Copies will be sent to all members as soon as they are available.

A sad duty undertaken by the Secretary is to record the decease of prominent Council members. This year we have lost through death G. L. "Tiny" Erikson, honorary member, past president, and dear friend of all who knew him; Capt. Charles Bittinger, honorary member (at age 94); the distinguished motion-picture comedian Harold Lloyd; Elmer Lundberg, delegate from the AIA; and Carl Smedley, IMG. I regret the omission of any others not known to me.

REPORT OF THE FINANCE COMMITTEE, WARREN B. REESE, CHAIRMAN

The members of the Finance Committee are Dorothy Nickerson, William Kiernan, Roland Derby and Warren B. Reese, chairman.

Prior to last year's annual meeting the Finance Committee recommended to the Board of Directors a dues increase as follows:

Members from \$6.00 to \$10.00
Member Bodies from \$35.00 to \$60.00.

The Board approved the dues increases to be effective in 1971 which has been reflected in the bills sent out April 15th. The dues increase was necessitated by increased administrative and Newsletter costs and to work toward a balanced budget after several years of deficit spending.

The budget for the current year (1971) as approved by the Board is

Total Expenses	\$10,100
Total Projected Income (incl. new dues structure)	8,707
Projected Deficit	1,393

There is a reduction of the amount of deficit from \$3,229 last year to \$1,393 this year with a possibility that we may actually end the year with a lower expense and therefore a nearly balanced budget.

After several years of deficit spending, the question arose as to what extent we should erode the surplus built up over the years. The Finance Committee was assigned the task of recommending a policy to the Board, which was adopted. That policy is:

"The ISCC shall maintain a surplus equal to two times the average annual operating expenses as a reserve against unforeseen expenses and reduction in income beyond its control."

It is further the policy of the Board to operate with a balanced budget henceforth, as our present reserve is now about two times our annual operating expense.

The dues increase will permit this assuming all membership classes remain at the same levels.

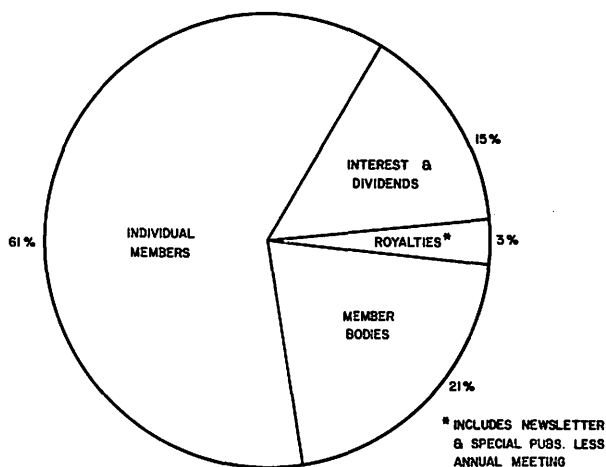
The Finance Committee is of the opinion that the ISCC fiscal policy and management is sound and responsible.

I should like to thank the members of the Finance Committee for their contribution.

REPORT OF THE TREASURER, WARREN B. REESE

A copy of the examination and certified audit of the treasurer's office and the ISCC financial condition as of year ended December 31, 1970 prepared by our Certified Public Accountants Main LaFrentz & Co. has been transmitted to the President's and Secretary's offices and to members of the finance committee and has been reviewed by the Board of Directors.

ISCC-1970 INCOME



Highlights from the Council's Balance Sheet are:

1. Cash in Banks	\$ 5,757.80
2. Savings Accounts	8,500.00
3. Securities (Mutual Funds)	5,333.69
4. I. H. Godlove Award Fund	1,109.47
Other Income	45.00
5. Total Assets	\$20,745.96
Equity or Surplus (excluding Godlove Fund)	16,094.50

Highlights from statement of income and expenses are:

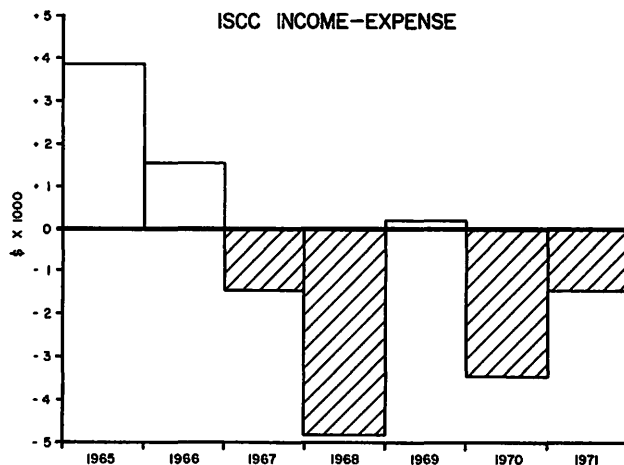
1. Income -- Fiscal Year 1970	\$ 5,248.41
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2. Expense - Fiscal Year 1970

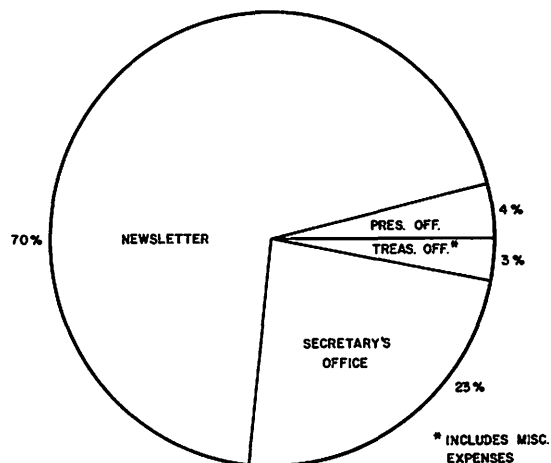
8,478.19

3. Deficit for Year

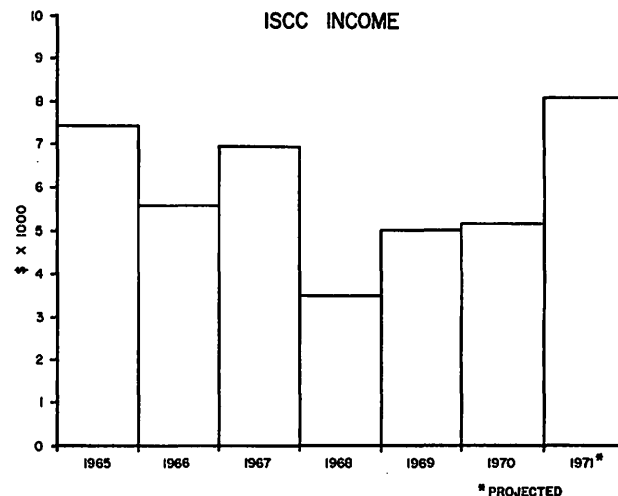
\$ 3,229.78



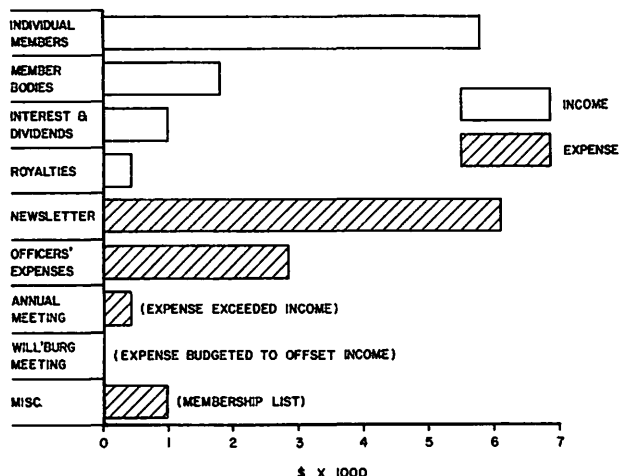
ISCC-1970 EXPENSES



The operating budget for the year ended December 31, 1970 as approved by the Board of Directors was a total of \$8,803.00. Actual expenses for the year were \$8,770.42 or \$32.58 under budget.



ISCC-1971 PROJECTION



I should like to thank Mr. Raymond Phipps for his vital contributions to the operation of the Treasurer's Office. Ray who is a new individual member of the Council assisted Norman Macbeth for many years and has made the transition for me most pleasant.

REPORT FROM THE AIC LIAISON COMMITTEE, C. JAMES BARTLESON, CHAIRMAN

The AIC (International Color Association) will sponsor a meeting in Driebergen, Netherlands, on September 1st through 3rd, 1971. The meeting is entitled "Color-Metrics." This will be an invitational meeting at which leading experts from around the world will discuss quantitative methods of expression of color differences. A summary report of the meeting will be made available in the ISCC Newsletter. Proceedings of the meeting will be published at a later date by the Dutch Organizing Committee.

REPORT OF THE ARRANGEMENTS COMMITTEE, MIDGE WILSON, CHAIRMAN

Miss Wilson has written the Secretary to say that there appears to be nothing concerning arrangements which needs to be recorded. "We just try to help where we can in having things run smoothly."

In view of the tremendous contribution of Midge and her colleagues to the success of our annual meetings through registration and banquet arrangements, for which the entire Council should be grateful, this would appear to be a masterpiece of understatement.

F.W.B.

REPORT OF THE INDIVIDUAL MEMBERS COMMITTEE, W. N. HALE, CHAIRMAN

The Committee met as scheduled on April 19th at the ISCC Annual Meeting, and was pleased to answer a number of questions from Individual Members. The Committee wishes to emphasize the continuing nature of its function and its hope that ISCC Individual Members will feel free to contribute questions, problems and recommendations throughout the year.

REPORT OF THE MEMBERSHIP COMMITTEE, WALTER C. GRANVILLE, CHAIRMAN

Several prospective new member bodies are under consideration, the principal one being the American Leather Chemists Association. We regret the resignation of the Tanners Council which occurred during the past year and we hope the members of their delegation will continue membership in the Council.

REPORT OF THE PUBLICATIONS COMMITTEE, ROBERT W. BURNHAM, CHAIRMAN

In addition to regular publication of the Newsletter, a broader operating philosophy and policy for the Committee on Publications was developed and approved by the Board of Directors.

Dorothy Nickerson, Deane Judd, and William Kiernan all expressed a desire to retire as active members of the committee after many years of participation and support. Consequently, the committee is being re-constituted with representatives from the graphic arts, color measurement, design, and the scientific areas.

A copy of the policy statement is appended hereto. Suggestions or volunteer participants are welcome.

A STATEMENT OF OPERATING PHILOSOPHY AND POLICY GOVERNING THE COMMITTEE ON PUBLICATIONS

ISCC Board of Directors, 1970-72

1. The ISCC By-Laws require that "Standing Committees shall be subject at all times to the direction and control of the Board of Directors." Only a change in the By-Laws can alter, in principle, this assignment of authority and responsibility. With respect to practical

working arrangements, on the other hand, it is obvious that some degree of authority must be delegated. The problem then becomes one of how much authority can and should be deputed without violating the By-Laws and without unduly restricting the committee or seeming to impugn its competence. The Board recognizes the impracticality of absolute delineation of responsibility for every potential contingency and disputes the desirability of such delineation even if it were practical. Even so, recent events have demonstrated the necessity for a clarification of authority and responsibility beyond that provided by the By-Laws. Therefore, the Board has prepared this Statement of Operating Philosophy and Policy Governing the Committee on Publications.

2. The Committee on Publications is charged first in the By-Laws with the responsibility for giving "technical advice to the Board of Directors to guide them in the editing, reproduction, and circulation of information relating to color." If "technical advice" is interpreted in its broadest meaning, the advisory responsibility of the committee must be understood to include all aspects of all information media. Using such an interpretation, the Board recognizes the need for the Committee on Publications to embrace the range of specialties and interests of the ISCC membership. If the requisite range cannot be realized in the committee itself (limited to the chairman and five members by the By-Laws), then subcommittees should be formed.

3. The Committee on Publications is charged secondly in the By-Laws with "the editing and preparation" of the Newsletter. Such wording implies executive authority for all aspects of the Newsletter, subject only to restraints specified by the Board when exercising its "direction and control." In the absence of specific Board directions and controls, the Committee's authority with respect to the Newsletter must be construed as unlimited within the general restraints imposed by the By-Laws. In recent years, at least, the only specific control exercised generally by the Board has been budgetary. Direction by the Board has been limited to a very few ad hoc rulings, with no concomitant policy statement expressed. Implicitly, nevertheless, the Board's behavior, whether by design or by default, suggests a policy of maximum freedom for the Committee on Publications with respect to the Newsletter, except for the budget. The current Board endorses this implied policy and makes it explicit as follows. The Committee on Publications, when constituted as directed in Paragraph 2, shall have broad authority to determine both the content and format of the Newsletter within the limitations of the annual budget. It is expected, nevertheless, that decisions involving major permanent changes in either content or format will be presented to the Board of Directors for approval and that resolution of gross differences of opinion among committee members will be accomplished by Board action.

4. The Chairman of the Committee on Publications, in his capacity as Editor of the Newsletter, is responsible for what is probably the most continually demanding activity in the ISCC. Commensurate with such responsibility there must be a degree of freedom that allows for the expression of individual style, especially since the preparation of the Newsletter is largely an individual matter.

5. The Chairman of the Committee on Publications shall have the authority to authorize the inclusion of inserts to be mailed with the Newsletter. In exercising such authority, his decisions should be consistent with the principle of disseminating useful color information without serving individual or commercial interests. The Board feels that this principle can be best served in most cases through concise announcements, in the pages of the Newsletter, concerning the availability and the source of materials and/or information.

6. Nothing in this Statement of Operating Philosophy and Policy is to be construed as implying abrogation of authority or responsibility as assigned by the By-Laws to the Board of Directors. The Statement is made primarily in an effort to resolve a specific dispute and to preclude similar disputes. A secondary purpose is the establishment of precedent with respect to the issuance of operating-policy statements governing other committees and official positions. While no such policy statements by one Board of Directors can be officially binding with respect to any succeeding Board, it is hoped that they will provide an aid to continuity and consistency of useful policy.

Concomitantly, it should be noted that the biennial change in the Board, as opposed to anticipated continuity in the Committee on Publications, has been an important consideration in the formulation of this Statement of Operating Philosophy and Policy.

REPORT OF THE PROBLEMS COMMITTEE, ROLAND E. DERBY, JR., CHAIRMAN

The active Problems Subcommittees held very productive meetings during the first day of the ISCC Annual Meeting. The details are included in the individual reports by Problems Subcommittee Chairmen below.

A new Problems Subcommittee concerned with Colorimetry and Spectrophotometry in the Graphic Arts is being actively considered. A detailed proposal for this problem has been presented to the ISCC Board. As you will note in their reports, several of the subcommittees have preliminary or final reports close to publication. This is indicative of the considerable effort being made by the Chairmen and their working groups.

REPORT OF SUBCOMMITTEE FOR PROBLEM 7 -- SURVEY OF AMERICAN COLOR SPECIFICATIONS, ROBERT F. HOBAN, CHAIRMAN

During 1970, major revisions of the report were completed and a draft was completed in semi-final form. Some editorial and typographical changes have been suggested at the annual meeting. After these changes are made, the report will be submitted for approval. It should be noted that the report has been recorded on punched cards. This has facilitated making changes since only the affected portions must be changed and the whole report need not be retyped, which invariably introduced errors, and takes much time to complete. The Subcommittee met in September 1970, as well as at the Annual Meeting. This served to double the amount of progress we made this year.

REPORT OF THE SUBCOMMITTEE FOR PROBLEM 10 -- COLOR APTITUDE TEST, L. A. GRAHAM AND ANGELA C. LITTLE, CO-CHAIRMEN

The Color Aptitude Test Subcommittee started its meeting with one co-chairman, an engineer, an artist, and an industrial designer. Co-chairman Dr. Angela Little asked me to express her regrets, "part of the austerity pattern at University of California." However, the attendance swelled during the discussion to fourteen. A review was made of the two important tests: The ISCC Color Aptitude Test and the Farnsworth-Munsell 100 Hue Test.

A good question was raised of why this committee has continued after twenty years. The answer is not a simple one. In summary:

- 1) The present tests need further review.
- 2) (a new reason) The ISCC-FSPT CAT is under review by FSPT and Munsell and any new version must be revalidated.
- 3) The possibility of a different type of test is under consideration.

Dr. Little, co-chairman, had specifically asked that consideration be given to a really active, on-going program. For this she has recommended the use of one or two of the University of California graduate students. This requires financial considerations and will be taken up through ISCC.

Much of the first half of the annual meeting was given over to a review of the history of the ISCC-FSPT Color Aptitude Test and the Farnsworth-Munsell 100 Hue Test. Many of the perennial questions associated with color aptitude testing are still around. Quoting from Issue Number 195 of the ISCC Newsletter:

1. What do the various color discrimination tests really test?
2. Why is there a low correlation between the F-M 100 hue test and the ISCC-CAT?
3. Do any of the tests measure innate ability? How are the results affected by training and experience?
4. Would a Hue Discrimination Test patterned after the present Saturation Discrimination Test correlate with ISCC-CAT, F-M 100 Hue, or neither?
5. How valid are the present tests in predicting ability to meet specific job requirements?

In response to question 5 above, there is no doubt that the ISCC-FSPT Color Aptitude Test has been empirically related, quite a number of times, with previous job evaluations and post-testing job performance. However, there is still considerable doubt among the committee members as to what these tests actually do test, and whether or not a more definitive test or tests might be developed. There are certain indications that better tests -- or at least a different one -- can be developed, and the Chairman issued a call for committee members or corresponding members to volunteer a group of 10 persons who might, over the next couple of years, be willing to take one or more tests.

Since Dr. Dimmick's death close to 1,000 test scores have been accumulated on the second edition of the ISCC-FSPT Test. In addition Mr. Nick Hale of Munsell reports that he is considering a contract for FSPT in which a relatively different version of the test may have to be developed for suitable reproduction currently. Through private correspondence the committee has volunteered its services to attempt an evaluation of the new test version when available.

The Subcommittee is now trying to develop a prospectus which would indicate the direction in which it would like to go in order that support can be solicited from all interested parties, societies, or corporations.

Any letters from persons interested in better and continued color aptitude testing would be indeed most appreciated.

REPORT OF THE SUBCOMMITTEE FOR PROBLEM 18 -- COLORIMETRY OF FLUORESCENT MATERIALS, FRANC GRUM, CHAIRMAN

The Subcommittee for Problem 18 is rigorously pursuing the work to meet its primary objectives which are:

- 1) To establish meaningful and well-controlled means for measuring spectral characteristics of fluorescent materials.
- 2) To develop the methods for colorimetric evaluation of such materials based on proper physical measurements and on sound psychophysical relationships.
- 3) To keep abreast of the new technology and reduce it to practice, and to keep "close contact with other scientific committees concerned with similar problems."

The Subcommittee with its 29 members from here and abroad had successfully conducted several inter-laboratory tests and established reliable methods of measuring relative radiance (spectral radiance factor -- SRF). The results and conclusions of these experiments will soon be submitted to the ISCC Board of Directors for their recommendation and approval for publishing.

Two task forces are active within the Subcommittee: Task Force I (Visual appraisals of fluorescent materials) now chaired by Per Stensby and Task Force II (Analysis of SRF in terms of true reflectance and fluorescent components) now chaired by Fred Simon.

The immediate future plans of the Subcommittee are:

- a) To complete the visual work on white and near-white materials, to establish the correlation between visual appraisals and physical measurements of SRF, and to specify whiteness of samples containing fluorescent whitening agents, based on the established correlation between visual assessments and physical measurements.
- b) To demonstrate how spectral radiance factor can depend on spectral energy distribution of the light source.
- c) To propose methods for proper color evaluation of highly fluorescent chromatic materials.
- d) To make recommendations for a suitable D_{65} simulator for instrumental usage.

The Subcommittee will hold a meeting late this fall on the premises of the NBS in Washington. The results and conclusions of the present work of Task Force I will be the main topic of the fall meeting. Proposals

will also be made at that time for proper measurement and evaluation of chromatic fluorescent materials.

Some of the topics and problems that are of this Subcommittee's concern will be the subject of the forthcoming Williamsburg Conference entitled "ISCC Conference on Color of Fluorescent Materials."

REPORT OF SUBCOMMITTEE FOR PROBLEM 22 -- PROCEDURES AND MATERIAL STANDARDS FOR ACCURATE COLOR MEASUREMENT, JOSEPH T. ATKINS, CHAIRMAN

The measurement segment of Round Robin III, Color Measurement with Spectrophotometers, is complete.

Eight laboratories have measured the samples for Round Robin IV, Color Difference Measurement with Colorimeters. Six additional laboratories are scheduled to participate in the near future.

Major effort in 1971 will center on analysis and correlation of accumulated data.

REPORT OF SUBCOMMITTEE FOR PROBLEM 24 -- CATALOG OF COLOR MEASURING INSTRUMENTS, HARRY K. HAMMOND III, CHAIRMAN

Arrangements have been made for the publication of the following portions of the Preliminary Report of Subcommittee 24, "A Catalog of Color Measuring Instruments and a Guide to their Selection," in an early issue of the Journal of Color and Appearance: Statement of the Scope, Introduction, Discussion of Instrument Design Features, Defining the Measurement Problem, and Using the Guide to Aid in Selecting the Best Instrument.

F.W.B.

REPORT OF SUBCOMMITTEE FOR PROBLEM 25 -- STRENGTH OF COLORANTS -- PIGMENT SECTION, RICHARD W. HAROLD, CO-CHAIRMAN

A brief meeting of both the Pigment and Dye Sections of Subcommittee 25 was held to introduce the Gall Method for standard depth of shade. This method is under consideration by the Dye Section and will be discussed in detail by that Section.

The Pigment Section has nearly completed the detailed bibliography on literature (world-wide) covering the determination of the strength of colorants. It is expected that this report can be completed within the next few months and turned over to Roland Derby for publication by the ISCC.

The Subcommittee is also engaged in gathering methods used for the determination of the strength of pigments from both users and manufacturers of pigments. It is hoped that, once our compilation of methods is completed, we can prepare a document of methods used in industry that will help bridge the gap between consumers and producers of pigments. From this report, we hope that a clearer understanding of what is meant by "strength" of pigments will emerge and thus satisfy the goals of this Subcommittee.

REPORT OF SUBCOMMITTEE FOR PROBLEM 25 -- STRENGTH OF COLORANTS -- DYE SECTION, ROLF KUEHNI, CO-CHAIRMAN

The first draft of a general method of preparation and measurement of dyestuff solutions for strength determination was distributed during the meeting of April 31, 1970.

Several comments received in writing thereafter led to a second draft written by the four members of the editorial committee. This committee met on September 10, 1970 and edited the second draft in detail. The resulting document was distributed to the membership before the ISCC meeting on September 29, 1970 and discussed and further edited during this meeting. This final draft was submitted on October 22, 1970 to Roland E. Derby, Jr. for submittal to the Board of Directors of ISCC. Following suggestions by the Board and after consultation with key members of the committee, two minor changes were made in the document.

100 copies of the final document were submitted to Dr. Derby in March, 1971 for distribution to the member organizations of ISCC.

A task force was formed at the end of 1970 under Roger L. Rounds. It will initially determine in a round robin, the absorptivity and the relative strength of samples of CI Acid Yellow 23, Acid Red 73 and Acid Blue 113 to be distributed by Mr. Rounds.

The membership was encouraged to submit data relative to factors affecting the transmittance of dyes in solution and the uniformity of laboratory dyeing. The latter is to be used in an attempt to write a basic method for determination of relative strength of dyestuffs by reflectance measurement.

The chairman is in contact with Dr. Ludwig Gall of B.A.S.F. in Germany in regard to the Gall method of

determining standard depth. A brief presentation on this subject was presented by the chairman at the meeting of April 19, 1971.

REPORT OF SUBCOMMITTEE FOR PROBLEM 27 -- METAMERISM INDICES, HENRY HEMMENDINGER, CHAIRMAN

Knowing that the Subcommittee on Metamerism of CIE Subcommittee E-1.3.1 has been developing a proposal for an index of illuminant metamerism, Subcommittee 27 of the ISCC has deferred action during the past year while awaiting that proposal. The draft of a CIE recommendation for a special index of metamerism is now available, and provides the basis of the continuing plans of Subcommittee 27.

The Subcommittee endorses the draft proposal which is scheduled for submission to the Fall 1971 meeting of the CIE with respect to the definition of an index of illuminant metamerism in the case in which there is, for one observer-illuminant pair, a strict identity of tristimulus values of the two samples. In other situations, the existing draft proposal leaves room for several alternative courses. The Subcommittee members are accordingly planning, during the coming year, to evaluate metameric situations encountered by them by applying one or more of the possible alternatives. In this way Subcommittee 27 hopes to provide a practical test-ground and evaluation for pending CIE proposals. At the same time, the Subcommittee is examining other aspects of metamerism, from the point of view of establishing its own goals and programs.

REPORT OF SUBCOMMITTEE FOR PROBLEM 30 -- COLOR IN THE BUILDING INDUSTRY, MILO D. FOLLEY, CHAIRMAN

This past year has been a banner one for this committee -- we at last have succeeded in our major task of providing a language for color designation which was acceptable to the industry. The approval of our program by both professional architectural societies set the scene for further activities.

Having secured endorsement of the color language, the way is open to expand the use of color by establishing parameters for its specification. The committee is currently involved in those aspects concerning the usage of color which will aid those involved in its usage.

Color tolerances, surface gloss, an indexed filing system and a usage manual are subjects which contribute to what the committee has labeled its "appearance folio." Groups within the Subcommittee

are each involved in one of these efforts. The tolerance group is studying the use of the gray scale and the establishment of trade indices for tolerance specification. The gloss group is attempting to establish a gloss scale suitable for industry acceptance. The use of the Styne color index with identifying Munsell color chips is suggested as a basis for filing colors as they are identified is the program for a third group. Tying all this together is a section of printed information on "how to" and "why," and where authentic color data can be obtained and verified is being assembled by a fourth unit. All these are components of the folio.

The committee is seeking a sponsor for the "appearance folio," whether it be a professional group, a publishing house, a color manufacturer or even ISCC itself.

Although we have made great strides there is a long way to go. We shall need the help of everyone in the Society to "sell" our program to the entire building industry.

REPORT OF SUBCOMMITTEE FOR PROBLEM 31 -- STANDARD METHODS OF MEASURING AND SPECIFYING THE COLOR OF EXPOSED AND PROCESSED COLOR TRANSPARENCIES, JOHN T. SMITH, CHAIRMAN

The first meeting of this Subcommittee was held at the annual meeting, with Abraham Anson as chairman in Mr. Smith's absence. Discussion was lively, but the consensus of those present was that the point of what those in photogrammetry are basically trying to accomplish was not clearly brought out. Mr. Smith has asked Russell Zimmerman to act as deputy chairman, and hopes that the objectives of the Subcommittee can be clarified by correspondence during the remainder of 1971.

F.W.B.

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

This past year we have noted the increasing functional importance of the ISCC. Appreciation of its useful values to its members is growing. We share this feeling that its usefulness is building up and we hereby thank and salute the officers, directors and committees for the care with which they are constructing this unique two-way bridge between the arts and sciences.

The past year has been important for the fine arts, for the public has reached a new sophistication in selecting the more lasting values of fine art. The more experimental applications of new technical developments have proven very striking in the commercial promotion of fads, and "shock-art" novelties have been rejected with growing frequency by the more respectable critics and by the public.

The way-out fads "have now reached the bottom of the barrel" as one critic wrote, "and the barrel is empty."

The public is now turning to art that is relevant to their lives, and to nature. This is an important milestone in American art.

New standards for artists' pigments have been in the forefront of our activities during the past year. With the help of Dr. Robert L. Feller we believe that the standards will include the polymers, the matter of light-fastness, and nomenclature which the artist can understand in "useable form."

More on this later.

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

During 1970 the Color Technology committee of the Association worked toward the adoption of the ISO Standard Depth of Shade. These are a series of dyeings at 18 hues which have been judged visually to be of equal depth (1/1), plus supplemental series are available at twice the Standard Depth (2/1) and at 1/3, 1/6, 1/12, and 1/25 of Standard Depths. Such series are useful for evaluation of the color fastness and properties of colorants on a standard basis. Although the Standard Depths have been adopted by ISO for more than a decade, the AATCC has never agreed to them. More recently, the earlier objections have been overcome, which assures future adoption. In addition, a new digital computer program and graphical method of computing the concentration of a colorant needed to attain a depth equal to one of the levels has been adopted in Germany is of further interest in the U.S.A.

The Glenn Colorule, which is scale of strong textile metamers for testing either observers or illumination as a variant, has been widely distributed with 225 having been sold in the past four years.

The first draft of a glossary of "Textile Terminology and Colorimetric Terms" has been completed but will require extensive editing before being presentable. The Committee on Soiling of Floor Coverings has solicited the advice of the Color Committee on an instrumental method to determine soiling.

Revisions of the five- and nine-step gray scales for visual fastness test reference are being considered and will incorporate many user recommendations. Demonstrations using these modifications indicate a much higher degree of reproducibility not only for individuals, but also between laboratories.

A bibliography of 1970 publications on color in textile applications is attached.

AMERICA'S TEXTILE REPORTER

Vol. LXXXIV. No. 15. July 2, 1970. p. 6.

Computer color matching provides wide spectrum of benefits at Uniroyal.

INTERNATIONAL DYER

Vol. 143. Feb. 6, 1970. p. 167.

ICI's 27, 580-shade color atlas.

Vol. 144. Sept. 4, 1970. p. 319.

Minicomputer in color measurement.

THE JOURNAL OF THE SOCIETY OF DYERS AND COLOURISTS

Vol. 86. 1970.

June. p. 249. Color measurement in relation to colour sorting. I. Instrument reproducibility and its significance in sorting for simple systems. E. Coates, J. Durrans and B. Rigg.

August. p. 354. The Adams-Nickerson Colour-difference formula. K. McLaren.

Sept. p. 402. Colour difference measurements in relation to visual assessments -- effect of viewing conditions. E. Coates, J. R. Provost and B. Rigg.

INTERNATIONAL TEXTILE BULLETIN, DYEING/PRINTING/FINISHING

No. 3: 226 (1969)

Recording colorimeter. C. Zeiss.

JOURNAL APPAREL RESEARCH FOUNDATION

Vol. 4. Jan. 1970. p. 19.

The color problem: instrumentation to improve shade matching.

TEXTILE WORLD

Vol. 120. 1970.

January. p. 75. A new world of color.

January. p. 109. How to 'move' in Fashion Prints.

February. p. 108. Automation keeps redyes under 1%.

March. p. 121. Color-hungry consumers spell expansion for rotary screen printer.

May. p. 66. Carpets 70s. Design. Designer sees "flat look" big in the carpet scene.

COLOR ENGINEERING

Vol. 8. 1970.

February. p. 39. Color quality control in textiles. B. Norwick.

February. p. 47. The relationship between acceptability and calculated color differences on textiles. R. Kuehni.

April. p. 37. Ideal Color Space. D. B. Judd.

June. p. 48. On the color space of Sigfrid Forsius, 1611. R. L. Feller, et al.

October. p. 37. Color in glass. R. H. Kurth.

TEXTILE CHEMIST AND COLORISTS

Vol. 2, 1970.

May 6, 1970. p. 149/29. An instrumental method for determining equal depth of shade. M. E. Taylor.

June 3, 1970. p. 182/23. How "just appreciable fading" of AATCC L-4 Wool Standard is related to exposure time. L. A. Wood, P. J. Shouse and E. Passaglia.

Dec. 2, 1970. p. 404/11. A practical interpretation of calculated small color differences. R. Kuehni.

Dec. 16, 1970. p. 425/19. Calcium dyeing and related physical properties.

REPORT FROM AMERICAN CERAMIC SOCIETY DELEGATES, F. J. VON TURY, CHAIRMAN

Report A. Color Trends -- Ceramics

I. PORCELAIN ENAMELS

Sheet Steel

Harvest Gold, Avocado and Coppertone continue to be the popular appliance colors (they go well with natural

wood shades prevalent in kitchen cabinetry and paneling). These three colors amount to about 50% of the appliance market, the other 50% being white. The trend is toward more color. Poppy-red will probably be offered soon.

About 70% of steel sanitary-ware is colored. Sandstone is probably most popular. Color is expected to be a large factor in sanitary-ware for mobile and prefabricated homes.

Aluminum Enamels

The market here is in cookware. The appliance colors mentioned above carry over as the popular colors for enameled aluminum cookware. These are supplied either solid or with highlight (the same two-tone effect used on appliances). Poppy-red is already an established color. Turquoise and sky-blue are minor colors.

Dry Process

Sanitary-ware market is 70-80% color. Almost any bright color (orchid to black was mentioned) seems to sell. Sandstone (tan) remains popular. Newest shade will probably be Parrot Green (Better Homes and Gardens).

II. WALL TILE

Pastel yellows-blues-greens continue to be popular. Flecked off-whites (Oatmeal, gold flecked, brown flecked) have been popular, perhaps because of the economic conditions. Trend, if any, is toward the use of increased amounts of bright colors for accent.

III. WHITEWARES (artware, dinnerware, sanitary-ware, etc.)

A marked trend toward the use of more color. Brighter versions of traditional colors are sought. Bright reds, oranges and yellows (the Cd-based colors) are expected to be popular.

Off-shoots of Avocado and Harvest Gold are offered in dinner and artware to complement appliance colors. Parrot greens will be offered in sanitary-ware along with the established blues, tans, avocado, and golds.

Report B

1. No new basic ceramic pigments appeared during 1970 though a new reddish vanadium blue was introduced.

2. In the whiteware field there was a trend toward the introduction of bright, strong hues of blue, green, pink, etc., for use on sanitary-ware, wall tile, and dinnerware.

3. In searching for new effects, wall tiles were screen decorated with colors. Colored, textured, glazes were

offered as well as tiles with rough or uneven surfaces.

4. In electrical porcelain, light blue or gray glazes have been replacing the old, traditional dark brown glazes on insulators.

5. In the field of bottles decorated with glass enamels, many beverage manufacturers have changed colors and patterns on their bottles in trying for a new image to the public. No new uses of color have been observed in the glass field.

Report C

1. Much work has been done and is continually being done to improve all the zirconium base colors. These include chiefly zirconium vanadium turquoise, zirconium praseodymium yellow, zirconium vanadium yellow, and zirconium iron pink.

There is also very much interest in lead-free glazes. There is work being done to develop lead-free glazes that have characteristics similar to leadbearing glazes such as brilliant gloss, wide firing range, good for producing all colored glazes.

There is considerable work done to develop fluxes for glass colors that have low coefficient of expansion, low lead release, and good resistance to acid and alkali.

Report D

A perusal of published papers and papers delivered at society meetings indicates that among glass scientists the interest in color of glass is concerned with (1) the use of glass colorants as indicators of glass structure, (2) the effect of glass colorants as contaminants in high quality optical glasses, (3) the effect of thermal history on the color of glasses, and (4) new formulations by studio craftsmen and artists to achieve new color effects in art glasses.

This year's Annual Meeting of the American Ceramic Society was in Chicago at the end of April. At this meeting in the Structural Clay Division, G. S. Davis of the Brick & Tile Div. of Can-Tex Industries, Des Moines, Iowa, gave a paper on "Color Specifications in Brick Manufacturing." He commented on the work of the ISCC and the NBS, and the publication of "The Universal Color Language." Mr. Davis reported that the AIA and the Southwest Section of the A.Ch.S. recommend complete development of a color system. The brick industry, through ASTM, must decide its interest in scientific color specification and establish appropriate tolerances.

At a previous A.Ch.S. meeting, Clarence A. Seabright, Harshaw Chemical Co., Div. of Kewanee Oil Co., Cleveland, Ohio, spoke on "Metamerism in Colored Glazes."

All delegate members agree that sessions on color at the coming Annual Meeting of the A.Ch.S. will be of great benefit. It has been decided to arrange sessions on color at the 74th Annual Meeting in Washington, D.C., early May, 1972. Of interest to the A.Ch.S. would be the following topics: color specification, aptitude tests measuring instruments, psychology, color standards, color in science, art and industry, metamerism, etc. In conjunction with this meeting there will be an exposition of materials and equipment used in the ceramic industry. The delegation would welcome any help the ISCC can give in developing plans for this program.

The question "In what ways could ISCC serve your organization better?" was answered by two delegates as follows:

"By stressing more the inorganic colors and giving less emphases to the dyes and organic colors."

"Offer speakers on current use of color particularly as it affects all parts of ceramic industry. Speakers on new developments in color measuring instruments. ."

Dr. Isay Balinkin has been made an honorary member of the American Ceramic Society delegation to the Inter-Society Color Council. Dr. Balinkin has made outstanding contribution to the ceramic industry through his knowledge of color, and has helped in the interchange of information and development of basic concepts on color-related problems.

REPORT FROM AMERICAN CHEMICAL SOCIETY DELEGATES, SAMUEL M. GERBER, CHAIRMAN

The American Chemical Society Delegation has proposed a series of activities in support of the Inter-Society Color Council which consists of symposia related to the coinciding activities and interests of the Society and the Inter-Society Color Council. A separate memorandum summarizing these possible areas of symposium activity has been distributed. In addition, part of the Delegation met at the last Inter-Society Color Council meeting in New York to review future activities. Suggestions included participation and/or setting up a committee for the designation of the use of proper color descriptions in the chemical literature and, in particular, in Chemical Abstracts. Further, we intend to explore the need for better chemical definition and nomenclature for dyestuffs and other coloring matters. Both of these possible specific areas of activity will be reviewed with the appropriate authorities so as to determine the need for such effort. A good portion of the Delegation felt they might serve a very useful purpose. The symposium of which the Inter-Society Color Council is a joint sponsor, scheduled for the spring meeting, 1972, of the Ameri-

can Chemical Society on recent developments in dyeing and finishing is being developed.

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

The A.I.A. Board of Directors passed a resolution at its June meeting in Boston endorsing the use of the Universal Color Language as a basis for color specification, encouraging its use "by practitioners, manufacturers, and other facets of the construction industry." This resolution was supported by the A.I.A. Committee on Production Office Procedures and the Commission on Professional Practice. It resulted from a presentation made by Milo D. Folley and Kenneth L. Kelly. It is hoped that such a recommendation will stimulate a similar reaction throughout the building industry.

Further work is being undertaken by the ISCC and by the Color Task Force of the A.I.A. Committee on Production Office Procedures to establish an appearance folio, a tolerance scale, a surface gloss scale, and an index filing system.

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

The American Institute of Interior Designers report a very eventful and colorful period from 1970-71. Achievements in all chapters provided eye-catching and colorful projects throughout the country.

The A.I.I.D. has formed a Student Council to help further the educational program, which is made up of 26 students from different schools across the nation. The students themselves were the highlight of the A.I.I.D. 39th Annual Conference with their colorful dress and colorful comments. With the youth market, many changes and trends will predominate in the 70's regarding color. The younger generation have shown their preferences for not only "Hot Pants" and "Hot Skirts" but also "hot colors," such as the Matisse blues and yellows, plus fire engine red, along with the blue denim.

Many A.I.I.D. members design and/or color style ready-to-wear apparel and also home furnishings. In either case, the inspiration for 1971 puts more emphasis on COLOR. . . brighter, natural and more youthful colors. The palette for '71 reflects inspiration from art and from nature's colors. . . probably a result of the ecology movement. Popular colors will be positive and pure colors.

On the national scene many members are becoming involved with the ecology movement in accepting the responsibility of government projects such as hospitals, schools, urban renewal, community services, and so on. Formation of the Foundation for Interior Design Education Research was announced recently under the joint sponsorship of the American Institute of Interior Designers, Inc., the Interior Design Educators Council, Inc. and the National Society of Interior Designers, Inc. The non-profit, tax-exempt Foundation has been set up to ensure a standard of professional competence in the interior design field. It will establish and administer a voluntary plan for the special accreditation of programs of interior design education offered at colleges and universities in the United States and Canada. In addition, it plans to study current educational programs to assure that they fully meet the needs of professionals, students and society as a whole. Such education covers studies of color.

On the local scene, other members are active in raising money for the handicapped and other charities by designing vignettes, historical restoration and other colorful projects. Of particular interest is the accomplishment of the St. Petersburg, Florida Chapter which color styled and decorated rehabilitation centers for the discharged mentally ill patients. Federal funds were matched to those raised by the A.I.I.D.

Several members of the A.I.I.D. who have become officers and directors of the Color Marketing Group, which meets this spring in Chicago on May 2nd. These members design, decorate and color style both exteriors and interiors in their attempt to eliminate visual pollution and enrich the environment.

REPORT FROM AMERICAN OIL CHEMISTS SOCIETY DELEGATES, W. L. ST. JOHN, CHAIRMAN

No new color problems were undertaken during the year. Although colorimetric measurements are widely used by AOCS members, the scarcity of papers in the JAOCS specifically on color or appearance suggests that color is of minor or no concern to most of us. Only one paper in the JAOCS this past year (April 1970-March 1971) seems worthy of mention here:

Measurement and Assessment of Substrates Containing Fluorescent Whitening Agents, Anders and Daul, JAOCS, 48, 80 (1971).

REPORT FROM AMERICAN PSYCHOLOGICAL ASSOCIATION DELEGATES, JO ANN S. KINNEY, CHAIRMAN

I have mentioned in previous reports to this group the

increasing interest of psychologists in the visual evoked cortical potential. This response is a component of the human electroencephalogram that is elicited by a specific stimulus. Early in the history of the visual evoked response, it was suggested that the measure would provide an ideal, objective test of color vision defect since there was no possibility of the subject malingering. Electrodes would be placed on the subject's head, he would be shown different colors and the cortical response to these colors measured. Indeed, early results showed differences among the components of the evoked response to different hues when color normal subjects were employed, while the differences disappeared when the subjects were dichromats. If one can reveal dichromacy by measures of cortical potential, it does not take too great a leap of the imagination to envision a color aptitude test -- of great importance to the ISCC -- based upon similar measurement.

Unfortunately this grandiose goal has not been achieved, largely because the problem is much more difficult than originally foreseen. The reasons are varied: day-to-day variability, large differences in patterns among individuals, and most basic, the fact that we do not really understand the underlying mechanism of the visual evoked response. Thus some later papers reported no differences in evoked response to different hues for two normal subjects (J. B. Siegfried, Amer. J. Optom. 47, 282-287, 1970), and large individual differences among color normals such that some show differences and others do not (T. Shipley, R. W. Jones, and A. Fry, Vision Res. 8, 409-431, 1968).

Our own work with the evoked potential is in general agreement. While there is no difference in the response to hues for a dichromat -- that is, to hues that he confuses -- there is not always an obvious difference among hues for color normals. Some may respond with quite different waveforms to different hues while, for others, the response is so similar that very sophisticated analysis techniques are required to test whether the responses are the same or different. We do not know why this should be so and thus the objective color aptitude test appears a long way in the future. On the brighter side however many physiologists are studying the etiology of the evoked response -- when this is understood the reasons for the individual differences and the solution to the problems they create may be apparent.

Dr. Stecher, a newcomer to our APA delegation from Brandeis University, has embarked on an ambitious program to extend the quantitative model originally proposed by Hartline and Ratliff and modified for psychophysical brightness relations by Hurvich and Jameson to account for the brightness of complex temporal, spatial and temporal/spatial flux distributions.

Accordingly they are studying such diverse phenomena as successive and simultaneous contrast, masking, metacontrast, border effects, the McCullough effect, and many others and report preliminary data yielding good agreement with the theory. I am happy to welcome Dr. Stecher to the group.

A new Ph.D. thesis at Brown University, by Billy Wooten, is an extensive analysis and comparison of the hues perceived under conditions of simultaneous and successive contrast by the same observers. The results reveal the perceived hues to be very similar under the two conditions and this suggests similar mediating mechanisms.

Another thesis, by Joseph Cohen at the University of Pennsylvania, shows that hue-shifts with increasing luminance (Bezold-Brücke effect) are essentially the same for long or short duration stimuli.

Drs. Hurvich and Jameson continue active investigations of color, this year probing the nature of both the McCullough effect and the Abney effect.

The summary of our knowledge of color blindness that I presented at the ISCC Conference on Visual Perception in Williamsburg in 1969, has been published in Color Engineering under the title, "Color Defectives -- Basic Facts on What These Individuals See" (Vol. 9, #2, 1971).

A list of new publications is given below:

Boynton, R. M., Color Vision. In Experimental Psychology, L. A. Riggs and J. Kling (Eds.) New York: Holt, Rinehart, and Winston.

Hurvich, Leo M., Is the Central Fixation Area of the Fovea Blue-Blind? In AIC "Color 69 Stockholm. Gottingen: Musterschmidt, 1970. Pp. 49-57.

Hurvich, Leo M., Color Vision Deficiencies. In Handbook of Sensory Physiology, Vol. VII/4. Visual Psychophysics. Heidelberg: Springer-Verlag (In press).

Hurvich, L. M. and Jameson, D., Color Vision and Color Coding. In Perception and Its Disorders, Vol. 48, Research Publications, Association for Research in Nervous and Mental Disease. Baltimore: Williams and Wilkins, 1970. Pp. 12-25.

Ingling, C. R., Scheibner, H. M. O., and Boynton, R. M., Color naming in small foveal fields. Vision Res. 10, 501, June 1970.

Jameson, D., Brightness Scales and Their Interpretation. In AIC "Color 69" Stockholm. Gottingen: Musterschmidt, 1970. Pp. 337-385.

Jameson, D. Theoretical Issues of Color Vision. In Handbook of Sensory Physiology, Vol. VII/4. Visual

Psychophysics. Heidelberg: Springer-Verlag (in press).

Jameson, D. and Hurvich, Leo M., Improvable, yes; insoluble, no: A reply to Flock. Perception & Psychophysics, 8(2) 125-128, 1970.

Kaiser, P. K., Minimally distinct border as a preferred psychophysical criterion in visual heterochromatic photometry. J. Opt. Soc. Am. (in press).

Kinney, J. A. S., Visibility of Colors Underwater. In Marine Technology 1970, Vol. 1. Preprints of the 6th Annual Conference and Exposition June 29-July 1, 1970. (Marine Technology Society, Washington, D.C.). Pp. 627-636.

Luria, S. M. and Kinney, J. A. S., Underwater Vision. Science, 167, 1454-1461, 13 Mar. 1970.

Richards, W. Color shifts following rapid eye movements. J. exp. Psychol., 84, 399, 1970.

Stecher, S., Detection, Discrimination and Brightness of Flashing Lights. In The Perception and Application of Flashing Lights, W. D. Wright (Ed.). Adam Hilger 1971.

Stecher, S. and Sandberg, M. The relationship between binocular brightness matches and luminance discriminability of successively presented light flashes. Percept. & Psychophys. 1970.

Stecher, S., Sandberg, M., and Minsky, P. J. Successive luminance difference thresholds and apparent brightness as a function of the interstimulus interval and durations of successive flashes. Percept. & Psychophys. 1970.

Wasserman, G. and Gilman, C. B. Subadditivity and superadditivity of heterochromatic lights. Psychol. Rev., 77, 338, 1970.

Yates, J. Encoding of chromatic information in primate striate cortex. Ph.D. Thesis (Psychology). University of Rochester, 1970.

REPORT FROM AMERICAN SOCIETY OF PHOTOGRAMMETRY DELEGATES, JOHN T. SMITH, CHAIRMAN

The American Society of Photogrammetry with its six thousand individual and 90 sustaining members, is primarily interested in photographic interpretation, the use of aerial photography in mapping and in analytical photogrammetry. The principal interest in color is in the Color Committee of the Photography Division. The aims of the Color Committee are to obtain specifications for, acquisition and application of color aerial photography for the purposes of photogrammetry and photographic interpretation, data

recording and reduction and special applications. Provide state-of-the-art information on aerial cameras, emulsions and processing and applications of color and multiband photography.

In order to accomplish these aims the Color Committee is organized into subtask committees as follows:

1. Standards Sub-Committee -- presently working on Problem 31, Specifications of Colors for Photographic Transparencies -- Mr. John T. Smith of NOA is Chairman.

2. Multiband Photography Subcommittee -- Photographing different parts of the spectrum by filtering techniques and reconstituting the imagery optically to extract maximum information from terrain -- Mr. Donald G. Orr of USAETL -- Chairman.

3. Emulsions for Color Aerial Photography -- Mr. Norman Fritz, Eastman Kodak Company -- Chairman.

4. Processing Equipment for Color Photography -- Mr. W. Nagel, Chairman.

5. Laboratory Techniques for Color Aerial Photography -- Mr. Anthony Salerno, USGS -- Chairman.

6. Test Flights for Color Photography -- Mr. J. R. Quick, USAETL, WPAFB -- Chairman.

7. Cameras and Lenses for Aerial Color Photography -- Mr. Kruger, Data Corporation -- Chairman.

8. Rectification for Aerial Color Photography -- Mr. David Landen, USGS -- Chairman.

During the past year, meetings of the Color Committee were held in June at the National Academy of Science in Washington, D.C.; at Denver, Colorado, in October during the Fall Meeting of the American Society of Photogrammetry; in January 1971 at the National Academy of Science, and in March during the Annual Meeting of the American Society of Photogrammetry. At each of the meetings, current work being performed in the area of color for each subtask was discussed, and plans made for future meetings and seminars. In January, plans were solidified for a multiband panel to be held in September 1971 at the Semi-Annual meeting of the American Society of Photogrammetry to be held in San Francisco. The panel will discuss cameras and viewers and the application of multiband photography for the extraction of geographic information from remote sensors.

An in-depth seminar, A Biennial Workshop on Aerial Color Photography in the Plant Sciences, was held in Gainesville, Florida, at the University of Florida, in cooperation with the University, the Federal Department of Agriculture and the Florida Department of Agriculture, Division of Plant Sciences, from 2-4

March 1971. It was attended by 70 scientists and agronomists from universities and Government. Technical papers were presented on color photography, films and processing as well as applications to the detection of disease, crop reporting and land use. A collected edition of Proceedings containing 22 technical papers will be available by June 1971 from the American Society of Photogrammetry.

The next Biennial Workshop on Color Aerial Photography will be held in 1973, probably at another location, possibly at the University of Maine in Orono.

The American Society of Photogrammetry has published three Manuals -- the Manual of Photogrammetry, the Manual of Photographic Interpretation and the Manual of Color Aerial Photography, which is displayed in the Lobby. The Society also publishes Photogrammetric Engineering, a monthly publication which has a circulation of 8,000 and collected proceedings from each symposium.

The Society is now engaged in the publication of the Manual of Remote Sensing to include aerial photography, radar, infrared and other types of remote sensing.

REPORT FROM AMERICAN SOCIETY FOR TESTING AND MATERIALS DELEGATES, HARRY K. HAMMOND III, CHAIRMAN

Despite his continuing interest in color, shifting employment responsibilities in recent years have forced George W. Ingle to relinquish the chairmanship of the ASTM delegation to Harry K. Hammond III. Other members of the current delegation are W. Nick Hale and Sam J. Huey, voting, and Paul Giesecke, Alton E. Glubish, George W. Ingle, Mark P. Morse, Hugh G. Neil, Harvin R. Smith, and Alfred C. Webber.

F.W.B.

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

In response to the challenge of our expanding synthetic existence, color has assumed an entirely fresh role -- that of a counter element, to brighten the environment, as well as the spirits. As the clear light of day is increasingly distorted by pollution, stylists recognize the need for concentrating on fresh colors, for even clear tones appear dull and grayed, and overly soft shades seem unclean. Interior decorators and industrial engineers turn to lively tones to counteract the sterility of fabricated materials and restricted space. Psychologically, we all need the lift and change of pace

which skillful use of color provides. All this goes far in explaining why the sunny look -- yellow, orange and red used in unison -- is so appealing; why pink, which is a happy, loving tone is prominent and even makes us suspect that the growing use of violet and purple may be a subconscious recognition of the need for more of these vital vibrations in our environment, to compensate for the fact that the ultraviolet content of natural daylight continues to diminish. The energy and vitality of color are increasingly important for our day-to-day living. Having observed the close relationship between dull colors and dull business we know that positive, impelling colors are as essential to the healthy emotional state of the country, as for productive merchandising.

The pace is so swift that stylists no longer think in terms of seasons, or even of lines, but rather a continual flow of ideas and variations. When profitable volume production restricts the number and variety of basic materials, it is COLOR which provides variety and newness.

The new development in career fashions, or employer supplied clothing, is having far reaching effect. Not only does this apply to the large international companies, as air lines, rent-a-car, banks and communications, but to smaller corporations and local offices. The combination of color plus style of garments is used as a form of corporate identification, as well as a means of prescribing appropriate dress. Colors must be carefully selected. If staid or dated, they will not appeal to the staff. On the other hand, since most of the career clothing units are planned for an eighteen months life span, care must be taken not to overemphasize highly promotional shades of fleeting significance. Contrariwise, the trend toward corporate dressing encourages even greater latitude for personal or private wardrobes, for weekends, at home or vacation living. Thus, two quite separate areas of color application are developing. This is as evident for men's wear as for women.

Wider use of computer matching has wrought further changes. Formerly, with spoon dyeing, skilled dyers were called upon to match minute samples, from stray threads and yarns to crusts of bread or clip-pings from some advertisement. The mechanical eye requires healthy sized swatches for formulations. Our extensive color library enables the Color Association to supply larger swatches of their minuscule selections.

The expanding import picture is also producing changes in color planning. As more and more merchandise is produced abroad, for export to the United States, the greater is the need for earlier and more definitive color planning. Merchandising in the United States is a highly developed art and color trends are distinctive. Appropriate color styling and timing are essential. More extensive color planning is now done in the States, with specifications forwarded to the

manufacturers. (Many inexperienced stylists have had the sad awakening of discovering that lines planned or painted abroad, in that environment and daylight, appear entirely different and inappropriate when presented here.)

The Color Association has undertaken another important project with the Government -- that of developing a new STANDARD COLOR CARD FOR EMBROIDERY THREADS. This will update previous standards and also include additions for expanded requirements.

REPORT FROM COLOR MARKETING GROUP DELEGATES, LOUIS A. GRAHAM, CHAIRMAN

In 1970 the Color Marketing Group held two meetings: in May in St. Louis: "The Age of Color" and in October in Boston: "Why Color?" Recently a meeting was held in Chicago under the Chairmanship of Astrid Scheffler, "The Living Color -- A Conference on Color and Man's Environment." Several of the talks given at that time are as follows: "Color-Graphics and Worker Environment," "Is Color Environmental Enrichment? -- Yes If It Is Used Right," "Color Pollutes? A Panel Discussion," "Redesigning Paradise."

The next meeting of the Color Marketing Group is scheduled for the Hotel Hersey for October 10-13, 1971, under the Chairmanship of Mrs. Bonnie Bender. The Color Marketing Group extends to all members of ISCC and the member bodies an invitation to be with them in Hersey at that time.

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

The Dry Color Manufacturers' Association is the trade organization representing the majority of the manufacturers of color pigments in the U.S.

During the year, the regular monthly meetings of the Association include, in addition to the normal business activities, an invited speaker. Two member bodies of the ISCC supplied speakers for two of the monthly meetings: Mr. Lou Graham of Burlington Industries discussed the activities of the Color Marketing Group and a panel of speakers from the National Association of Printing Ink Manufacturers presented a symposium on problems related to the printing ink industry and one of its major suppliers, the Dry Color Industry. In addition, individual speakers on ceramic pigments, the coloring of paper, and the effects of the illuminant on perceived color were heard.

"Non-color" speakers included a representative of the Food & Drug Administration and the first of a panel of speakers on Environmental Control.

As in previous years, the DCMA has made grants in aid of color programs at various universities. This past year these grants were made to the following laboratories:

Clemson University (Prof. Fred Simon)

University of Cincinnati (Prof. I. Balinkin)

Lehigh University (Prof. Eugene Allen)

Rensselaer Polytechnic Institute (Dr. Fred W. Billmeyer, Jr.)

REPORT FROM FEDERATION OF SOCIETIES FOR PAINT TECHNOLOGY DELEGATES, RUTH M. JOHNSTON, CHAIRMAN

President of the FSPT for the 1970-71 year is S. Leonard Davidson, a member of the ISCC Board of Directors and well-known to many ISCC members. In the late summer Lenny suffered a heart attack, but members will be glad to know that he has recovered and is carrying on his extensive duties as President of the FSPT.

The Bruning Award, presented for outstanding contribution to the science of color in the field of coatings technology, was presented to Ruth M. Johnston at the 1970 Fall Annual Meeting.

An "Afternoon of Color" was part of the Fall Annual Meeting of the FSPT in Boston. Included on this program were three papers on computer color matching and two papers from Europe, "Flocculation of Phthalocyanine Blue: Fact or Fiction?" by W. Carr and "The Significance and Colorimetric Determination of Standard Depth of Shade" by L. Gall. The three papers on computer color matching were presented by S. Huey, C. D. Green, and R. Bash. A lively round-table discussion moderated by R. M. Johnston followed the presentation of the papers.

The theme for the 1971 Annual Meeting will be "Man and His World of Colour." It will be held October 27-30 at Cobo Hall in Detroit. Featured will be three half-day programs devoted to color, one on new optical effects, one on design and art, and one on new techniques. Also featured will be an exhibit of photographs by members.

Publications in the Journal of Paint Technology for the year 1970, vol. 42, which may be of interest to ISCC members are listed below:

Patton, T. C. "Reflections of a Paint Engineer on Paint Flow, Interface Physics, and Pigment Dispersion," 42, 665 (1970), the Joseph J. Mattiello Memorial Lecture.

Carr, W., "Flocculation of Phthalocyanine Blue: Fact or Fiction?", 42, 695 (1970), the 1970 First Prize Roon Foundation Award Paper.

Herr, J. W., and Withers, R. A., "Ultrastructure of Coalesced Latex Film and Its Influence on the Optical Properties of Practical Coatings," 42, 711 (1970), the Second Prize Roon Foundation Award Paper.

Franklin, M. J. B., Goldsbrough, K., Parfitt, G. D., and Peacock, J., "Influence of Particle Charge and Resin Adsorption on the Opacity of Alkyd Paint Films Pigmented with Titanium Dioxide," 42, 740 (1970).

Schneider, M. H., "Coating Penetration into Wood Substance Studied with Electron Microscopy Using Replica Techniques," 42, 457 (1970).

Londergan, M. C., and Spengiman, W. F., "Modern Titanium Dioxide Pigments," 42, 260 (1970). A Review.

Richards, L. W. "Calculation of the Optical Performance of Paint Films," 42, 276 (1970). Presents a New Turbid Media Theory.

Hemmendinger, H., "Development of Color Difference Formulas," 42, 132 (1970).

Davidson, H. R., "Accuracy of Color Difference Calculations," 42, 140 (1970).

Johnston, R. M., "Applications of Color Difference Formulas," 42, 145 (1970).

The above three papers were presented at a Symposium, "Fundamentals and Problems of Color III. Color Differences and Tolerances," moderated by Max Saltzman and presented at the 1969 Annual Meeting of the FSPT. The panel discussion is included and begins on p. 151.

Mitton, P. B., "Easy, Quantitative Hiding Power Measurements," 42, 159 (1970).

REPORT FROM GRAPHIC ARTS TECHNICAL FOUNDATION DELEGATES, WILLIAM D. SCHAEFFER, CHAIRMAN

This report will summarize the several types of programs involving color and color reproduction in which the Graphic Arts Technical Foundation has been engaged. The programs are varied and include in-house research projects, cooperative work with other graphic arts industry associations, and educational programs.

Research projects include the following:

1970-71 Color Survey: A new industry-wide color printing survey was initiated to complement the results from previous surveys conducted in 1956-57 and 1963-64. The scope of the new survey will be extended in that it will include process color reproduction from gravure and flexography in addition to letterpress and lithographic work. Moreover, in addition to the analysis based upon densitometric evaluation based on the method developed by Frank Preucil, the study will be extended to selected colorimetric measurements including single as well as overprinted solid ink films.

Ink Trapping: The ability to characterize the respective contributions to print color from one or more continuous ink films and the substrate is limited for practical purposes in the graphic arts industry to densitometric analysis. Since the errors involved in this technique have not been defined, we are undertaking a program to evaluate the densitometric approach on the basis of comparisons with gravimetric and spectrophotometric analyses of ink film thickness on substrates characterized with respect to both scattering and absorption levels.

Cooperative Association Studies

AAAA/MPA/GATF Study of Letterpress Proving for Magazine Printing with Four Color Process Heatset Inks: This cooperative program with the American Association of Advertising Agencies and the Magazine Publishers Association has been underway several years in an effort to provide guidance and assistance in standardization of color bars, paper, inks and proving procedures for the generation of proofs from engravings which can be used in the evaluation of production press reproductions. During the past year the committee has made arrangements for the introduction of a standard proving paper and a standard color bar which have found general acceptance. The committee is still involved with publication of a manual on standard practices for proving, the development of appropriate color standards for densitometer application and the preparation of a manual describing precautions to be observed in reflection densitometry measurements.

Web Offset Proving: The organization of an industry committee has been undertaken with the sponsorship of the American Association of Advertising Agencies, the Magazine Publishers Association and the American Business Publications to determine the extent to which proving procedures for web offset publications can be standardized.

Joint Association on Lights and Lighting: GATF staff is working together with the above associations and the Gravure Technical Association to encourage the use of American National Standards Institute PH 2.32 Draft Standard on "Viewing Conditions for Appraisal

of Color Quality and Color Uniformity in the Graphic Arts Industry."

Educational Programs

Seminar on Color and Color Reproduction: This seminar has been presented several times during the year for those in the industry who are experienced in color reproduction and process color work. The seminars have been conducted by Mr. Francis L. Cox. Workshops on the same subject have also been conducted in various areas of the United States and Canada in the same area by both Mr. Cox and Mr. Frank Preucil.

Conference on the Preparation and Reproduction of Color Copy: The conference held March 3 and 4, 1971 in Chicago was arranged by a special committee of the Foundation under the chairmanship of Mr. Martin Grayson and included sessions on color copy preparation and handling, separation and screening, scanning, direct screening, controls and standards in color printing, color proving and a total systems approach from color copy through press. (The program for the conference which attracted 260 registrants is on file with the ISCC Secretary -- F.W.B.)

REPORT OF GRAVURE TECHNICAL ASSOCIATION DELEGATES, OSCAR SMIEL, CHAIRMAN

The G.T.A. has followed with interest the development of the attachment of a color scanner to an electronic engraving machine that will enable one to engrave a gravure cylinder direct from four color art work. It would be premature to report on the tests being made in Europe at this time, but it is hoped that a more meaningful report can be presented next year.

REPORT FROM ILLUMINATING ENGINEERING SOCIETY DELEGATES, CHARLES W. JEROME, CHAIRMAN

A major event of mutual interest to ISCC and IES occurred in September of last year. At its Annual Conference in Vancouver, IES presented its Gold Medal to Dorothy Nickerson. The Award Certificate read in part:

"Distinguished colorist, in recognition of her work with light sources for color measurement and inspection; for psychophysical studies in color spacing and color rendition; for her unique talents in organizing and directing research projects in color specification and discrimination, and selection of light sources for textile color matching."

The 5th Edition of the IES Lighting Handbook is scheduled for publication early next year. Section 5, "Color," has been brought up to date and presents comprehensive facts, figures and discussion of this interesting subject.

The IES journal, "Illuminating Engineering" during the past year has discussed such aspects of color as:

1. Design problems for lighting for color television in public buildings at the same time retaining the function and esthetics of the structure.
2. The use of light sources in applications where color rendition is critical.
3. The lighting of stained glass windows so that their rich warm colors can be enjoyed even during the evening hours.

Titles of papers on Color published in IE and presented at the IES Annual Conference include:

Color Television in Washington Cathedral.

Questions and Answers on the Color Rendering Index.

Color Improved Metal Halide in a Super Market.

Adding Color and Sparkle to Used Car Sales.

New Life for a Stained Glass Window.

Prediction of Target Visibility from the Colors of Target and Surround.

Color Temperatures as Modified by Luminaire Characteristics.

Proposed Alternative Procedure for Evaluating the Color Rendering Capability of Commercial Lamps.

REPORT FROM INDUSTRIAL DESIGNERS SOCIETY OF AMERICA DELEGATES, RAYMOND SPILMAN, CHAIRMAN

During the year 1970-71, and for 1971-72, we in IDSA, and members of the ISCC Committee have been, and will be re-assessing our contributions and return from ISCC.

The interests and commitments of our Society are changing and broadening to the point where several of us believe our contribution to ISCC can become more meaningful in relating our basic commitments to design for people in terms of the highly tuned scientific interests of so many of your members. I am personally committed to this study and I know others in IDSA are keenly interested. In addition we hope,

through one of our members, to make a contribution to the 1971-72, ISCC Publications Committee.

In total, we in IDSA, hope to make a contribution to ISCC during the coming year.

REPORT FROM INSTITUTE OF FOOD TECHNOLOGISTS DELEGATION, JOHN N. YEATMAN, CHAIRMAN

Since the 1970 meeting an ad hoc committee on "Food Appearance" was formed with Angela Little agreeing to be chairman. This was part of the new Quality Assurance Division of IFT.

Angela and Jack Francis represented the IFT delegation to ISCC at the San Francisco meeting with my encouragement that they do all they could to foster an appreciation of color science and to enlighten our membership.

The ad hoc committee has not functioned unfortunately but when the Quality Assurance Division is finally recognized next as a full division I'm confident the committee will become an important part of the Division.

At the 1971 IFT meeting in New York City, the IFT Council accepted my report and recommendation and will, I am sure, follow through on spreading the information presented in the Preliminary Report of ISCC Subcommittee 24.

REPORT FROM NATIONAL ASSOCIATION OF PRINTING INK MANUFACTURERS DELEGATES, F. L. WURZBURG, CHAIRMAN

The work on Mie scattering for the determination of particle size continues at Lehigh under the direction of Dr. Robert Coughlin. It is being performed by Louis Persson and is a continuation of work reported in previous years.

The work on color matching of printed ink films by computer under Dr. Eugene Allen continues. Promising results have been obtained from an initial repertoire of eight representative colored inks in matching samples of colors selected at random from various sources on a typical uncoated printing paper. Some of the problems remaining before a generally useful system can be introduced into the industry are:

- 1) Many of the colored inks, as well as the paper substrates commonly used in our industry display fluorescence to a greater or lesser degree. Means will have to be devised to take these effects into account in formulating matches.

2) To date only one type of paper has been investigated thoroughly. Since the industry uses a very large number of substrates (not only other types of paper, but also metal, plastic, etc.), it is planned to extend the method to make it possible to handle them.

3) It will be necessary to expand the method to other ink systems based upon different vehicles and printing methods than the ones used to date.

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

Mr. Call has reported to the Secretary that "as an organization, we have not carried on any (formal) activities worthy of mention in the field of color. Our individual members have and I am sure their work will find its way into ISCC hands through other organizations."

F.W.B.

REPORT FROM THE NATIONAL SOCIETY OF INTERIOR DESIGNERS DELEGATES, DONALD WATERMAN, CHAIRMAN

Professor Donald Waterman has succeeded Mrs. Dede Draper as chairman of this delegation. A letter from the NSID Executive Director to the Secretary in June, 1970 spoke of concern over the apparent lack of communication between the NSID and the Council, and the hope that it can be corrected. Requests for annual reports in 1970 and 1971 were, however, not filled.

F.W.B.

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

The Optical Society of America has held two meetings since our last report, September 28-October 2, 1970 in Hollywood, Florida, and April 5-8, 1971 in Tucson, Ariz.

The fall meeting in Florida included one session devoted to color, Technical Group meetings on color and on vision, an important luncheon and afternoon session of the OSA Committee on Uniform Color Scales, D. B. Judd, chairman, and an evening meeting of the USNC-CIE Colorimetry Committee called by D. L. MacAdam, chairman.

The Tucson meeting included one session on color, visibility, and physiological optics, a joint session of the color and vision Technical Groups, and a meeting of the USNC-CIE Colorimetry Committee called in preparation for the coming colorimetry sessions of the CIE meetings to be held in September in Barcelona.

At each of the meetings there was a paper by Gerald L. Howett, secretary of the OSA Uniform Color Scales committee, based on committee studies: Chromaticness-Difference Scaling in the Munsell Value 6/ Plane, in October; and Scaling of Perceived Color Differences near the Limits of the Matte-Paint Gamut, in April.

Research and application papers on color appear regularly in OSA journals, the Journal of the Optical Society of America, D. L. MacAdam, editor, and Applied Optics, J. N. Howard, Editor. Attention is called to two papers of particular importance in the past year in Applied Optics:

1. July, 1970, pp. 1513-1562, H. Helson and T. Lansford, The Role of Spectral Energy of Source and Background Color in the Pleasantness of Object Colors.

2. January, 1971, pp. 1-7, D. L. MacAdam, Geodesic Chromaticity Diagram Based on Variances of Color Matching by 14 Normal Observers.

Current representatives from OSA to the ISCC are: D. B. Judd, D. L. MacAdam, D. Nickerson, Ch., voting delegates, and C. J. Bartleson, R. W. Burnham, C. E. Foss, G. A. Fry, W. C. Granville, A. C. Hardy, R. S. Hunter.

REPORT FROM PACKAGE DESIGNERS COUNCIL DELEGATES, KARL FINK, CHAIRMAN

At a recent meeting of P.D.C.'s Board of Directors, plans were approved for the society's increased involvement with color as it is used in package design and production. P.D.C.'s delegation to ISCC will serve as a basic committee in identifying the greatest areas of interest and in defining problems that prevail. There seem to be at least two areas where ISCC problems subcommittees might be proposed. This program is to start early next fall.

REPORT FROM PAPERBOARD COUNCIL DELEGATES, FRED L. BOHLKE, CHAIRMAN

Very little formal work has been done on specific color problems during the past year by the PPC's Testing and Procedures Committee. However, we plan to hold seminars on the subject in 1972.

REPORT FROM SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS DELEGATES, W. T. WINTRINGHAM, CHAIRMAN

The use of color, both in theatrical and non-theatrical motion pictures, and in television broadcasting continued to grow during the calendar year 1970. This growth was reflected in the attention given to color in the semi-annual conferences, in the special topics conferences, and in the meetings of the local Sections of the Society of Motion Picture and Television Engineers. A further reflection of this growth is to be found in the high level of activity in the Engineering Committees concerned with color.

The many papers on color which were published during 1970 in the JOURNAL OF THE SMPTE are listed in Part II of the issue of December, 1970. These papers are listed under the headings Color, Electronic Video Recording, Standards and Recommendations, and under the subheadings Color, Display Systems, and Picture Quality under the general heading Television.

In addition to papers on color published in the JOURNAL OF THE SMPTE, during 1970 the Society issued a reprint publication: Richard S. O'Brien, ed., "Color Television -- Selections from the Journal of the Society of Motion Picture and Television Engineers," 1970, Soc. of Mot. Pict. and Telev. Engrs., New York. A review of this publication by D. M. Zwick appeared in the Newsletter, No. 210.

The SMPTE's highest honor, its Progress Medal Award, was presented to Peter C. Goldmark in recognition of his lifetime contributions in the fields of radio, television, medicine, and film, culminating in the development of the electronic video recording system.

The Herbert T. Kalmus Gold Medal Award was presented to Willi G. Engel for his many contributions to the improvement of the original light valve used as a light modulator in additive color printing machines, which have served to make practical modern additive color-film printing.

The David Sarnoff Gold Medal Award was presented to Charles H. Coleman for his inventions and developments which serve to make possible the direct recovery of color signals from video tape.

The system described by Peter C. Goldmark and his associates in the paper "Color Electronic Video Recording" (JSMPTE, 677-686, August 1970) promises to be an important contender in the field of recorded material for reproduction by television in educational, industrial, and home applications.

The question of the uniformity of color as seen by home viewers of television continues to be of great

concern to the SMPTE. Some improvement of the uniformity of film for television is to be expected from the use of its new Recommended Practice, RP41-1970, "Color and Luminance of Review Room Screens Used for 16mm Color Television Prints," which was approved in December. Bearing on this same problem, SMPTE continued to act as host to the Ad Hoc Committee for the Study of Color Television, which was formed in 1968 by the Joint Committee for Intersociety Coordination. This Ad Hoc Committee has found that almost every one of the links in the long chain from an original scene to the home viewer's picture tube may contribute to the variations seen by the home viewer. Specific problems uncovered by the Ad Hoc Committee are being referred to the appropriate organization among the five which compose the JCIC.

REPORT FROM SOCIETY OF PHOTOGRAPHIC SCIENTISTS AND ENGINEERS DELEGATES, C. JAMES BARTLESON, CHAIRMAN

During 1970, in addition to the Annual Conference on Photographic Science and Engineering, the Society of Photographic Scientists and Engineers held six seminars or symposia on various aspects of photographic science and engineering. One of these, the Annual Symposium of the SPSE on Color Photography Systems, was held from October 21 to 24, 1970 in Washington, D.C. This four-day seminar was well attended and dealt with broad areas of the application of color science to photography. Proceedings of this symposium will appear in the Society's Journal "Photographic Science and Engineering."

During the year a total of 13 papers appeared in "Photographic Science and Engineering" Volume 14. These papers are cited in the following bibliography.

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Tamura, Mikio, Hada, Hiroshi, Fujiwara, Shin-ichi, and Miyasaka, Nobuaki, "'Capri-Blue' Effect Shown in the Region of Dye Sensitization of a Primitive Emulsion," No. 2, p. 165.

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Sprague, R. H., and Keller, J. H., "Dye Sensitization of Photosensitive Titanium Dioxide," No. 6, p. 401.

Sayhun, M. R. V., "Effect of Benzotriazole on Color Development Kinetics," No. 3, p. 192.

Walworth, Vivian K., Rosenoff, Alan E., and Bird, George R., "Effects of Substrates on the Spectra of Cyanine Dye Aggregates," No. 5, p. 321.

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Walker, Richard A., "Equal-Energy Scanning Spectrosensitometer," No. 6, p. 421.

Zuckerman, Bernard, "Mechanism of Spectral Sensitization of Silver Bromide," No. 5, p. 336.

Sant, Albert J., "Procedures for Equivalent-Neutral-Density (END) Calibration of Color Densitometers Using a Digital Computer," No. 5, p. 356.

Norland, K., Ames, A., and Taylor, T., "Spectral Shifts of Aggregated Sensitizing Dyes," No. 5, p. 295.

REPORT FROM SOCIETY OF PLASTICS ENGINEERS DELEGATES, M. M. GERSON, CHAIRMAN

The reorganization of color activities of SPE under a Color and Appearance Division has been completed and is functioning well with 250 registered members. The outgoing chairman of this Division is William Longley, Ford Motor Company, Design Center; the incoming chairman is James Simpson of the Ferro Chemical Co.

A Regional Technical Conference, "Coloring of Plastics V" was held in Cleveland, Ohio on January 26, 1971. The following papers were presented.

1. "Preparing a Sample for Color Measurement," A. M. Keay, Allied Chemical Corp.
2. "Fundamental Physical Properties Underlying the Coloring of Plastics," E. I. Stearns, American Cyanamid Company.
3. "An All-Digital Colorimeter-Spectrophotometer System," G. P. Bentley, Kollmorgen Corp.
4. "Designing a Color Dispersion for Plastisols," M. Miller and M. Gerson, Podell Industries Inc.

5. "Daylight Fluorescent Pigments in Plastics," T. J. Gray, Day-Glo Color Corp.

6. "Pigment Solvent Dispersions," Frederick E. Petke, Cities Service Corp.

7. "Incoming Pigment Quality Control," William S. Laycock, Ampacet Corp.

During the course of the year the SPE Journal printed the following articles on color or coloration.

1. May 1970; Page 69 -- "How Heat and Light Affect Pigmented Polypropylene" -- C. W. Uzelmeier.
2. March 1970; Page 65 -- "Quinacridone Pigments in Plastics" -- H. F. Bartolo.

The CAP Division will also sponsor a series of papers at the Annual Technical Conference of SPE, May 10-May 14, 1971 in Washington, D.C. Titles of the papers to be presented are:

1. "Titanium Dioxide Pigments in Plastics Interactions -- Desirable and Undesirable" by R. Dyer and H. W. Bach.
2. "Plastics Coatings via Electrostatic Powder Deposition -- An Emerging Leader in the Product Finishing Industry" by D. R. Savage.
3. Panel Discussion -- "Molded Thermoplastics Coloring Techniques."

A Regional Technical Conference which will be a workshop on the subject of coloring of plastics will be held in late 1972.

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

The TAGA Delegation to ISCC is the focus for a larger TAGA Color Committee. The Chairman of the delegation is also chairman of the Color Committee. In addition to participating in ISCC Problems Subcommittees, the Color Committee works on TAGA color projects.

A project on Color Densitometer Calibration was carried over from last year. The object of the project was to find ways to get densitometers of various design to read identical densities on a set of colored samples with different spectral and surface characteristics. Our Committee hopes to cooperate with the Gravure Technical Association Densitometer Committee on this project.

Projects on Optimum Reproduction of Color and Colorimetry in Printing were discussed but not accepted as formal projects.

John Yule, a delegate, proposed a project for an ISCC Problems Subcommittee. The project, Colorimetry for Printing, was accepted by the ISCC Board.

Five of the papers presented at the 1971 Annual Meeting concerned color reproduction:

"Viewing Conditions for Transparencies," H. B. Archer, I. Pobborsky, and J. A. C. Yule, Rochester Institute of Technology.

"Basic Considerations in Reproducing Transparencies and Reflection Originals by Direct Screening," R. E. Maurer, Eastman Kodak Co.

"Optical Systems to Produce Large Color Separation Negatives from Small Transparencies," Z. Wakimoto and S. Held, Nippon Kogaku, K. K. Nikon, Inc./Photo Technical Products, Inc.

"Standard Printing Color and Screen Tint Systems," O. C. Stoessel, Department of Defense.

"Modified Use of the Subtractive Color Triangle to Obtain Mask Percentages," F. R. Clapper, Eastman Kodak Company.

Twenty-seven of the registrants for the ISCC Symposium on Optimum Reproduction of Color were TAGA members. Four of these were speakers: John A. C. Yule, W. L. Rhodes, M. L. Pearson, and Karl Thaxton.

REPORT FROM TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY DELEGATES, PETER C. HAMBAUGH, CHAIRMAN

The following are among standard and routine control methods that have been published in TAPPI in 1970:

1. Transparency of Paper (T 522).
2. Calibration of Absolute Reflection Standards for Hemispherical Geometry (T 679).
3. Brightness of Pulp and Paper (RC 258).

4. Diffuse Opacity (Paper Backing) of Paper (T 519).

5. Preparation of Reference High-Reflectance White Powder Tablets (T 672).

6. The Determination of Diffuse Opacity (RC 367).

T 633 has been withdrawn and the following standards are in the process of revision: T 216, T 217, T 442, T 452.

A TAPPI Monograph is being prepared by Harry Hammond on "Practical Measurement for Optical Properties of Paper" (CA 8330). Contributions are invited.

ENCLOSURES

1. "Direct-Reading Color-Difference Meter Based on Cube-Root Color Coordinates" reprinted from Applied Optics, April 1971. Included are a press release and flyer from Neotec Instruments, Inc.

2. News release "Kollmorgen Introduces Completely New Automatic Color-Eye®" from the Kollmorgen Corporation, Color Systems Division.

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