



Inter-Society  
Color Council  
Newsletter

ANNUAL REPORT ISSUE

NUMBER 230

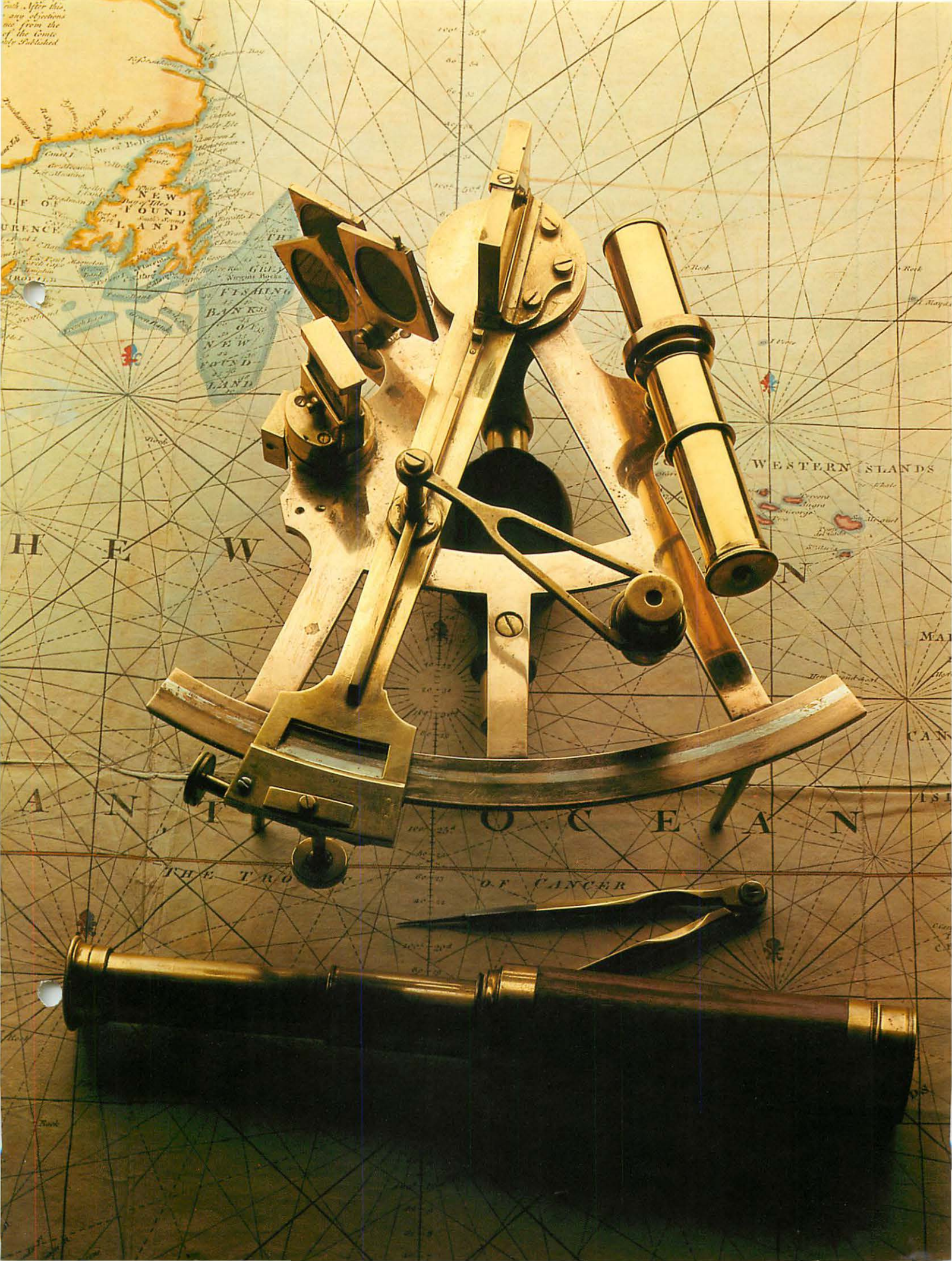
May-June 1974

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**NUMBER 230, May-June 1974**

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**COLOR REPRODUCTION**

The beautiful color reproduction included with this issue of the ISCC Newsletter is provided by David W. Fream, Group Advertising Manager, Corporate Advertising Dept., Westvaco, Fine Papers Division, New York, N.Y. The paper is 80# STERLING Litho Gloss; the photographer is Phil Marco; advertising agency: McCaffrey & McCall, Inc.; printer: Herbick & Held, Pittsburgh, Pa.



## ANNUAL REPORT ISSUE

## INSERT

"A General Procedure for Determination of Relative Dye Strength by Spectrophotometric Measurement of Reflectance Factor," a reprint from the May 1974 issue of the TEXTILE CHEMIST AND COLORIST. This report is from ISCC Problem Committee 25, Charles E. Garland, Co-Chairman.

**REPORT OF THE PRESIDENT  
RICHARD S. HUNTER**

As I give you my last annual report as President, I want to share with you some thoughts about the potential which I see for the future of ISCC. To me, ISCC's major potential lies in its ability to provide an assemblage of expertise in color and appearance. This assemblage has much broader coverage than any other we know of. It deals with color and appearance within the following disciplines:

1. Basic color science,
2. Conceptual uses and functions of color in the arts and design,
3. Applied technologies which depend on the utilization of science and art, and encompass the technologies of the many materials in which color is rendered.

The ISCC is unique in its contact with vehicles of communication which cross the discipline lines just described.

To me, this cross-discipline effort provides the nucleus of the ISCC program. However, because of language, or if you want to say terminology, realization of our opportunities for cross-discipline communication is sometimes limited because we don't always understand each other.

Now that we are aware of the unique and useful place available to the ISCC in the scheme of things, let us address the practical question of how the ISCC is to be constituted.

It seems to me that we have two options when it comes to form of the ISCC's operation. It can be either a traditional body consisting of individual professional members, or it can be as at present, a council of professional organizations specializing in each of a number of disciplines. (There is at present a separate group of individual members in addition to the professional organizations.)

Individual member societies of the more traditional type are successful primarily because the aims of the individuals in each society are very closely the same. They work together with enthusiasm for their common goals. Although the individuals working in ISCC are all devoted to furthering the understanding and use of color, their interests are quite varied otherwise. The primary justification for the unusual member body make-up of the ISCC is the need for continuing contacts between a variety of special interest groups all concerned with color and appearance.

Unfortunately, something has been lost in recent years from this potential gain of cross-discipline effort. Many of the member bodies of the ISCC have not participated actively, nor offered as much to the ISCC program as they could and should have.

It is because of the imperfect functioning of the member body organization that the incoming administration must continue to ask itself what type of organization the ISCC should be. For example, one question now under investigation by the Board of Directors involves periodicals dealing with color and related subjects. At present, the field of color technology lacks any regularly published journal. Our members find themselves increasingly frustrated by their inability to express themselves in published contributions available to others interested in the same subjects. That there is a need for a periodical on the subject of color and appearance is not in doubt. It is for these reasons that the Board now, for several meetings, has been looking at what might be involved if the ISCC should assume at least editorial responsibility for a magazine in our field.

Suppose, however, we become involved in editing and promoting such a journal. Even if we focus only on the cross-discipline subjects, I feel there is danger that a number of our member bodies would feel that we were competing with them in the area of publications. Without careful surveys of our member bodies on this subject we should not launch such an effort.

Obviously, the ISCC must decide the type of organization it wants to be, and then aim to be that organization. I have focused my remarks in this report on the melding of the multi-discipline concerns within the organization during my term as President. We have made some progress, but the big jobs remain to be attacked.

**REPORT OF THE VICE-PRESIDENT  
ROLAND E. DERBY, JR.**

Since the membership will be burdened with my thoughts for the next two years, I shall make this report brief.

It has been brought to my attention that there are some feelings amongst the younger members that it is not possible to become involved in ISCC work unless you have reached a ripe old age. It should be noted here that this is not true. As a matter of fact, during my tenure as president, I intend to see that any young person who wants to participate and work on either committees or other affairs of the ISCC, be given a chance. It would be appreciated if anyone who feels they are being left out to contact me personally.

Lastly, a word about our challenge for 1977. The ISCC has accepted responsibility for running COLOR 77, the third congress of the International Colour Association at Rensselaer Polytechnic Institute in 1977. This is a formi-

dable undertaking, and having accepted the task as General Chairman, I would welcome any offers of assistance for the various committees. Publicity regarding the conference will be published shortly.

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

The Council suffered a severe loss in the death on January 29, 1974, of our former Chairman and Secretary for 18 years, Ralph M. Evans. Newsletter 228 carried several tributes to Mr. Evans.

The biennial election of officers and directors took place shortly after the first of the year. The results of the election are:

President: Dr. Roland E. Derby, Jr., AATCC, CAUS  
Vice President: Mr. Charles W. Jerome, IES  
Secretary: Dr. Fred W. Billmeyer, Jr., ACS, SPE  
Treasurer: Mr. S. Leonard Davidson, ACS, FSPT  
Directors: Mr. Richard S. Hunter, OSA, TAPPI (ex officio)  
Dr. Eugene Allen, NAPIM  
Mr. Franc Grum, OSA, SPSE  
Mr. Harry K. Hammond, III, ASTM  
Mr. William D. Schaeffer, GATF

The attention of the membership is again called to the following items given publicity in recent *Newsletters*:

Policies on dues payments, ordering of back *Newsletters* and reprints, and the like were described in *Newsletters* 227 and 228.

In *Newsletter* 228, it was also announced that an increase in individual-member and member-body dues would be necessary, beginning one year from now.

The cooperation of the membership is solicited in helping the secretary prepare for printing a new membership list in a very short time. Chairmen of delegations and problems subcommittees are particularly urged to review their membership so that it can be represented properly.

At the annual meeting, the Council was pleased to welcome the following foreign visitors: M. Jean Chevalier (France), Miss Mary Egan (Canada), Dr. Alan Robertson (Canada), and Dr. Janos Schanda (Hungary).

### REPORT OF THE TREASURER WARREN B. REESE

Copies of the Auditor's 1973 Certified Report have been distributed to the officers and directors of the council, and it is reproduced in its entirety in this issue of the *Newsletter*.

I should like to express my thanks and appreciation to Mr. R. E. Phipps and his staff who performed the accounting work of the treasurer's office.

Highlights from the auditor's report are as follows:

1. The general Fund as of December 31, 1973 stands at \$17,041.33.
2. Income for the year ended December 31, 1973 was \$9,270.92.
3. Total council expense for the year ended December 31, 1973 was \$10,158.12.

4. The deficit for the year ended December 31, 1973 was \$887.20

The operating expense deficit was \$140.14 and the balance is due to accounting adjustments on the 1972 Williamsburg Symposium and the loss on the sale of mutual funds.

The I. H. Godlove Award Fund as of December 31, 1973 stands at \$616.83, \$42.02 less than a year ago.

This will conclude my last report as Treasurer, and the files and records of the Treasurer's Office will be turned over to the Treasurer-elect in order to effect an orderly transition.

In conclusion, it has been a privilege and pleasure to serve the council and to have had the opportunity to work with the past and present officers and directors. I look forward to my continuing association with the ISCC as an individual member and wish the new officers and directors all success.

### INTER-SOCIETY COLOR COUNCIL, INCORPORATED

#### BALANCE SHEET

DECEMBER 31, 1973

#### ASSETS

#### GENERAL FUND

Cash

Empire National Bank — regular	\$ 3,383.60	
Empire National Bank — savings	12,000.73	\$15,384.33

Dues receivable	387.00
-----------------	--------

Prepaid expense	1,270.00
	<u>17,041.33</u>

I. H. GODLOVE AWARD FUND	616.83
	<u>\$17,658.16</u>

#### FUND BALANCES

#### GENERAL FUND

Equity

Balance, beginning of year	\$17,928.53
----------------------------	-------------

Less excess of expenses over income for the year	887.20
--	--------

Balance, end of year	\$17,041.33
----------------------	-------------

#### I. H. GODLOVE AWARD FUND

Equity

Balance, beginning of year	660.85
----------------------------	--------

Less excess of expenses over income for the year	44.02
Balance, end of year	616.83
	<u>\$17,658.16</u>

**INTER-SOCIETY COLOR COUNCIL,  
INCORPORATED**

**GENERAL FUND**

**STATEMENT OF INCOME AND EXPENSES**

**YEAR ENDED DECEMBER 31, 1973**

Income		
Dues*		
584 individual members** and 29 member bodies		\$ 7,105.00
Publication sales		
Newsletter	\$ 222.20	
Royalties	228.62	450.82
Interest and dividends		
Savings banks	337.14	
Affiliated Fund, Inc.	4.87	342.01
Other income (expenses)		
Annual meeting		
Reservations and registrations	3,449.00	
Cost of dinner and expenses	(2,145.99)	1,303.01
Other		70.08
		<u>9,270.92</u>
Expenses		
Treasurer's office	215.13	
Secretary's office	2,294.01	
Newsletter	6,734.02	
Other	3.15	
Williamsburg Symposium expense -- 1972	486.74	
Loss on sale of mutual funds	425.07	10,158.12
Excess of expenses over income		<u>\$ 887.20</u>

\*Dues are recorded as income when billed to members.  
\*\*Includes nine honorary members at no charge.

**INTER-SOCIETY COLOR COUNCIL,  
INCORPORATED**

**GENERAL FUND**

**SCHEDULE OF CERTAIN INCOME AND  
EXPENSES COMPARED TO BUDGET**

**YEAR ENDED DECEMBER 31, 1973**

(Income) expenses

	Budget	Actual	Difference
President's office	\$ 300.00	\$	\$ 300.00
Treasurer's office	200.00	215.13	(15.13)
Secretary's office	2,200.00	2,294.01	(94.01)
Newsletter	6,000.00	6,734.02	(734.02)
Annual Meeting	(900.00)	(1,303.01)	403.01
	<u>\$7,800.00</u>	<u>\$7,940.15</u>	<u>\$(140.15)</u>

**INTER-SOCIETY COLOR COUNCIL,  
INCORPORATED**

**I. H. GODLOVE AWARD FUND**

**STATEMENT OF CHANGES IN FUND**

**YEAR ENDED DECEMBER 31, 1973**

Balance, beginning of year	
Cash on deposit	\$660.85
Receipts	
Interest	17.18
Miscellaneous	100.00
Disbursements	(161.20)
	<u>\$616.83</u>
Balance, end of year	
Cash on deposit	<u>\$616.83</u>

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

The members of the Finance Committee are:

S. Leonard Davidson                      William J. Kiernan  
Dr. Roland E. Derby, Jr.                Midge Wilson

The Finance Committee recommends and the Board of Directors accepts the 1974 operating expense budget and projected income which was approved and is reproduced below:

*1974 Budget*

## Income:

Annual Meeting	\$ 1,000
Member Body Dues	1,860
IMG Dues	5,000
Royalty	400
Other	500
<b>TOTAL</b>	<b>\$ 8,760</b>

## Expenses:

President's Office	\$ 300
Treasurer's Office	200
Secretary's Office	2,400
Newsletter (amortization)	500
Newsletter	6,000
Membership List Printing	1,000
Newsletter (binding)	200
<b>TOTAL</b>	<b>\$10,600</b>

The Finance Committee has recommended and the Board of Directors has approved a dues increase to become effective at the next billing date, namely March 1975, as follows:

Individual Member Dues	From \$10 to \$15
Overseas Individual Member Dues	From \$15 to \$20
(Automatically includes airmailing of the newsletter)	
Member Body Dues	From \$60 to \$75

The need for increasing the dues may be seen from the expected deficit of the 1974 budget. The increase in operating expenses of the council are principally due to inflation and increased postage.

The Finance Committee has reviewed and approved the auditor's report.

I should like to take this opportunity to thank all the members of the Finance Committee past and present, for their counsel, guidance and contribution to the financial affairs of the council during my term of office as treasurer and chairman of the Finance Committee.

#### REPORT FOR THE BOARD OF DIRECTORS FRED W. BILLMEYER, JR., SECRETARY

Continuing the practice begun last year, I have prepared this report to describe some matters of other than routine nature that were considered by the Board of Directors during the period May, 1973 - April, 1974. Some comments on the Board's more routine deliberations preface the previous (and first) report in this series, given in *Newsletter* 224.

*By-Laws Revision.* In its continuing deliberation on how to alter the Council's By-Laws, the Board has recognized two major problems to be considered: that of the role of the individual member group in the Council and that of the Council's tax-exempt status. The latter problem has, hap-

pily, been solved as described under the next heading, but the former remains.

The Board has long recognized that the structure of the Council as a group of societies is less than equitable as far as the individual member is concerned. The basic problem is clearly whether the Council should retain the member-body structure it has had for 43 years or undertake the drastic change of becoming an individual-member organization. The By-Laws Committee under the chairmanship of Mr. S. L. Davidson has not yet found the key to a satisfactory intermediate course.

Input from the Council's individual members is badly needed here. The Board hears rumors of dissatisfaction but has received virtually nothing in the way of constructive comment. For example, attendance at the meeting called (at each annual meeting) for open discussion among the Board, delegates, and individual members has consistently been zero. It would be greatly appreciated if concerned individual members would write their views to Mr. Davidson at N L Industries, Hightstown Laboratories, P.O. Box 420, Hightstown, New Jersey 08520.

*Munsell Color Foundation.* During the year, the Board has strengthened its friendly relations with the Munsell Color Foundation, a nonprofit private foundation, by designating a candidate for election as special Trustee of the Foundation designated by the Inter-Society Color Council. This candidate, Mr. S. L. Davidson, was elected along with Mr. R. S. Hunter and Dr. R. E. Derby, Jr., as the Foundation increased the size of its Board of Trustees from six to nine at its recent annual meeting. (The incumbent Trustees are all ISCC members: Nickerson, Bellamy, Billmeyer, Foss, Granville, and Macbeth.) The Board of Directors now encourages those wishing to donate funds for promoting the aims and purposes of the ISCC (and of the Foundation, which are essentially identical) to make such donations to the Foundation. In most instances, such gifts will be tax free to the donor, whereas they would not if given directly to the Council. Notices to this effect will appear from time to time in the *Newsletter*.

*Color 77.* As announced previously in the *Newsletter*, COLOR 77, the third Congress of the International Colour Association, will be held on the campus of Rensselaer Polytechnic Institute, Troy, New York, on 10-15 July 1977. The Congress will be co-sponsored by the Inter-Society Color Council and the Canadian Society for Color. A First Notice and Call for Papers will be sent out in the summer of 1975.

The following appointments have been made, and preliminary correspondence should be addressed to:

General Chairman:	Dr. Roland E. Derby, Jr. The Derby Company, Inc. P.O. Box 989 Lawrence, Massachusetts 01842
Arrangements Chairman:	Dr. Fred W. Billmeyer, Jr. Department of Chemistry Rensselaer Polytechnic Institute Troy, New York 12181

Exhibits            Mr. Charles G. Leete  
Chairman:        CGL Associates  
                     9416 Gamba Court  
                     Vienna, Virginia 22180

Financial        Mr. S. Leonard Davidson  
Chairman:        N L Industries  
                     Hightstown Laboratories  
                     P.O. Box 420  
                     Hightstown, New Jersey 08520

Papers            Dr. Günter Wysecki  
Chairman:        Division of Applied Physics  
                     National Research Council  
                     Ottawa, Ontario K1A 0S1  
                     Canada

*Williamsburg Symposia.* The Board regrettably found it necessary to cancel plans for a 1974 Williamsburg Symposium, for a variety of reasons which combined to make its financial success too uncertain for the Council with its limited funds.

Plans are well under way, however, for a 1976 Williamsburg Symposium on January 25-28. The topic will be a new look at instrumental colorant formulation, just ten years after the first Williamsburg Symposium, on the same subject. Appointments to key positions are being completed, and the solicitation of papers will soon be under way.

*Technical Journal on Color.* As mentioned briefly in the President's Report, the Board has given extensive thought to the advisability of the Council's assuming editorial responsibility for a journal in the color field, primarily as an outlet for its own symposium papers, problems subcommittee reports, and related publications, and secondarily for the publication of other papers in the field, for which member-body journals are not the appropriate forum. Much time and thought has been put on the propriety of this action, with the debate continuing at each Board meeting. An ad-hoc committee has been appointed (Benson, Billmeyer, Davidson, Derby, Hunter) to solicit specific proposals from reputable publishers for Board consideration.

One incentive for the consideration of this question has been the bankruptcy of the publisher of the Journal of Color and Appearance. The papers from the 1973 Annual Meeting Symposium on Professional Education in Color for Art and Technology were published in the Summer 1973 issue of this journal, which at this writing has not been widely distributed. The Council is still attempting to obtain reprints for distribution to the membership.

As indicated in the *Newsletter* and by supplements to it, the Board has authorized the continuation in the *Newsletter* of publication of the Colour Group (Great Britain) Bibliography, carried for a period in the Journal of Color and Appearance.

#### MINUTES OF THE ANNUAL BUSINESS MEETING April 30, 1974

The meeting was called to order by President Hunter at 9:15 AM, with about 60 members and delegates present.

Reports were given by officers and committee chairmen, as included in written form in this issue of the *Newsletter*.

Motions were made and approved to accept the reports of the Treasurer and of the Finance Committee.

The Membership Committee presented for consideration as a member body the Manufacturers Council for Color and Appearance. Membership of this group was approved by unanimous vote of those present.

The resignations of the following were accepted with regret: Mr. Warren B. Reese, Treasurer and Finance Committee chairman; Dr. Robert W. Burnham, Publications Committee chairman; Mr. George B. Gardner, Problems Committee chairman; and Mr. Walter C. Granville, Membership Committee chairman.

The following Delegation chairmen gave brief oral reports: Mr. Louis A. Graham, Color Marketing Group; Mr. Robert Hoban for Dr. R. E. Derby, Jr., American Association of Textile Chemists and Colorists, and for Mr. Peter Hambaugh, Technical Association of the Pulp and Paper Industry; Mr. Harry K. Hammond, III, for the American Society for Testing and Materials; Mr. William D. Schaeffer for the Graphic Arts Technical Foundation; Mr. Franc Grum for the Optical Society of America; Mr. Joseph Von Tury for the American Ceramic Society; and Mr. Charles W. Jerome for the Illuminating Engineering Society.

Mr. Charles Leete spoke briefly to describe the Manufacturers Council for Color and Appearance, our latest member body. He introduced Dr. William Venable of the National Bureau of Standards who spoke about the MCCA-NBS Collaborative Reference Program and other color-related activities at the Bureau.

Mr. Waldron Faulkner, past-President and chairman of the American Institute of Architects Delegation, expressed thanks on behalf of the Council to all the officers and chairmen for their accomplishments during the past year.

The meeting was adjourned at 11:40 AM.

Respectfully submitted,  
Fred W. Billmeyer, Jr.  
Secretary

#### REPORT FROM THE INTERNATIONAL COLOUR ASSOCIATION C. J. BARTLESON, LIAISON OFFICER

On July 2 through 6, 1973, the Association Internationale de la Couleur (AIC) held its second quadrennial meeting, "Colour '73" at York University, in York England. The host was the Colour Group of Great Britain, which did a commendable job of organizing the meeting itself and a number of memorable social events for the participants and their guests. A total of 432 registered participants from 25 countries attended the meeting.

There were 9 invited survey papers broadly dealing with color and its applications. In addition, there were 107 contributed papers; 12 on color vision, 12 on color differences, 13 on colorimetry, 14 on color rendering and reproduction, 12 on color appearance, 15 on colorant formulation, 9 on calculations and instruments, 10 on color applications including teaching, and 10 on design and architecture. These

papers were published in a proceedings entitled *Colour 73. The Second Congress of the International Colour Association held at the University of York 2-6 July 1973*. The proceedings were published in December 1973 by Adam Hilger, London, and the Halsted Press Division of John Wiley and Sons, New York. Contributed papers are included as approximately 1,000 word "long abstracts" and the survey lectures are printed in their entirety.

The Colour Group of Great Britain awarded its 1972 Newton Medal to Dr. Deane Brewster Judd of the United States of America. It had been hoped that Dr. Judd would be able to deliver the Newton lecture at the 1973 AIC meeting. Unfortunately, however, he succumbed to a fatal illness in October of 1972. Rather than the Newton Address by Dr. Judd, there were tributes by Mr. Brocklebank, then chairman of the Colour Group, Miss Nickerson and Professor Wright; both of whom knew Dr. Judd long and well. Following the tributes, Mr. Brocklebank presented the 1972 Newton Medal to Mrs. Deane B. Judd. The tributes to Dr. Judd are included in the published proceedings.

The AIC executive committee elected for the term 1974 to 1977 included: Professor Tarow Indow (Japan) as President, Dr. Robert W. G. Hunt (England) as Vice President, Dr. Andreas Brockes (Germany) as Secretary-Treasurer, and as members Dr. Pieter L. Walraven (Netherlands), Dr. Ernst Ganz (Switzerland) together with the retiring President Yves LeGrand (France) and Vice President C. James Bartleson (U.S.A.).

Three *ad hoc* committees were constituted by the AIC delegates. These were (1) a committee to collect and publish an historical record of the AIC (M. Richter, chairman, C. J. Bartleson, G. Tonnquist, and M. Déribère), (2) a committee to study and recommend guidelines for publication of AIC proceedings (C. J. Bartleson, chairman, M. Richter, P. Walraven, R. W. G. Hunt, and G. Wyszecski), (3) a committee to collect and recommend nominations for the executive committee balloting in 1977 (Y. LeGrand, chairman, E. Ganz, T. Indow, D. Nickerson, L. Plaza, J. Schanda, and W. D. Wright).

An AIC "special topics" meeting was announced for the interim period before the next AIC Congress. That meeting will be held by the Fachnormenausschuss Farbe (FNF) of the Federal Republic of Germany in honor of the 25th anniversary of FNF. It will be held in Frankfurt am Main on October 24 and 25, 1974. Additional information will be available from:

Prof. M. Richter  
Geschäftsstelle des FNF  
1 Berlin 45  
Unter den Eichen 87  
Germany.

The AIC delegates voted unanimously to accept the invitation of the ISCC to hold the next (1977) Congress of AIC in the United States of America. That meeting will be held at Rensselaer Polytechnic Institute in Troy, N.Y. on 10 to 15 July 1977. A separate announcement of the meeting will appear in the *Newsletter*. Additional information may be obtained from:

Prof. F. W. Billmeyer, Jr.  
Rensselaer Color Measurement Laboratory  
Rensselaer Polytechnic Institute

Troy, New York 12181

The 1973 meeting of AIC was considered successful, and it is anticipated that the next meeting in the U.S.A. will be at least as rewarding for the participants. This will be an unusual opportunity for ISCC members to attend the major color meeting of the world. The AIC joins the ISCC in extending an invitation to all of you to attend the 3rd AIC Congress in Troy.

#### REPORT OF THE MACBETH AWARD COMMITTEE WILLIAM J. KIERNAN, CHAIRMAN

#### MACBETH AWARD CITATION FOR 1974 PRESENTED BY WALTER C. GRANVILLE

Because Mr. William J. Kiernan, Chairman of the Macbeth Award Committee for 1974, was unable to be present tonight I was asked by President Hunter to prepare and present the citation. As a long time admirer of the work of Miss Midge Wilson I was most happy to accept this assignment.

The Macbeth Award is sponsored by Norman Macbeth, Jr. in memory of his father Norman Macbeth (1873-1936) and is presented biennially. The award is given in recognition of recent important contributions, service or use in any field of color.

The Committee has nominated Miss Wilson for outstanding work on color forecasting in the field of fashions and home furnishings and for directing the development and production of related color cards that are considered standards by the industry. These cards and forecasts have been issued by the Color Association of The United States, Inc. of which Miss Wilson is the Executive Director. This association was known formerly as the Textile Color Card Association, one of the founding member-bodies of the Council.

Color forecasts in the fashions and home furnishings industries must be developed several years in advance of the appearance of the product on the market. With such a long lead time needed for their preparation it is quite remarkable that such forecasts can have any degree of accuracy at all. That they do attest to the wisdom and ability of Midge Wilson and her associates. If only the stock market analysts could do half as well.

Since these forecasts are confidential and issued only to members of the Color Association, some of you may wonder what they look like, so I wish to show several examples. The cards intended for fashion are swatched with man made textile fibers as well as silk and wool. The colors are grouped in related families so that the user is given not only color information but also styling ideas, that is, what kinds of colors can be used together. Furthermore the color names she has assigned to them are wonderfully innovative.

I have found her written commentary, which accompanied these charts, to be the best I have seen anywhere. She captures the flavor of today's color hunger by analyzing the basis for it in terms of the current scene of life. None has done a better job, and I count myself among those who have tried. Furthermore, under her direction the emphasis

in these forecasts has shifted from a pure fashion approach to the use of color as the bridge between fashion and merchandising. Thus the importance of color forecasting has increased its influence on the business world.

Color forecasts have been issued regularly on the following products: men's wear, men's socks, women's knitwear, sportswear and socks, and home furnishings. In addition there was the Department of Defense thread color card, for which she received a citation from the Department of the Army, the Department of Defense button color card, and the new Department of Defense embroidery yarns color card, to be issued early in 1974.

There is still another contribution which by itself, in my opinion, would warrant the award. Since the annual Council meeting in 1964, Miss Wilson has been in charge of the banquet arrangements. The table decorations and other ornaments and favors have been superbly innovative and joyous, thus contributing to the second of the three fields with which the Council is concerned, science, art, and industry.

Consideration of these achievements enabled the Committee to choose Midge Wilson unanimously for the Macbeth Award in 1974, a recognition that she richly deserves.

Walter C. Granville

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

We regret to report the resignation of the Package Designers Council, a member-body since 1956. This leaves the member-body count at 28.

The Manufacturers Council on Color and Appearance has applied for member-body membership. The Board has approved their application, and, by unanimous vote of the delegates present, they were elected. This changes the member-body count to 29.

In recent years some people wondered why the individual member group had no voting representation on the Council. The Board has long been aware of this condition. The individual member group did have a voting delegate 25 or 30 years ago who was appointed by the Board. The idea was to have the delegate report on the individual members' activities and concerns at the Annual Meeting. LeGrand Hardy and Elizabeth Burris-Meyer accepted this responsibility without realizing what they were getting into. I remember Dr. Hardy saying he ran out of steam after contacting 15 members. They had so much activity to report that it was difficult to condense it into 5 minutes, and he still had 300 or so members to go. These reports were absolutely fascinating. One has no idea of how varied the activities of the individual members are until he hears about them one by one.

Just how would one person represent 400 people? He would need a society of his own, and that is the last thing in the world we would want, so I think it best that we not try to organize the individual member group or even provide them with voting representation but, instead, just let them continue to contribute in the magnificent way that they do.

One year ago the count of individual members had dropped from 630 to 554, causing some alarm that this might be a trend. At the time, I did not believe the health of the group was in jeopardy but we have watched the patient. I am pleased to report a substantial recovery from 554 to 604 members as of the end of 1973.

Several months ago I wrote President Hunter of my resignation as Chairman of the Membership Committee to take effect at the end of this meeting. Perhaps he was afraid to reply for fear I might change my mind, but I haven't - 25 years is long enough.

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

The past year was one of change and progress. The new format, which put color into and onto the *Newsletter*, has been effective and warmly received. We had four issues with color inserts, which were donated by National Geographic Magazine and the National Wildlife Federation, through the effort of Progressive Color Corporation, Rockville, Maryland. We had asked for further contributions from various member-groups of the Council, but none has been forthcoming. The future of color inserts lies in voluntary effort by members or member-groups. They probably should start at the time a color illustration reaches the trade-shop level where extra copies can most reasonably be made.

The Chairman, for business reasons, resigned as of the end of the fiscal year. The Board of Directors accepted his resignation, and his recommendation that Dr. William Benson, a member of the Committee, be appointed to the position. His name and address appear inside the back cover of each *Newsletter*.

#### REPORT OF THE PROBLEMS COMMITTEE GEORGE B. GARDNER, CHAIRMAN

This is the second year in which the Problems Committee has functioned with five principal members, which include an overall Chairman and four group Chairmen who are listed below with their subcommittee responsibilities:

Franc Grum, Color Science and Measurement: Problems 18, 22, 27, 34, and 35.

Robert F. Hoban, Colored Materials and Colorants: Problems 6, 7, 10, and 25.

John T. Smith, Pictorial Reproduction of Color: Problems 31 and 32.

Raymond Spilman, Art and Design: Problems 30 and 33.

There are now fourteen active subcommittees, eleven of which held stimulating and well attended sessions at the Annual Meeting. This report summarizes the activities and status of all fourteen subcommittees and begins with a summary report on the Color Science and Measurement Problems by the Chairman.

**FROM THE PROBLEMS COMMITTEE GROUP  
FOR COLOR SCIENCE AND MEASUREMENT  
(PROBLEMS 18, 22, 24, 27, 34 AND 35)  
FRANC GRUM, CHAIRMAN**

All six Subcommittees held a session during the Annual Meeting of ISCC on April 30, 1974. The Subcommittee meetings were in all cases well-attended, indicating the interest of the ISCC members in the activities of individual problems. The sessions on Problem 34 and Problem 35 were particularly vivid.

Two major changes took place during the meetings. Dr. J. T. Atkins has resigned as Chairman of the Subcommittee for Problem 22 due to his job reassignment. Dr. Ellen Campbell of Sherwin-Williams Company assumed the Chairmanship responsibility of that Subcommittee.

The Subcommittee for Problem 24, H. K. Hammond III, Chairman, was dissolved after its meeting on April 30, 1974. The functions of the Subcommittee will be carried out by the Subcommittee for Problem 22 under a special task force of that Subcommittee. The Problems Committee expresses a sincere thanks to both Dr. J. T. Atkins and Mr. H. K. Hammond for their contributions and for their dedication.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 6 –  
SURVEY OF COLOR TERMS  
C. J. BARTLESON, CHAIRMAN**

Work is progressing on the preparation of the revised edition of the "Comparative List of Color Terms." Input has been received from all the member-bodies contributing, and the lists of terms submitted are being transcribed to cards and collated to eliminate duplications. When this step is completed, the combined list (essentially a first draft of the final report) will be submitted to the member bodies for correction, approval, and comment.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 7 –  
SURVEY OF COLOR SPECIFICATIONS  
ROBERT F. HOBAN, CHAIRMAN**

In 1962 the Subcommittee was reactivated to revise its 1954 report. The "final" report entitled "A Survey of American Color Specifications – 1974", was completed in April and made available as a photocopy of a computer listing. Some 15 copies have been sold to date. The price has been set at \$5.00 a copy, and the report may be obtained by sending a check, payable to Robert F. Hoban, c/o SANDOZ Colors & Chemicals, Route 10, East Hanover, New Jersey 07936.

Since the Subcommittee has completed its assignment by issuing the revision, it has been placed on standby status by the Board of Directors. The report is now on punched cards and will be maintained and updated continuously. Comments, corrections, and additions are urgently requested and should be sent to the Chairman.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 10 –  
COLOR APTITUDE TEST  
LOUIS A. GRAHAM AND ANGELA C. LITTLE,  
CO-CHAIRMAN**

Pending the completion of the Third Edition of the Color Aptitude Test, a reprinting of 250 sets of the (1967) Second Edition has been made and partially sold at \$200 each. The samples for the Third Edition (750 sets) have been made, and a model of its form and arrangement was demonstrated on April 29. Patents in the name of W. N. Hale are being applied for and will be assigned to the Federation of Societies for Paint Technology. Validation will hopefully be completed in time to introduce the Third Edition by 1976.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 18 –  
COLORIMETRY OF FLUORESCENT MATERIALS  
PER S. STENSBY, CHAIRMAN**

This year continued the tradition of active participation during the subcommittee meeting. The main work of the subcommittee is accomplished through three task forces.

***TASK FORCE I. Visual and Instrumental Evaluation of  
White Samples.***

Although no new experimental work was performed, analysis of the present data was completed. A statistical study showed no evidence of correlation between visual appraisal and subgroups of observers. Using the Grum, Witzel, Stensby Whiteness Formula, previous abnormalities in the data were greatly reduced.

This task force is preparing to publish the results to date. In the future it will examine questions concerning the relationship between whiter and preferred white judgments and will look into the factors which influence the evaluation of whiteness.

Thomas Cullen volunteered to be co-chairman of the subcommittee with Bonnie Swenholt, the current co-chairman.

***TASK FORCE II. Methods of Measuring Chromatic Fluorescent Samples.***

Reports were given by Dan Phillips of RPI and Gary Beebe of Clemson University discussing the evaluation of several abridged methods of separating the fluorescent and true reflectance components when measuring fluorescent samples. Both students considered the two monochromator mode measurements as the best means of determining the true reflectance of the samples. These reports generated much discussion about the problems involved in finding a referee measurement to which several abridged methods may be compared.

The task force will work with the National Bureau of Standards along with university groups at Lehigh, Clemson, RPI with the hope of recommending an abridged method of separating the fluorescent and true reflectance compo-

nents. In conjunction with these studies, further round-robin measurements will be made at some future time.

**TASK FORCE III. Terminology of Fluorescence and Fluorescent Materials.**

Per Stensby read a letter from James Chisholm, which included a list of terms for definition by the task force. This list was modified by the subcommittee membership and will be further considered by the Task Force. The chairmanship of this task force was assumed by Bill Heaps following the resignation of James Chisholm.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 22 –  
PROCEDURE AND MATERIAL STANDARDS FOR  
ACCURATE COLOR MEASUREMENT  
ELLEN D. CAMPBELL, CHAIRMAN**

Problem Subcommittee 22 met Monday afternoon, April 29th. Chairman Joseph T. Atkins conducted the discussion with 20 members on the nature and use of standards for determining if color measuring instruments are operating properly.

In the past year a questionnaire had been circulated to approximately 100 ISCC members. Although the response was small (about 20%), some information as to sources for the purchase of standards was gained. The responses also indicated a general confusion as to the actual use of standards. Dr. Atkins then proposed that the subcommittee undertake to write a guide to the use of standards. This guide could explain the types of standards and what was needed for various instrumentation and list sources where the needed standards could be purchased.

This discussion lead directly into remarks by Dr. William Venerable on the plans of the National Bureau of Standards concerning calibration and issuing of standards. He then brought up the topic of documentary standards. The National Bureau of Standards has attempted to gather a collection of all documentary standards. He suggested that this subcommittee might collect and organize the already collected documentary standards that pertain to color measurement.

The final act of business at the meeting was that Dr. Atkins resigned as chairman, and Dr. Ellen Campbell became the new chairman.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 25 –  
DETERMINATION OF THE STRENGTH OF  
COLORANTS – DYES SECTION  
CHARLES E. GARLAND, CHAIRMAN**

In addition to its meeting during the Annual Meeting, the Dyes Section of Subcommittee 25 also met in September and January. In the past year we completed the following projects:

1. Therese Commerford's review of "Difficulties in Preparing Solutions for Accurate Strength Measurements" was published in the January, 1974, issue of *Textile Chemist and Colorist*.

2. A report entitled "A General Procedure for the Determination of Relative Dye Strength by Spectrophotometric Reflectance Measurement" was prepared for publication and appeared in the May, 1974, *Textile Chemist and Colorist*.

3. A paper was written reporting the results of a series of four round-robins conducted to establish the interlaboratory precision of solution spectrophotometric determination of strength and dyes. It has been edited and will soon be submitted for approval by the ISCC Board of Directors.

Present activities include the following:

1. Most of the results have been collected on the first round-robin to determine the accuracy and precision of relative strength by reflectance, including the dyeing error. Surprisingly, the results in the first round are quite similar to those obtained by transmittance.

2. A working group was established to recommend a program for Subcommittee 25D to investigate the standard depth-of-shade concept. The possibility of using Munsell papers in this study is being explored.

3. A second group was set up to work in conjunction with Committee RA-36 of AATCC to prepare a training symposium on strength determinations by both reflectance and transmittance. It is our intent that this symposium be held in the South, possibly at AATCC headquarters this fall or winter. It was felt that our first attempt at training should be in the form of lectures with adequate props, slides, and other visual aids; however, if we are successful, a workshop approach might be beneficial at a later date.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 25 –  
STRENGTH OF COLORANTS – PIGMENTS SECTION  
RICHARD W. HAROLD, CHAIRMAN**

The Pigments Section of Subcommittee 25 met Monday afternoon (4/29/74) with 27 interested members in attendance. Phase I of the committee's efforts – the publication of a comprehensive bibliography on the determination of the strength of colorants – is now available from the ISCC for a fee of \$25 to cover the cost of reproduction. Phase II – a composite listing of test methods used in industry for the determination of pigment strength – is now in the hands of a working committee checking for accuracy and organization. Any company that has not yet submitted its testing procedures may do so but they must be received by July 1. A working session may be held in September.

Due to increased responsibilities, I regret that I must submit my resignation as chairman of this committee. Selections for a replacement have been submitted to the Problems Committee, and a new chairman will be announced shortly. I have enjoyed working on this committee and hope the ISCC has benefited from our efforts.

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

In 1970 Roland Derby as Chairman of the Problems Committee, invited me to become Chairman of the Subcom-

mittee on indices of Metamerism on a "caretaker" basis pending the then imminent action by the CIE on recommending an index of metamerism. The CIE index was proposed in 1971, and it is based on the use of a measure of color difference, either the 1964 CIE  $U^*V^*W^*$  measure or any other stated difference. This Subcommittee thereupon undertook the consideration of ways of examining the proposed index and the evaluation of either the CIE proposal or any rational alternative. It was recognized that such an examination would require the statistical treatment of objective and subjective data on a large group of metameric or near-metameric pairs, and proposals were outlined for the accumulation of the required samples and data.

These proposals have, however, not been implemented, primarily as a result of the Chairman's reluctance to carry out, or to request others to undertake, a massive program with severely limited likelihood of reaching definitive conclusions. My uncertainty was based primarily on the recognition that any proposed index of metamerism involves essentially the computation of a second difference, that is, a difference between color differences. If the uncertainty in the definition, and therefore in the computation, of the first difference is of the same order of magnitude as the quantity — the index of metamerism — that is ultimately to be evaluated, little utility can be expected of the proposed index. The deliberations at Holland in 1971 and at the AIC in York in 1973 on Color Metrics, followed by a current proposal by the Chairman of the CIE Committee TC-1.3 relating to a proposed change of 50% in one of the three coordinates of the CIE 1964 Index, make it clear we do not yet possess a reliable and generally accepted measure of color difference of the requisite precision and significance.

It may be useful to describe some of the possible courses of immediate action relating to the Subcommittee.

1. It may set out to accumulate suitable pairs of metamers and near-metamers, visual judgments pertaining to them, and measurements and preliminary computations, perhaps with a view to keeping the data in a form readily accessible to additional computations when a suitable color difference formula is available.

2. It may seek an index based solely on spectral data pertaining to samples and observer sensitivity, without regard to a specific color difference evaluation, even though recognizing that the failure to designate a color difference formula in itself will constitute in a sense an implicit definition of one. The procedures proposed by Mr. Nimeroff the previous Chairman of the Subcommittee are one example of this approach.

3. It may proceed on evaluations based on one or more of the as yet not fully validated color differences, perhaps in the hope that this work will in itself aid in drawing conclusions regarding the most satisfactory color difference formula.

[This report was written before the Subcommittee met on April 29, 1974. At that meeting, interest in new methods for specifying indices of metamerism was revitalized, and a small group subsequently met in late May to formulate a new program of action. Dr. Hemmendinger's resignation as chairman has been accepted, and a new chairman will be appointed, probably from within the aforementioned

group. FWB]

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

The disturbing similarity of the reports of this committee for the past five years is a reason to consider a redirection of efforts. Our failure to find a sponsor for the Appearance Folio is indeed disappointing. The folio was our offspring and in it we found no fault, but the color world did not recognize the greatness conceived.

At last year's meeting there was a discussion of the various aspects of the Universal Color Language, the gloss and tolerance aspects and the informational material necessary to obtain, specify, and learn about color specification. George Drake, of the Sweets Division of McGraw Hill Information Systems, attended the annual meeting and advised us of his interest in incorporating color facts as part of the Sweets Catalog Guide lines. This year we shall look further into these types of general color information.

We believe there is work to be done in the areas of gloss and tolerance with the objective of establishing a simple index or standard suitable for the use of color in the building industry.

We have been lax in recognizing the progressive use of color in the building industry, particularly the exteriors. After coming through an all-white period and dropping into the all-dark effect, we feel there is now a reason to press forward with the bright-color effect. We can see harbingers of this bright-style in the work of some European architects. An article in the magazine "Architecture-plus" by Gilles de Bure, entitled "The Powerful Hum of Color" illustrates the arrogant use of bright colors on the exteriors of schools, hotels, and factories. This trend, combined with the great impact of giant graphics, portends to establish a welcome change to the monotonous treatment of building exteriors.

We have requested the board of ISCC to consider the invitation of one of those architects as colorists from Europe to present a program at one of the future ISCC meetings. With additional appearances at meetings of architects and others involved in building color, the trend may well take hold. The recognition and backing of ISCC is essential in this program.

This year we are looking about for pieces of the color puzzle to assemble into a mosaic of color usage. We hope it may culminate in our Appearance Folio, but in any case, it is still color.

#### REPORT OF SUBCOMMITTEE FOR PROBLEM 31 — STANDARD METHODS OF MEASURING AND SPECIFYING THE COLOR OF EXPOSED AND PROCESSED COLOR TRANSPARENCIES

After the resignation of the chairman of this Subcommittee a year ago, the delegation from the American Society of Photogrammetry agreed to find a replacement. No action has been taken, however, and the Subcommittee remains inactive at this time. (FWB)

**REPORT OF SUBCOMMITTEE FOR PROBLEM 32 –  
COLORIMETRY AND SPECTROPHOTOMETRY  
IN THE GRAPHIC ARTS  
JOHN A. C. YULE, CHAIRMAN**

The Chairman has signified his desire to resign, but a replacement has not yet been appointed. The Subcommittee has been inactive for the past year. (FWB)

**REPORT OF SUBCOMMITTEE FOR PROBLEM 33 –  
HUMAN RESPONSE TO COLOR  
ALEXANDER STYNE, CHAIRMAN**

The preparatory work, including a most successful planning meeting on November 21, 1972 in Washington, resulted in a well-received program at the first official meeting of this committee during the annual conference of the Council on April 30, 1973. The attendance list showed a strong interest in the problem area by luminaries in the field of color, not only within the membership of the Council but also from non-members. The high point of the meeting was the moving report on color therapy by Marcella Graham at the Catawba Hospital in Virginia. A complete record of this meeting has been kept on tape, which was transcribed by Mr. Spilman's office and has not yet been edited due to lack of manpower and funds.

Shortly after this meeting negotiations were initiated to establish contact with the Southwestern Hospital in Marion, Virginia, which had requested assistance in color problems from Marcella Graham.

Our hope was and still remains at this time to initiate at this location a well controlled research project if and when circumstances permit. During the summer months Dr. Eugene Sucov, Manager of Behavioral Research, Westinghouse Corporation, visited Dr. Merker, Director of the Hospital, with one of his colleagues to discuss the feasibility of a study. Both came back with reasonable hope that such a study can be initiated as soon as a project and a method can be worked out.

Discussions with Mr. Michael Heffron through the initiative of Mr. Robert Spiegel, both of the Habitability group of NAVSEC, provide another possibility where color use in the environment might be studied. This possibility is also open but will require further efforts especially in regard to a concrete proposal and method.

Dr. Sucov has developed a method in association with Professor John Flynn presently of Penn State University (formerly from Kent State University). His proposal was discussed at the annual meeting of the Council, April 29, 30, 1974.

I was able to enroll the assistance of Professor Flynn during a meeting with him and Dr. Sucov on the occasion of the Annual IES meeting in Philadelphia on July 11, where all three of us participated in program presentations. During the same meeting I had occasion to discuss in broad outline our proposed study area with Dr. Henry Logan, Chairman of CIE TC-3.5 "Lighting and the Environment". (Professor Flynn is Secretary and I am a member of his committee).

His interest in our work remains, and we hope that

eventually both committees will benefit from exchange of work.

On October 23, 1973 I presented the study area, general interests, organizational and financial situation of our committee at a workshop session during the Annual National Conference of the Industrial Designers Society of America in San Diego. There was so much interest among the membership that the room in which the workshop was held was extremely crowded and extra chairs had to be brought in. I believe that my presentation was well received, and I was assured in subsequent conversations that those members in contact with funding agencies will be able to assist me if we can present proposals.

The subcommittee meeting on April 29, 1974, had the following agenda:

1. Activities April 1973 - April 1974 by Alexander F. Styne.
2. "Effects of Spectral Differences in Illumination on Fatigue". Film and oral presentation with emphasis on methodology by Dr. Douglas A. Kleiber or Dr. James B. Maas, Cornell University.
3. "Environmental Media Design". Brief report on the study with emphasis on evaluation techniques by Mr. Robert F. Spiegel, AIA, U.S. Navy.
4. "Human Response to Color". A proposal of methodology and research analysis by Dr. Eugene Sucov, Manager, Behavioral Research, Westinghouse Electric Corporation.

Obviously it is my aim to initiate a study program during the current year. Besides moving the experts in our group towards the necessary preparatory work, progress will depend a great deal on the availability of funding.

The burden of work load and expense of organizing this subcommittee has been heavy. I am willing to carry on as chairman for another year but after this I believe someone else should take over. I made an appeal in this respect during the annual meeting of our subcommittee.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 34 –  
COLOR DIFFERENCE PROBLEMS  
ROLF KUEHNI, CHAIRMAN**

Pursuant to the meeting in April 1973 the chairman solicited sample sets representing specifically designed micro color spaces for visual evaluation. Six such sample sets (4 paint, 2 textiles) were obtained.

On November 8, 1973, a meeting of the committee with 11 participants was held in Union, N.J. to define the observational techniques to be used for evaluating the sample sets. It was decided to use two sets in an initial round-robin to evaluate the feasibility of the techniques involved. This round-robin is still in progress with data for 19 observers received to date. Fourteen members have expressed their willingness to act as local coordinators with an expected total number of 30-40 observers.

The observational techniques used are:

- Subjective estimate (rank and estimated visual color difference)
- Anchored subjective estimate
- Acceptability judgement

The final results are expected to provide valuable data for evaluation of color difference formulas, such as the two formulas recently proposed by the CIE.

**REPORT OF SUBCOMMITTEE FOR PROBLEM 35 —  
COLOR AND APPEARANCE MATCHING  
OF LIVING TISSUE  
ROBERT C. SPROULL, CHAIRMAN**

Subcommittee 35 was established at the 1973 Annual Meeting of the ISCC. The first task force of the subcommittee has concerned itself with the development of an adequate and logical color guide for natural teeth.

The original members of Subcommittee 35 are:

Robert C. Sproull, Chairman — Private practitioner (dentistry)

Philip Thomas — U.S. Army Dental Corps, Wm. Beaumont Army Medical Center

Kenneth Turner — Instructor, School of Dentistry, Emory University

Stephen Bergen — Graduate Student, Maxillo-Facial Prosthodontics, New York University

Lawrence Gettleman — Student, Removable Prosthodontics

Bruce Burk — Color Technician, J. M. Ney Company  
Additional working members recruited during the year are:

Nick Hale — Independent Color Consultant

Richard Resk — Ceramist

Donald E. Smith — U.S. Army Dental Corps, Ft. Hood, Texas.

Invitations to join the committee have been extended to:

Henry Hemmendinger — Independent Color Consultant

John Yerkes — Yerkes Laboratories, Inc.

Dioracy Vieira — Professor of Dental Materials, São Paulo, Brazil

As of this date, two separate groups are actively engaged in producing porcelain samples for the desired color guide. Nick Hale and Stephen Bergen are working on one project. Fred Billmeyer has measured samples for Bruce Burk's efforts.

A "Dental Training Test" has been developed by Stephen Bergen to teach basic color concepts and their application to color matching problems in dentistry. The test will be directly applicable to training dentists to use the "adequate and logical color guide" being developed.

A spectrophotometer has been acquired at Wm. Beaumont Army Medical Center for use by Philip Thomas and Robert Sproull in small sample measurement of natural teeth and tooth shade guide samples.

Areas which will be discussed at the annual meeting will include:

1. The possibility of establishing a clearinghouse of information for those involved in color matching in dentistry.
2. The possibility of establishing additional task forces to investigate other color matching problems in dentistry, e.g. maxillo-facial prostheses.

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

During the past year "realism" has returned in the visual arts. Some art dealers, critics, and museums are pushing the latest fad of "photo-realism", which should not last very long, but it now seems clear that realism is "in". Abstractions have become commonplace, esoteric, too easily produced, and have gone into the fabrics, wallpapers, rugs, and crafts where they originated centuries ago. The public is buying fewer stunts and shockart.

We believe the values of the ISCC are growing in importance each year. The past year saw increased cross-pollination of specialized disciplines, more "relevant" communications to members and between groups and general membership, and better dialogue upward, downward, and laterally across the board.

This was for ISCC a good year of growth. We are glad to share it.

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

Color is an important property of textile materials. Problems covering color of interest to the members of the AATCC are referred to a research committee, RA36, formerly Color Technology Committee. This committee was chaired last year by Prof. F. T. Simon and is presently chaired by Rolf Kuehni.

In 1973, Committee RA 36 applied for a change in name and a new scope. The new name and scope were approved by the Executive Committee on Research in April 1973. The new name is RA 36 Color Measurement Test Methods and the new scope is as follows: "to develop test methods relating to color science; to advise other AATCC committees involved with special problems on color; to provide liaison between AATCC and other groups directly concerned with problems in color science". This change makes it possible for the committee to formally develop test procedures.

During 1973 RA36 has been preparing a document that will be a compilation of published papers and related material on color measurement and is to represent the committee's position at the ISO Meeting in June 1974.

During the year members of RA36 have continued to help in the development of the new fold-out type standard grey scale. The new scale has been officially adopted during the year and is available from national headquarters. The new grey scale will be proposed for adoption by ISO in June.

Assistance and advice was rendered during 1973 to

— RA57 Floor Covering Test Methods, regarding objective evaluation of carpet soiling.

— RA50 Light Fastness Test Methods, regarding color measurement of Blue Wool Standards. An instrument procedure was established based on over 2000 measurements

on 7 instrument types. A paper reporting the work is in progress.

— AAMA Quality Committee, regarding color difference tolerances.

Industrial sources have posed to the committee the problem of developing a test method to determine objectively the ability of light to transmit through curtain materials. Work on this problem is continuing.

Several color related papers were published during the year and will be listed in the *Newsletter*.

The following special conferences were sponsored by the AATCC and each have several papers on color published in *Textile Chemist and Colorist* or available from AATCC Technical Center, Research Triangle Park, N.C. 27709.

AATCC Symposium on Textile Solvent Technology: Update '73, January 10-11, 1973, Atlanta Ga.

AATCC Symposium on Coated Fabric Technology: March 28-29, 1973, Newton, Mass.

AATCC Symposium on the Textile Industry and the Environment — 1973, May 22-24, 1973, Washington, D.C.

In addition, the following related papers were published in *Textile Chemist and Colorist*:

"The Continuous Dyeing of Woven and Knitted Texturized Polyester Fabric", H. Leube and P. Richter, March, Pages 29-43.

"Solvent Dyeing Cellulosic Fibers", Delaware Valley Section, AATCC, March, Pages 49-60 — Wool, February, Pages 13, 34, 40.

"Fading of Dyed Fabrics Exposed to Air Pollutants: A Chamber Study", Norman J. Belion, July, Pages 29-128.

"The ANLAB Color Difference Formula for Shade Passing", K. McLaren, August, Pages 31-160.

"Color, Color Measurement and Colorant Formulation in the Textile Industry", Roland E. Derby, Jr. September, Pages 47-188.

"New Developments in Exhaust Dyeing of Cellulose with Reactive Dyes", Maurice R. Fox, September, Pages 56-197.

"Instrumental Color Match Prediction for Sulfur Dyes", J. R. Aspland, October, Pages 34-122.

"Shade and Strength Predictions and Tolerances from Spectral Analysis of Solutions", Charles E. Garland, October 39-277.

"Treating Dye Wastewater", T. A. Alspaugh, November, Page 44.

#### REPORT FROM THE AMERICAN CERAMIC SOCIETY DELEGATES

F. J. VON TURY, CHAIRMAN

Our delegation continues to serve its function of liaison between the ceramic industry and those interested in color science and technology.

There are two significant developments within the tile industry: The growing interest for decorative, colorful ceramic floors and the development of a new process making ceramic tiles with consistent color control.

Along with the restoration of the frescoes and paintings on walls and ceilings of the Capitol building in preparation for the Bicentennial, the Architect of the Capitol would

like to replace those floor tiles which are excessively worn or damaged. This has to be done so as to retain the original character and heritage of the building.

I do not know if you have noticed that throughout the Capitol building one walks "on color", on beautiful ceramic tiles. The tiles are 6" x 6" and 3" x 6", of varied and colorful design. Some of the floors are covered wall to wall in this material, creating the effect of a Persian rug, and in other rooms, the tiles are arranged as medallions, round or rectangular, and are several feet in diameter, surrounded by plain-color and more simple patterns.

There are about 150 to 200 different patterns involved in the replacement job.

The original tiles were made in England about 125 years ago in Stoke-on-Trent by the Minton Co. (This company discontinued making this kind of tile some time ago, and it seems that because of the prohibitive production costs, nobody is making material like this at the present time.) The design reflects Greek and Roman classic motifs, and the colors include brown, green, cobalt blue, beige, purple, red, grey, and black. It was found that some of the designs on the tiles are fading partly because of the wear and partly because of the thinness of the color layers. One has to realize that these floors have been walked on by millions of people over the years.

The difficulty is that the large companies who would have the technical facilities cannot fit this type of production into their manufacturing line, and a small outfit is unable to handle a complicated job like this. The project is a challenge for high degree craftsmanship, and requires knowledge of design, color matching, and engineering.

One of the problems will be to create the aged appearance of the colors. Interest is growing for this kind of floor covering. In connection with the restoration of the Pennsylvania Academy of the Fine Arts Building in Philadelphia, the architect is presently investigating the possibility of the reinstallation of the original encaustic tile floor in their project. This kind of decorated tile has been used in outside construction also, and I am now working on a frieze for a bridge.

A new, modern system for making ceramic tile has been born. The complete cycle from press to packaging is one hour and 20 minutes.

In developing this new process special attention was paid to color matching, gloss, and reflectance. A color meter is used to check 16 wavelengths from the color on the tile. The results are put into a computer, which matches it against the standard. The computer pinpoints any difference from the standard, and records what must be done if it is necessary to modify the glaze to bring it correctly to standard. Standards for color uniformity have actually been exceeded. While it is difficult to put one "virtue" ahead of another, control of color and resulting consistency are perhaps the greatest benefits of the new process. There are fewer shading problems because of a more uniform thermal treatment during firing than with the older process.

Colors are regularly and systematically measured for accuracy by the most advanced color measuring computers. The color meter is produced by Gardner Laboratory Inc. and the color computer by Kollmorgen Corp. The system was developed by United States Ceramic Tile Co.

From information given to me by members of my delegation, I would like to report the following:

A) The decal field is constantly matching some artist's painting; therefore, the problem is one of matching and the color company charts are very limited. Our matching is still by eye, although we have experimented with computerized systems unsuccessfully. We find the warm yellows and browns, as well as bright reds and oranges, are the most popular.

B) In Color Production work all lots of color are checked against the Master Standard.

Sometimes readings may be made on the Gardner Color Difference Meter. After the color is brought into specifications by using the instruments, the final check is visual inspection.

C) With regard to developments in the use of color, there have been few changes. Use of bright, intense colors continues, especially as accent colors. Earthtone colors continue to be popular.

One new development, which Harshaw is participating in, is a new method of decorating beverage bottles. By plastic coating bottles, thinner glass may be used with safety. Now decorations are applied to the glass and a plastic coating applied over it. This protects the decoration from wear. Since the decoration is not fired on, it is possible to use organic pigments which are stronger and therefore cheaper to use than inorganic pigment. Hues are obtainable with this technique which are not practical with inorganic pigments.

It has been noted that the Pantone Matching System is being used widely in the Ceramic field to define desired hues. It has replaced the Old Color Harmony Manual, which is no longer available.

Business in the Ceramic colorant field continues very good and we are very busy. Raw material shortages are a serious problem and some pollution problems remain to be solved.

#### REPORT FROM THE AMERICAN CHEMICAL SOCIETY DELEGATES WILLIAM B. PRESCOTT, CHAIRMAN

No report was received from Mr. Prescott. (FWB)

#### REPORT FROM THE AMERICAN COLLEGE OF PROSTHODONTISTS DELEGATES ROBERT C. SPROULL, CHAIRMAN

Activities of the College relative to color:

1. The College has voted to provide \$500 annually to help defray expenses of the A.C.P. delegation to the Annual ISCC Meeting in New York City.

2. The 1973 Annual Meeting of the A.C.P. was devoted to developing guidelines for prosthodontic education. To correct an omission in past guidelines and A.D.A. specifications for dental education, the areas of color theory and technology needed by dentists were included.

3. The news of the formation of the ISCC's Subcommittee 35: Color and Appearance Matching of Living Tissue

(and its goals) was published in the A.C.P.'s Newsletter for June, 1973.

In addition, the A.C.P. had the same item published in the Journal of Prosthetic Dentistry and the Journal of the American Dental Association.

4. Notice of the 1974 Annual ISCC Meeting and the first regularly scheduled meeting of Subcommittee 35 is to be included in the A.C.P. Newsletter now in publication. It is hoped that printing schedules will permit it to reach A.C.P. members in time for those interested to attend.

Activities of the delegation relative to color:

The activities of the delegation can best be summed up in the annual report of Subcommittee 35 to Franc Grum, presented in this issue of the *Newsletter*.

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

As a service to the profession the Institute makes certain selected books available to its members through its Publication Sales Department. Among these are two books by members of the Council. They are:

*Architectural Rendering* by Albert O. Halse and  
*Architecture and Color* by Waldron Faulkner.

The October 1973 issue of *Architecture Plus* carried an unusual article, "The Powerful Hum of Color", by Gilles de Burc which suggests how the colors of buildings can be related to their surroundings.

Toward the end of the year Waldron Faulkner gave a lecture at the Yale School of Architecture on *Color in Architecture*.

#### REPORT FROM THE AMERICAN INSTITUTE OF INTERIOR DESIGNERS DELEGATES DON STEVENSON, CHAIRMAN

Because of the day to day specification of color by our membership to clients, architects, resources, contractors, and others, it has become increasingly apparent that our membership is requesting a standardized approach to color specification that is easily assimilated. Therefore, we hope that adoption by our membership of *The Universal Color Language* will result in better communication throughout the profession. We are encouraged to learn that McGraw-Hill in their Sweets Catalog are investigating the possibility of inclusion of *The Universal Color Language* in their specifiers publication.

During our regional and at our national conferences, the AID endeavors through tours and discussions to demonstrate to our general membership the many facets of color selectivity. This is sometimes manifested in historic preservation projects where technical facility and documentation is an ever present concern. Sometimes a current problem solution of, say, mental patient's response to a designer's research will be exposed. We also enjoy feed in from our ever expanding student affiliate membership. The enthusiasm and awareness in creating happy people-oriented

spaces by our students with their presentations has inspired many of our corporate members.

An increasing awareness of the problems of lighting and its effect on color is more and more dictating less of dependence on merchandised colors and forcing our membership into a field of color control that is tailored to each and every product specification.

Specific problem solutions to color and the solutions' validity (or lack thereof) are reviewed by our individual chapters. Any member body of the ISCC who would be interested in information from AID would do well to contact the local chapter in its respective areas and attend meetings that would be of interest to their field of expertise.

#### REPORT FROM THE AMERICAN PSYCHOLOGICAL ASSOCIATION DELEGATES SIDNEY STECHER, CHAIRMAN

Diverse aspects of the functioning of the visual sense have occupied the interest of many psychologists over the past year. The work focuses on psychophysical and physiological analysis of processes from the retina to cortical function. Increasing attention has been given to the role of eye movements in vision and to developmental visual processes. Investigators continue to be interested in the nature and characteristics of specific feature analysis performed by cellular units in the visual system and their mode of operation for the processing of pattern information.

Jacob Nachmias, at the University of Pennsylvania, and his students have been conducting research related to "multi-channel" theories of visual pattern perception. They have been using sine-wave gratings in order to test various theoretical predictions. The multi-channel theory essentially postulates that there are cells in the visual system which are sensitive to narrow ranges of spatial luminance variation having different spatial frequencies. These spatial frequency "filters" are presumed to be highly overlapped and simultaneously weight an intensity input according to the spatial frequency content of the stimulus and the frequency range to which the filter mechanisms are responsive. The output of the channels are presumed to mediate pattern perception. Dr. Nachmias has conducted experiments concerned with pattern specific adaptation, sub-threshold facilitation, and pattern detection and discrimination. A particular focus of the work is an attempt to obtain an estimate of the bandwidth of the spatial frequency channels and to assess their independence. These experiments are designed to clarify some of the recent information which has become available.

Experiments being conducted in our laboratory at Lehigh University are also concerned with the multi-channel hypothesis. We have been using patterns of multiple spatial sinusoidal luminance distributions to assess the influence of phase discriminability and detection on the perception of gratings.

Of related interest is the work being done at Brown University by Lorin Riggs, one of our delegates to the ISCC. Dr. Riggs has been investigating color-contingent after-effects related to the McCollough Effect and orientation-contingent after-effects of color. He has recently published

a paper on curvature as a feature of pattern perception. Much of this work is supported by a good deal of suggestive electrophysiological evidence on animal nervous systems. As Dr. Riggs so appropriately stated in his ARVO talk a year ago, much of the current interest in this area centers around the question, are we feature creatures or frequency freaks. The feature-frequency debate has not yet been resolved and promises to reveal additional information on pattern perceptual mechanisms. Also of related interest to investigators concerned with spatial vision is the research being conducted by Leonard Martin (Columbia U.) on the increment threshold and spatial summation in the peripheral retina as related to Ricco's law and the work by Sherman Guth on lateral inhibition as the underlying basis for brightness contrast and increment threshold measurements.

A good deal of research emphasis this year has concerned eye movements. This work includes tracking, fixation, pursuit and saccadic movements, vestibular-visual interaction, and the role of the superior colliculus in mediating head and eye movements. Some investigators (John Armington, Northeastern University) have collected interesting correlative data on VEPC, ERG and microsaccadic movements. These results have allowed him to relate eye movements to the number of cones stimulated by image displacement.

One area of research having had a long history in psychology is comparative (animal) psychophysics. The use of various animals taught to make psychophysical responses allows for future correlative electrophysiological investigation of the mechanisms underlying these behaviors. Psychologists have been conducting research on stereo-acuity in monkeys and behavioral measures of orientation sensitivity in cats. Dean Yager has recently investigated the spectral photochromatic interval in the pigeon and has related these to cone photopigment and oil droplet absorption spectra in the pigeon's visual system.

Work on color vision this year has centered around color deficiency, rod-cone interaction and spectral sensitivity. Leo Hurvich and Dorothea Jameson have been investigating a number of problems relating to color deficiency derived from their theoretical model. Specifically, they are interested in analyzing the effects of single photopigment shifts on the chromatic and achromatic response functions of various types of anomalous. They are also concerned with measuring the equilibria points of dichromats and are conducting experiments on the Bezold-spreading effect based upon a model which they have recently published. Their work and models have consistently encouraged other investigators to pursue important problems in visual science and has set the pace for a detailed understanding of visual function, particularly in color vision.

Jo Ann Kinney, our past chairman of the APA delegation to the ISCC has also been involved with color vision. She has been investigating a new technique for detecting color defective individuals based on the isolation of a pattern response from the visual evoked response. Specially designed targets were produced from equal-luminance hues that lie on the confusion lines of deuteranopes, protanopes, and tritanopes. Color normals and anomalous were tested with these targets and the VECF responses discriminated

between the defectives and normals.

William Biersdorf of Ohio State and a delegate to ISCC has reported on research on a variety of subjects at the Institute. Dr. Biersdorf has been investigating cortical localization and visual field specificity of the human VECF while Carl Ingling has pursued research concerned with basic color vision theory. Other research at the institute is concerned with applied research such as highway lighting and visual task evaluation. Special mention should be made of two important events concerning those interested in visual science. One concerns the publication of a new book on visual perception by Lloyd Kaufman of NYU. The title is *Sight and Mind, an Introduction to Visual Perception*, Oxford University Press. This appears to be an excellent text and covers research on a number of topics until as late as 1973. The book should serve as an excellent introduction to the more advanced treatments and probably can be profitably read by people from diverse backgrounds interested in vision.

The second event concerns the forthcoming Friedenwald Award of ARVO. This award is given periodically to an outstanding Visual Scientist. This year the award is being given to Matthew Alpern of the University of Michigan. Dr. Alpern has published in many areas of visual psychophysics, physiology, and physiological optics, including eye movements and, in particular, color vision. His Friedenwald lecture is entitled "A World without Color — Is It Pigments or Nerves."

Much of the physiology and psychophysical research appears to be focused on common problems and this integrated approach promises to result in a more comprehensive understanding of visual functioning in diverse situations.

A list of some new publications in the aforementioned areas is presented below:

Alpern, M. (1971). Rhodopsin kinetics in the human eye. *J. Physiol.* 217, 447-471.

Alpern, M. and Ohba, N. (1972). The effect of bleaching and backgrounds on pupil size. *Vision Res.* 12, 943-951.

Alpern, M.; Holland, M.; and Ohba, N. (1972). Rhodopsin bleaching signals in essential night blindness. *J. Physiol.* 225, 457-476.

Alpern, M. and E. N. Pugh, Jr. (1974). The density and photosensitivity of human rhodopsin in the living retina. *J. Physiol.* in press.

Biersdorf, W. R.; Z. Nakamura. Localization studies of the human visual evoked response. Doc. Ophthal. Proc. 2:137, 1973. The Hague: Dr. W. Junk B.V.

Graham, N. Spatial frequency channels in the human visual system: effects of luminance and pattern drift rate. *Vision Research*, 1972, 12, 53-68.

Hollins, M. and Alpern, M. (1973). Dark adaptation and visual pigment regeneration in human cones. *J. Gen. Physiol.* 62, 430-447.

Ingling, C. R. Jr., Drum, B. A. How neural adaptation changes chromaticity coordinates. *J. Opt. Soc. Am.* 63:369, 1973.

Ingling, C. R. Jr., Drum, B. A. Retinal receptive fields: correlation between psychophysics and electrophysiology *Vis. Res.* 13:1151, 1973.

Kinney, J. A. and McKay, C. L. A Test of Color Defective Vision Using the VECF Response. Naval Submarine Medical Research Laboratory, 1974.

Lange, R. V., Sigel, C. and Stecher, S. Adapted and Unadapted Spatial Frequency Channels in Human Vision. *Vision Research*, 1973.

Myers, K. J., Ingling, C. R. Jr., Drum, B. A. Brightness additivity for a grating target. *Vis. Res.* 13:1165, 1973.

Nachmias, J., Sansbury, R., Vassilev, A., and Weber, A. Adaptation to square-wave gratings: in search of the elusive third harmonic. *Vision Research*, 1973, 13, 1335-1342.

Nachmias, J. and Sansbury, R. Grating contrast: discrimination may be better than detection. *Vision Research*, in press.

Jameson, D. Theoretical issues of color vision. In *Handbook of Sensory Physiology*, Vol. VII/r. *Visual Psychophysics*. Heidelberg: Springer-Verlag, 1972. Chapt. 14, pp. 381-412.

Hurvich, L. M. Color vision deficiencies. In *Handbook of Sensory Physiology*, Vol. VII/r. *Visual Psychophysics*. Heidelberg: Springer-Verlag, 1972. Chapt. 23, pp. 582-624.

Jameson, D. and Hurvich, L. M. Color adaptation: Sensitivity, contrast, after-images. In *Handbook of Sensory Physiology*, Vol. VII/r. *Visual Psychophysics*. Heidelberg: Springer-Verlag, 1972. Chapt. 22, pp. 568-581.

Hurvich, L. M. Color Vision Deficiencies. In *Color Vision*. Pp. 1-33. National Academy of Sciences, National Research Council, Washington, D.C., 1973.

Hurvich, L. M. Color content of courses in psychology at the University of Pennsylvania. *The Journal of Color and Appearance*, 1973, 2, 41-43.

Hurvich, L. M. and Jameson, D. Opponent processes as a model of neural organization. *Amer. Psychologist*, 1974, 29, 88-102.

Jameson, D., Nathan, B., and Hurvich, L. M. Color Plates, gray plates and intermittent illumination. *Vision Res.*, 1974, 14, 147-149.

Jameson, D. and Hurvich, L. M. Intermittent Illumination and color vision testing. *Mod. Probl. Ophthal.* (in press).

Hurvich, L. M. and Jameson, D. Evaluation of single pigment shifts in anomalous color vision. *Mod. Probl. Ophthal.* (in press).

Ohba, N. and Alpern, M. (1972). Adaptation of the pupil light reflex. *Vision Res.* 12, 953-967.

Sachs, M. B., Nachmias, J., and Robson, J. G. Spatial-frequency channels in human vision. *J. Opt. Soc. Amer.*, 1971, 67, 1176-1186.

Stecher, S., Sigel, C. and Lange, R. V. Spatial Frequency Channels in Human Vision and the Threshold for Adaptation. *Vision Res.*, 1973.

Stecher, S., Sigel, C. and Lange, R. V. Composite Adaptation and Spatial Frequency Interactions. *Vision Research*, 1973.

Riggs, L. A., White, K. D. and Eimas, P. D. Encoding and decay of orientation-contingent after effects of color. *JOSA abstract*, 63, p. 1287 (1973).

White, K. D. and Riggs, L. A. Angle-contingent color after effects. *Vision Research*, in press, 1974.

### REPORT FROM THE AMERICAN SOCIETY OF PHOTOGRAMMETRY DELEGATES

Mr. John T. Smith, Jr., submitted his resignation as chairman of American Society of Photogrammetry delegation. Despite the Secretary's efforts, no one could be found to prepare a report. Hence, no report from this Delegation was received. (FWB)

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

ASTM continues to expand its efforts in the field of Color and Appearance Evaluation. Eleven of the papers presented at the 1972 Symposium on Sensory Evaluation of Appearance of Materials, presented in cooperation with the ISCC, have been published in a hard cover book of 194 pages designated ASTM Special Technical Publication (STP) 545, bearing the same title, with a publication date of December 1973. The book is available from ASTM, Phila., Pa., at a list price of \$19.75.

Recently revised ASTM documents related to color include:

E313-73 Standard Method of Test for Indexes of Whiteness and Yellowness of Near-White, Opaque Materials.

E197-73 Standard Recommended Practice for Selection of Geometric Conditions for Measurement of Reflectance and Transmittance.

An important new document is:

D3134-72T Recommended Practice for Selecting and Defining Color and Gloss Tolerances of Opaque Materials and for Evaluating Conformance.

There are now more than two dozen important published ASTM documents, test methods or recommended practices, relating to color and appearance. These documents are not all new, but new ISCC members may be helped by a knowledge of their existence.

The goals of the ISCC continue to parallel closely those of ASTM committees dealing with color and appearance; so the delegates recommend continued membership and support of the Council by ASTM.

### REPORT FROM THE COLOR ASSOCIATION OF THE U.S. DELEGATES MIDGE WILSON, CHAIRMAN

Economic developments, affecting the fiber, chemical, and fabric situations, have been reflected quickly in the application of color. To restrict costs and achieve maximum yardage per item, greater emphasis has been placed upon basic colors and in limiting the expanse of color lines. Consequently, it has become even more important to have accent and trend colors that are fresh and inspiring to add verve and variety to styling.

The vitality of orange continues, extending into the copper and hot-earth range. Application of blues spreads from turquoise, into true blue and indigo. While tonalities shift with the seasons, the purple-violet family is now re-

garded as basic for ready-to-wear styling. There is increased interest in the use of "fashion" colors for all areas, from home furnishings and hard goods, to store planning and new corporate images.

Political unrest in countries throughout the world and the approaching Bicentennial, both prompt growing attention to American design and color inspiration. The mixing of unrelated prints and patterns, in jarring color combinations, is superseded by a clean-cut, classic mood, involving white, neutrals and healthy brights, reflecting a happier, more optimistic attitude.

As shopping centers mushroom in most countries, more interest is paid to the merchandising aspects of color and the importance of offering items in well-planned groups of colors, with special eye appeal, to stimulate impulse buying. During the past year, the Association has worked with many individuals and groups from foreign countries, who have come to discuss the use of color in the United States markets, from the standpoint of styling, as well as advertising, merchandising and retail philosophy.

Our work in standardizing colors for various, specific applications continues. The new DEPARTMENT OF DEFENSE STANDARD COLOR CARD OF OFFICIAL STANDARDIZED SHADES FOR HERALDIC YARNS FOR EMBROIDERY AND RIBBONS, developed in association with the Government, has just been released.

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

The Color Marketing Group did three major things in 1973: it opened its membership to international members, it announced the membership would be restricted to 200 chairholders, and CMG held its first meeting outside the United States in Toronto, Canada.

The two semi-annual meetings held by the Color Marketing Group in 1973 were well attended with over 100 persons at each. The first meeting was held in New Orleans at the Fairmont-Roosevelt Hotel where the theme was "Color And All That Jazz: Profit is The Right Tune". The two-day meeting was kicked off by a presentation by management consultant, Mr. Mach Hanan. His subject was "How Creative People Fail To Communicate With Management". Mr. Hanan outlined in detail with examples that fact that management does not understand creativity and creative people. Management, Mr. Hanan pointed out, is concerned with cash flow and costs. To management, creativity and research and development represent costs that he must cover in his annual search for improved return on investment. A creative person should never approach management with "a great idea". Management will immediately react with the thought, expressed or not, of "great costs". Rather, Mr. Hanan pointed out, the creative person should approach management in management's own terms with the suggestion that he, the creative person, has in mind a project that will increase ROI. When management asks how, the creative person should respond with details on the project, small in concept, well planned with specific objectives, schedules, controls, and an alternate way out. The

alternate way out should not be looked on by the creative person as a "failure oriented" idea but as an assurance to management that the project will not run on and on accumulating costs after success is no longer possible. Mr. Hanan went on to give a number of examples as how this can be accomplished. He spoke from 9:30 a.m. to 12:30 p.m. with a 15 minute coffee break and received a standing ovation from those in attendance for his excellent talk.

Continuing the sub-theme "Profit is The Right Tune", CMG called on its membership to present the following program:

"How to Present A New Color Line To Management"  
Hugh A. Price, DeSoto, Inc.

"Selling Management — Psychology Of Color", Norbert Frosch, Columbus Coated Fabrics, Inc., Division of Borden Chemical

"How To Drop A Color", Richard Hoffman, United DeSoto, Inc.

"Customer Inventory Changes", Jack Sideman, Pantone, Inc.

These were followed by a talk by Jim Peed, furniture designer, on "Furniture Design — What Is It?" The banquet speaker was Mr. Jack Lenor Larsen, a major factor in international fabrics and environmental design.

The Fall meeting was held in Toronto, Canada where CMG launched its new major program, CMG's "Color Directions". This was done in a closed workshop session where color in architecture, bedroom and bath, fashion apparel, graphics, industrial design, kitchen and casual colors were discussed in depth in separate sessions. The composite result was published in February 1974 as the CMG "Color Directions" for 1974. Robert Hillman from Sears, Roebuck & Co. presented "Sears' Coordinated Color System" on Monday. On the second day the program consisted of:

"Future Colors In Fine Papers", F. F. Walrod, Hopper Paper Division, Division Georgia-Pacific Corp.

"Color Systems For An Environment", Mary A. Egan, Ontario College of Arts and Paul Arthur & Associates

"Color Research For Trends", Al Cole, Marketing Manager, Canadian Plumbing Fixtures, American/Standard

"Color, Hah!", Ross White, Worldwide Director of Sales Sunworthy Division, Canadian Wallpaper Mfg., Ltd.

"An Historical View Of Color", Douglas Edwards, Manager-Development, Celanese Carpets Canada Ltd.

The banquet speaker was Richard D. Butler, consultant to J. C. Penny Co. on "Color Inconsistencies".

The Toronto meeting concluded the presidency of J. Allen Montei of the Formica Division of American Cyanamid Corporation and F. F. "Bud" Walrod of Georgia-Pacific Corp. was elected for 1974. The board of directors for 1974 for CMG consists of:

Everett R. Call	Hugh A. Price
National Paint & Coatings Assn.	DeSoto, Inc.
Lee Ennis	James R. Radcliffe
Donahue Sales	Champion International Plywood Division
Yale Forman	Carol M. Sheets
Yale Forman Designs, Inc.	Carol Sheets Research
Louis A. Graham	Boone Siegchrist
Burlington Industries, Inc.	PEMCO & Pigments

Annett Johnson  
House & Garden Magazine  
Lee Kolker  
C. H. Masland & Sons  
Roger Lahm  
Kohler Company  
J. Allen Montei  
Formica Corporation

Group SCM Corp.  
Ross Snodgrass  
Matherson-Selig Co.  
F. F. Walrod  
Georgia-Pacific Corp.  
Hopper Paper Division  
Helen S. Wolf  
Sears, Roebuck & Co.

The next CMG meeting will be in Atlanta on May 5-7. The principal presentation will be "Energy — Color It Gold," with speaker Mr. John Haaga of Union Carbide Corporation. Mr. Haaga will talk about the feedstock shortages in the Petrochemicals Industry affects every color producer and user. A CMG panel will discuss "Who Influences COLOR?" on Tuesday. Also the CMG chairholders will hold a closed session meeting on "Color Directions" for 1976.

Anyone interested in attending this meeting should immediately contact Everett Call in Washington, D.C.

CMG has had to postpone, regretfully, its second international meeting scheduled for Amsterdam, Holland in the Fall of 1974.

Soaring costs of group travel has forced this sad postponement. However, the meeting will be held in Philadelphia in the Fall of 1974.

CMG still acknowledges, gratefully, its indebtedness to ISCC for the work of the subcommittee for problem 23 "Historical Color Usage" which resulted in the development of the Universal Color Language. UCL has been the basis of many CMG projects.

#### REPORT FROM THE DRY COLOR MANUFACTURERS DELEGATES EMIL A. WICH, CHAIRMAN

During the past year the regular meetings of the Dry Color Manufacturers' Association featured meetings on Toxicity (Dr. John Frawley, Hercules, Inc.) the Energy Crisis (Mr. Harvey Skaggs, Ashland Chemical) and Cosmetic Colorants (Mr. "Hugh" Fotiu, Revlon).

Considerable time of the Association has been continued to be devoted to the examination of the impact of pigment manufacture and use on the ecology arising from the Occupational Safety Administration (OSHA) legislation. Subcommittees of the Ecology Committee of the Association are actively involved in the study of the Dichlorobenzidine Regulation, Cadmium Pigments, Lead Pigments, Toxicity of Organic Pigments, and Air and Water Pollution.

The Toxicity of Organic Pigments Subcommittee completed its work on the ionic heavy metals content of organic pigments, which was published in the October 1973 issue of the American Ink Maker.

The Association continues to provide an award for the best technical paper relating to pigments which is presented at one of the major meetings of the Society of Plastics Engineers.

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

The 1973 Annual Meeting of the FSPT was held in Chicago, November 14-17. At that time, Mr. Norman Macbeth, Chairman of the Board of Directors of Kollmorgen Corporation, was presented with the Bruning Award for his outstanding contribution to color technology through his development of standardized viewing booths for viewing colors. The Macbeth booths are used in almost every paint plant in the United States. Norman served for many years as the Treasurer of the ISCC.

The Committee's activities for the year were a continuation of the programs begun in the preceding year: continuing work on the Glossary of Color Terms, now about 50% completed, and final formulation of an educational program on color in the paint industry. The educational program has been presented to the FSPT Board of Directors for approval.

Papers published in the *Journal of Paint Technology* during the year 1973 (Volume 45) which may be of interest to ISCC members are listed below:

- 1) Golden, H. J., "Microscopy Method for Observing Pigment Dispersion", January, p. 54.
- 2) Stieg, F. B., "Profiles of White Hiding Power in Latex Flat Paints", January, p. 76.
- 3) Buechler, P. R., Brown, G. L., Parikh, V. P., and Salmon, H. J., "Wetting as an Aid to Pigment Dispersion", February, p. 60.
- 4) Milton, P. B., "Paint Phenomena - They're All The Same", February, p. 35 (tinting strength, hiding power pigment dispersion, white color, undertone, etc.).
- 5) New York Society, "Effect of Titanium Dioxide Particle Size on Exterior Durability", February, p. 55.
- 6) Billmeyer, F. W., Jr., and Abrams, R. L., "Predicting Reflectance and Color of Paint Films by Kubelka - Munk Analysis - I. Turbid Medium Theory, II. Performance Test", April, p. 23.
- 7) Herbst, W., "Dispersion of Organic Pigments with Modern Dispersion Equipment", April, p. 39.
- 8) Plant, D. A., "Applied Color Theory in a Pigments Laboratory", April, p. 57.
- 9) Panush, S., "Metallic/Nonmetallic Concept for New Effect High Chroma - Durable Colors", June, p. 39.
- 10) Allen, E., "Prediction of Optical Properties of Paints from Theory (with Special Reference to Microvoid Paints)", September, p. 65.
- 11) Rosenthal, W. S., and McBane, B. N., "Microvoids as Light Scatter Sites in Polymer Coatings", September, p. 73.
- 12) Mudgett, P. S., and Richards, R. W., "Kubelka-Munk Scattering and Absorption Coefficients for Use with Glossy, Opaque Objects", November, p. 43.

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

This report summarizes the color and color reproduction activities and programs in which GATF is engaged. They

include in-house research projects, cooperative work with other graphics arts industry associations, reports to the graphic arts industry and educational programs presented in all sections of the country.

Published *Research Project Reports* include the following:

"The Munsell-Foss Color Order System" provides for the printer film from which he can reproduce in two dimensions selected segments of a new three-dimensional, cubic representation of color space. Noteworthy in the charts are an ordered color space and the use of tone scales with equal visual rather than equal tint area increments. The printer is expected to use the films to produce his own color solid which will represent the capabilities of his materials and equipment and which will serve as a communications tool with his customers.

"The 1970-72 GATF Color Survey" was based on an examination of process color reproductions collected from printers throughout the world. All reproduction processes were included in the collection. The single largest contribution to color variation appeared to be the control of ink film thicknesses on the prints.

Current research projects of interest include the following:

**Quality Criteria for Halftone Reproduction:** Studies of black-white photographs for reproduction indicate that they can be classified into three main categories - high, normal, and low key - and that each category requires a different tone reproduction curve for its halftone prints. Differences in personal bias among observers in selection of the picture area of critical interest preclude there being a single optimum tone reproduction curve for all photographs.

**Color Analysis for the Printer:** Some 80 different methods and procedures for color separation of originals are now available to the printer. A technique is being developed to assist the printer in deciding which ones he should employ in his production.

**Cooperative Associations Studies:**

Prepress Communication Guidelines is an extensive listing of informational and materials requirements that should be understood and agreed upon by all parties concerned with graphic reproduction. The document was prepared by the Research and Engineering Council of the Graphic Arts Industries, Inc.

The Web Offset Proving Committee is seeking to develop recommendations and aids to facilitate the production of color proofs which are consistent with each other and are compatible with press production.

**Educational Programs:**

**Seminars and Workshops:** Programs dealing with color reproduction have been presented on the following subjects: Art and Copy Preparation, Color Photography, Advanced Color Separation, Color Reproduction and Color Printing. Lecturers were Mr. Harvey Levenson, Mr. Frank Cox, and Mr. Gary Field.

**Conferences:** Area conferences on Magazine Color Reproduction were conducted in Detroit (November 1-3, 1973), San Francisco (January 28-30, 1974), and Reston, Virginia (April 29-May 1, 1974).

Proceedings of conferences held in 1972 and 1973 on

Preparation and Reproduction of Color Copy have been published under the title "Advances in Color Reproduction" available from GATF.

#### **REPORT FROM THE GRAVURE TECHNICAL ASSOCIATION DELEGATES OSCAR SMIEL, CHAIRMAN**

The Gravure Technical Association this past April celebrated its 25th Anniversary and introduced its first full color chart. This is an eleven-step color scale, representing all the various shades and hues of color — about 10,400 — that are used in the gravure printing industry for newspaper, magazine and packaging printing. This is the first time a printing industry organization printed a color chart on a production press using all three standard ink groups, I, III and V, and both 32 lb. newsprint and 36 lb. coated magazine stocks. These charts are used by engravers and printers to check out color separations and ink standards, as well as by advertising agencies to designate specific color values required in their ads. It is, therefore, a most valuable and practical tool for both craftsmen and laymen involved with gravure printed products. These charts can be purchased from G.T.A. at 60 East 42nd Street, New York City, N.Y. 10017.

The G.T.A. Lighting and Viewing Committee is also at the moment, working on the problem of standardizing the color temperature for viewing 35 mm and 2 1/4" x 2 1/4" transparencies. The Chairman, Oscar Smiel, is also Chairman of the ANSI PH 2.6 Subcommittee on Lighting and Viewing Standards for the Graphic Arts Industry and he reports progress is being made by ANSI in that they are now testing a prototype of a 5000 Kelvin projection viewer designed by Macbeth Corporation of Newburgh, New York. It is hoped to resolve the problem by the end of this year, if all goes well with the tests being made by engravers, printers and publishers who use a lot of 35 mm color transparencies. The ANSI and GTA 5000 K viewing standards at present, apply only to 4 x 5 and larger transparencies.

GTA is also presently working on standardizing a 36 lb. white coated proofing stock for engravers to use when proofing ads for magazines printed by gravure. The shade of white has already been determined and the 4 As, MPA and Consolidated Paper Company are working with GTA to complete the details of supply and distribution of the standard proofing stock before announcing its adoption as an industry standard.

#### **REPORT FROM THE ILLUMINATING ENGINEERING SOCIETY DELEGATES C. W. JEROME, CHAIRMAN**

The continuing interest of the Illuminating Engineering Society in color is illustrated by W. A. Weibel's article, "Needed: A Fresh Look at Color in Lighting Design," in which he points out that color is here and now — a familiar, pleasant, useful tool to be applied in the active cooperation of the designer and the engineer. This is implemented by

the formation of a "Special Task Force to Integrate Esthetics and Engineering in Lighting" with the express purpose of studying new design methods which could humanize lighting. In setting up the special task force, the IES President pointed out that the real responsibility of IES is not only to strive for efficient places to work in but also effective and pleasant places to be in.

The IES is also cooperating with the United States National Committee of the CIE which is setting up a study group concerned with psychological problems in lighting. One of the main areas of interest of this study group is in color as a basic factor in the psychological response to light.

At the IES National Technical Conference last year, the following papers on color were presented:

"Fluorescent Lamps with High Color Discrimination Capability"

"Incandescent Lamp-Color with HID Lamps"

"Color in Luminous Ceilings"

The following additional articles were also published in the Journal of the IES:

"A New HID Light Source with High Color Rendition"

"The Flattery Index"

"Interim Study of Procedures for Investigating the Effect of Light on Impression and Behavior"

"A System of Photometry and Colorimetry Based Directly on Visual Response"

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

The major activity of the IDSA in the field of color in the past year was its support of the work of Problems Subcommittee 33, "Human Response to Color", chaired by Alex Styne. Ray Spilman provided liaison between the Subcommittee and the IDSA.

In addition, our Delegate Prof. Robert Redmann has continued work on the preparation of the Macbeth Award medallions, and Delegate Donald Genaro has worked most constructively on the Publications Committee.


#### **REPORT FROM THE INSTITUTE OF FOOD TECHNOLOGISTS DELEGATES ANGELA C. LITTLE, CHAIRMAN**

Too late for action for this issue, Mr. John N. Yeatman informed the Secretary that he had resigned as Chairman of the IFT Delegation, naming Mrs. Angela C. Little as his successor. Hence, no report was received from this delegation. (FWB)

#### **REPORT FROM THE NATIONAL ASSOCIATION OF PRINTING INK MANUFACTURERS DELEGATES**

This delegation has been without a permanent chairman for the last two years. Recent efforts by the Secretary to confirm the identity of a chairman and obtain a report had not been successful by the deadline for this issue. (FWB)

### REPORT FROM THE NATIONAL PAINT AND COATINGS ASSOCIATION DELEGATES EVERETT CALL, CHAIRMAN



Mr. Call assured the Secretary that NPCA members maintain high interest and participation in Council affairs and continue to encourage the Council in the pursuit of its aims and purposes. As an organization, however, the NPCA has not dealt formally with color-related problems in the past year, and therefore it has no report to submit at this time. (FWB)

### REPORT FROM THE NATIONAL SOCIETY OF INTERIOR DESIGNERS DELEGATES BERTRAM LAUDENSLAGER, CHAIRMAN

A four-story Victorian Hotel and Bar with an adjoining building twice the length of the hotel but only one story high. Since the Victorian building had been stripped of its gingerbread over the years, it was very plain. Its roof was painted bright green, with dormer dirty white. The walls and windows were painted dirty white with green doors. The one story building's roof was also painted bright green, the windows brown and the walls dirty white. The two buildings looked like Mutt and Jeff.

No alterations to be done on the exterior of the building. To obtain a new look and better proportions, the roof and dormer of the old hotel was painted with MAB English Brown Latex. All windows and frames were painted with MAB Medium Brown Gloss trim paint and oil base. Half-timber was painted on the building with MAB Medium Brown Gloss trim paint, to the second and third floor. This created the illusion of a lower and wider building. The wall of this building painted with exterior latex, 2 parts ivory and 1 part white.

When the one story building was painted, the roof was painted the same MAB brown. The half-timber that was painted were all vertical. They were painted the same MAB as the other building, and the wall with MAB latex 2 parts ivory and 1 part white. Visually this made the one story building appear higher, and all this done with COLOR AND PAINT.



### REPORT FROM THE OPTICAL SOCIETY OF AMERICA DELEGATES FRANC GRUM, CHAIRMAN

Activities related to color were conducted at an accelerated pace in the Optical Society during 1973. Twenty-two papers that were indexed under color, color measurement or color vision were read at the two general meetings. Twelve papers were published in the Journal of the Optical Society of America under those headings and three letters to the Editor. Six books were reviewed that were listed under those headings.

The technical highlight of the Optical Society's Fall

Meeting was the introduction of a series of tutorial/review seminars, designed to acquaint Optical Society members with activity in specialized subfields of optics. Other features of the meeting included the Center for Visual Science Symposium, which was run back-to-back with the Optical Society Meeting.

Perhaps the most important single event related to color was the presentation of three reports by members of the Optical Society Committee on Uniform Color Scales. Those reports were presented at the Annual Meeting of the Society, in Rochester, New York on October 9, 1973. The Chairman of the Committee (MacAdam) gave a highly illustrated lecture entitled "Regular Rhombohedral Selection of Color." That lecture showed many ways of arranging the colors (about 500) glossy, 2" squares are expected to be available from the Society before the end of 1974. Within the range of colors included in the set, each color will have 12 equally different nearest neighbors. Each of those 12 will exhibit the same amount of color differences from two others of those 12. The 500 colors can be arranged (and rearranged) into about 500 different equally graded color scales. The color differences between successive colors in each of those scales will all be equal. Those scales can be arranged (and rearranged) in about 80 different charts that will consist of intersecting sets of parallel color scales. About half of those charts will consist of two sets of scales that intersect each other at right angles, forming squares. The other half of those charts will each consist of three sets of scales that intersect each other at 60°, forming equilateral triangles. Most of those scales and charts will be of entirely new kinds, and will exhibit colors in combinations and sequences that have never been shown or studied before.

The second paper about the work of the OSA committee was by Dorothy Nickerson who showed and discussed the relationship of the committee's colors to the Munsell renotation system. The third paper was by Gunther Wyszecki, who showed the distribution of the committee's colors in the CIE 1964  $U^*$ ,  $V^*$ ,  $W^*$  color space.

Another interesting paper on a very similar subject was presented at the October Meeting by Anders Hård, from the Swedish Color Center in Stockholm who described the "Basic Concept of the Natural System NCS." Dorothy Nickerson read another paper that supplemented Hård's paper. The paper she read was prepared in collaboration with Dr. Judd. It was entitled "Uniform Perceptual Scales of Color: Relation Between Munsell and Swedish NCS Scales."

R. T. Marcus and F. W. Billmeyer, Jr., presented another paper entitled "Step Size in the Munsell Color-Order System II. The Red-Yellow-Red Region." Anil K. Jain spoke on "Computational Considerations and Generation of Geodesics in Color Space," which was based on Schrödinger's theory of color perception.

The Optical Society delegation to ISCC met during the Annual Meeting of the OSA. In this meeting they established a modus operandi for the delegation. The delegation will meet annually, will strive to increase activity of newer OSA members, recommend biannually changes in delegation, will seek closer interaction with OSA Color Group by reporting to the Group the ISCC activities.

Papers indexed under color, color measurement and color vision — published in the Journal of the Optical Society of America during 1973.

B. V. Graham, "Derivation of Wavelength Discrimination From Color Naming," *J. Opt. Soc. Am.* 63, 109 (1973).

J. Pokorny, V. C. Smith and I. Katz, "Derivation of the Photopigment Absorption Spectra in Anomalous Trichromals," *J. Opt. Soc. Am.* 63, 232 (1973).

L. E. Marks and M. H. Bornstein, "Spectral Sensitivity by Constant CFF: Effect of Chromatic Adaptation," *J. Opt. Soc. Am.* 63, 200 (1973).

C. R. Ingling, Jr. and B. A. Drum, "How Neutral Adaptation Changes Chromaticity Coordinates," *J. Opt. Soc. Am.* 63, 369 (1973).

S. L. Guth and H. R. Lodge, "Heterochromatic Additivity, Foveal Spectral Sensitivity and A New Color Model," *J. Opt. Soc. Am.* 63, 450 (1973).

C. P. Grover and M. May, "Multicolor Wave-Front Reconstruction of Partially Diffusing Plane Objects," *J. Opt. Soc. Am.* 63, 533 (1973).

F. R. Clapper, R. G. Gendron and S. A. Brownstein, "Color Gamuts of Additive and Subtractive Color-Reproduction Systems," *J. Opt. Soc. Am.* 63, 625 (1973).

R. F. Witzel, R. W. Burnham and J. W. Onley, "Threshold and Suprathreshold Perceptual Color Differences," *J. Opt. Soc. Am.* 63, 615 (1973).

U. J. Gugerli, "Lack of Antisymmetry in Metamerism," *J. Opt. Soc. Am.* 63, 755 (1973).

A. K. Jain, "Role of Geodesics in Schrödinger's Theory of Color Vision," *J. Opt. Soc. Am.* 63, 934 (1973).

R. M. Boynton, "Implications of the Minimally Distinct Border," *J. Opt. Soc. Am.* 63, 1037 (1973).

E. M. Granger and J. C. Heurtley, "Visual Chromaticity Modulation Transfer Function," *J. Opt. Soc. Am.* 63, 1173 (1973).

R. E. Savoie, "Bezold-Brücke Effect and Visual Non-linearity," *J. Opt. Soc. Am.* 63, 1253 (1973).

W. R. Uttal, "Chromatic and Intensity Effects in Dot-Pattern Marking: Evidence for Different Time Constants in Color Vision," *J. Opt. Soc. Am.* 63, 1490 (1973).

R. Thielert and G. Schliemann, "Visual Impression of Whiteness and Its Colorimetric Definition," *J. Opt. Soc. Am.* 63, 1607 (1973).

H. W. Holdaway, "Fluctuation Theory of Luminance Applied To the Munsell Scale of Lightness," *J. Opt. Soc. Am.* 63, 1613 (1973).

#### REPORT FROM THE SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS DELEGATES WILLIAM T. WINTRINGHAM, CHAIRMAN

It might be expected that, after four decades of color reproduction in motion pictures and two decades of color reproduction in television broadcasting, the technology in each of these fields of application would have become stable. However, if we judge the situation by the number of technical papers presented to SMPTE audiences, the technology of color reproduction on film and by television still is in a state of flux.

There was a total of 178 technical papers on the 1973 programs of the two 5-day semi-annual technical conferences, the 2-day Winter Television Conference and the 2-day Symposium on Underwater Photographic Applications. Of these 178 papers, 25, or 14 percent, were specifically addressed toward color problems. While some of these papers were descriptive of improvements in sensitive materials or in processing techniques, others attacked fundamental problems in color reproduction and the use of color.

An interesting paper in this latter category, "The Characteristics of a Color Film for Water-Penetration Photography" by N. L. Fritz, M. R. Specht and D. G. Needler, was presented at the Symposium on Underwater Photographic Applications, but unfortunately has not yet been published in the JOURNAL OF THE SMPTE. The authors described an experimental 2-color film with peak sensitivities at 480 and at 550 nm. Upon processing, magenta and green dyes are formed in these two layers respectively. Aerial photography in the Key West and in the Cape Cod areas showed the superiority of this experimental film over normal color films in the delineation of underwater detail.

A list of the more important papers on topics involving color that were published in the JOURNAL OF THE SMPTE during 1973 appears below.

#### COLOR RELATED PAPERS PUBLISHED IN THE JOURNAL OF THE SMPTE, VOLUME 82 (1973)

Stephen R. Baig, "Spectral Properties of Some Marine Phytoplanktons", p. 1007, Dec., 1973.

Henry A. Barrett, Richard E. Bartow, Robert C. Lovick and John C. Norris, "Improved Telecine Image Quality: The Influence of Black Level", p. 829, Oct., 1973.

Lucas J. Bazin, "Performance of Automatic Black Level Control in Telecine Systems", p. 837, Oct., 1973.

K. Blair Benson, "Progress Report of the JCIC Ad Hoc Color Television Study Committee", p. 30, Jan., 1973.

Frederick J. Haines, "A Review of the Use of the Silicon Diode Array Tube in Color Television Cameras", p. 927, Nov., 1973.

Ray E. Knight, "Television Flesh Color", p. 78, Feb., 1973.

Masao Sugimoto, Misao Ezawa and Takao Tamura, "A Color Converter and Its Application for Measuring Human Color Preferences in Color Television", p. 71, Feb., 1973.

Teiichi Taneda, Toshio Sato, Suzuo Tatuoka, Meiki Aiko and Hitoshi Masuko, "High-Quality Laser Color Television Display", p. 470, June, 1973.

P. M. Tannenbaum, "The Spectral Reflectances of Hair, Skin, Wigs and Beards in the Visible and Near Infrared and Their Influence on PICTUREPHONE\* Image Quality", p. 825, Oct., 1973.

Eiichi Yamazaki, Koichi Maruyama, Toshio Ueda and Iwao Ogura, "A Segmented Lens for Improving Color Television Dot Patterns", p. 149, Mar., 1973.

Daan M. Zwick, "The Average Picture Level of Some Television Films, p. 199, Mar., 1973.

\*A service mark of the Bell System

Daan M. Zwick, "Television Receiver White Color: A Comparison of Picture Quality With White References of 9300 K and D6500", p. 284, April, 1973.

Daan M. Zwick, "A Survey of Telecine Practices: A Report of the Telecine Subcommittee of the Ad Hoc Committee for Color Television Study", p. 304, April, 1973.

D. M. Zwick and D. L. Brothers, Jr., "Density and Color Balance of Films Intended for Television: Report No. 2", p. 735, Sept., 1973.

Daan M. Zwick, "The Effect of Automatic Black Level Control on the Quality of Television Film Images", p. 835, Oct., 1973.

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

1973 was an active year for color in the SPSE. A number of papers on the general subject of color as related to photographic reproduction were presented at the society's annual conference. A list of papers on color published in the society's journal *Photographic Science and Engineering*, Volume 17, is appended here.

In addition, the society published a book entitled *Color: Theory and Imaging Systems* (SPSE, Washington, D.C., 1973), which contains nineteen tutorial papers originally presented at a special seminar of the Rocky Mountain Chapter of SPSE in Denver, Colorado during November 1972. That seminar was considered to be so successful that it was repeated in New York City in 1973 and there are plans to repeat it again in Chicago during 1974 and other places at later dates.

The Tokyo Chapter of SPSE held an SPSE International Symposium on Image Materials and Systems in Tokyo, Japan, during November 1973. That meeting also included a number of papers on or related to color applications in photography and related imaging areas.

Photographic Science & Engineering, 17: 1973 —

R. W. Berriman and P. B. Gilman, Jr., "Spectral Sensitization of Mobile Positive Holes", 235.

W. Cooper, "Anomalous Absorption and Luminescence Spectra of 1, 1-methylene-2, 2-cyanine Dye", 3.

G. H. Dawson and W. Vogelsson, "Response Functions for Color Densitometry", 461.

B. Levy and M. Lindsey, "Semiconductor Sensitization of Photosensitive Holes. II. Spectral Sensitization of Silver Halides With PbO — A Photographic Diode", 135.

B. Levy, M. Lindsey, and C. R. Dickson, "Direction of Photocurrents in Silver Chloride with Adsorbed Spectrally Sensitizing and Desensitizing Dyes", 115.

D. F. O'Brien, "Spectral Sensitization of Evaporated Silver Bromide By Monomolecular Layers of Cyanine Dyes", 226.

N. Ohta, "The Color Gamut Obtainable By The Combination of Subtractive Color Dyes. II. Actual Dyes in Color Film. (2) Optimum Spectral Characteristics of Absorption Band", 183.

C. Reich, W. D. Pandilfe, and G. R. Bird, "Attachment and Spectral Shifts of Dye Aggregates to Silver Bromide Surfaces", 334.

A. A. Sadykova and P. V. Meiklyar, "Luminescence Spectra of Photographic Coatings", 315.

R. Steiger, P. Junod, B. Kilchoer, and E. Schumacher, "Spectral Sensitization of Pure and Doped Silver Bromide", 107.

T. Tsunoda, T. Yamoka, and G. Nagamatsu, "Spectral Sensitization of Bisazide Compounds", 390.

T. Yamase, T. Ikawa, H. Kokado, and E. Inoue, "Dye Sensitized Photolysis of Diazonium Compounds. Part I", 28.

T. Yamase, T. Ikawa, H. Kokado, and E. Inoue, "Dye Sensitized Photolysis of Diazonium Compounds. Part II", 268.

E. Yost, R. Anderson, and A.F.H. Goetz, "Isoluminous Additive Color Method for the Detection of Small Spectral Reflectivity Differences", 177.

#### REPORT FROM THE SOCIETY OF PLASTICS ENGINEERS DELEGATES THOMAS G. WEBBER, CHAIRMAN

The Color and Appearance Division of SPE was judged to be the outstanding Division of the Society, because of the wide scope of its activities.

At the Montreal Annual Technical Conference, May 7-10, 1973, four papers on coloring plastics and six papers on decorating were given.

A Regional Technical Conference, "Coloring of Plastics VII", was held at Cherry Hill, N.J. September 24-5, 1973. Twelve papers were given. A new feature of this RETEC was an exhibition of color measuring instruments, which attracted much favorable attention. The exhibit was sponsored by MCCA.

The Division's *Newsletter* continues to be published.

A seminar on basic color technology was held in the Boston area November 29-30, 1973. S. L. Davidson was the instructor and attendance was 43.

Articles of interest which appeared in "Plastics Engineering" were:

"Preparing Plastics for Plating", by D. W. Himmler and J. A. Alzapiedi

"Three Ways to Plate Plastics", by C. D. Storms

"Electrostatic Powder Coatings Attract the Electrical Market", by I. N. Ebling and H. E. Saunders

"Gravure Printing on Vinyl Film", by T. W. Lembo

"Reconsider Liquid Coloring for Plastics", by H. U. Hackney

#### REPORT FROM THE TECHNICAL ASSOCIATION OF THE GRAPHIC ARTS DELEGATES MILES SOUTHWORTH, CHAIRMAN

The resignation of Mr. Warren L. Rhodes and the appointment of Professor Miles Southworth as chairman of this delegation was not known to the Secretary until close to the deadline for this issue. Hence, no report was received from this delegation. (FWB)

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

During the past year TAPPI continued to be very active in the field of color and appearance. The Optical Methods Committee completed old Committee assignments on the following:

Exchange plan for Computer Programs for Appearance Measurement

Information sheet on Indices for Whiteness and Yellowness

Useful Method for Determining Opacity by Diffuse Transmittance Measurement

Presentation of the State of the Art in Fluorescence Measurements

Other Committee Assignments in progress include:

Brightness of Clay & Mineral Pigments

Diffuse Reflectance of Clay & Mineral Pigments

Opacity of Paper

Monograph on the Practical Measurement for Optical Properties of Paper

Determination of Color Difference from Instrumental Measurements

Directional Reflectance of Pulp & Paper

Preparation of Reference High Reflectance White Powder Tablets

Illuminants for Visual Grading & Color Matching of Paper

Several color related papers were given at TAPPI meetings and conferences. At the joint Papermakers/Testing Conference in Milwaukee two papers were given: "The Effect of Selected Dyes on the Environment", and "Fluorescence Measurements by the Two-Mode Method".

Kalamazoo TAPPI, Michigan PIMA & Western Michigan U. jointly sponsored their 18th Annual Pulp & Paper Conference at Western Michigan U. and featured Papermaking, Computerization & Chemical Additives. Papers on the Colorimetry of Fluorescent Whitened Papers, On Line Color Measurement and Computer Color Control, as well as general papers on color were given.

The Gulf Coast TAPPI section had papers given at their Technical Papers Night on Computer Mill Control and Fluorescence Measurements.

All chemists in the paint industry, and all pictorial art amateurs, regardless of their nationality, who have been interested in the history of this profession and art, have heard people talking about

**TURQUET MYERNE's MANUSCRIPT**

Sometimes, perhaps

**MAYERNE MANUSCRIPT**

There were just a few who knew it, or knew its contents because the original manuscript was deposited at the

"British Museum" and for a long time it was possible to have only a very superficial knowledge of it, by reading about it in a rare German publication in a fairly incomplete account.

Thus, we had to wait until 1965 and 1967 so that through the patient and meritorious work of Mrs. Versini, the journal "Peintures, Pigments et Vernis" (Paints, Pigments and Varnishes) gave an almost complete translation of it. All the essential information was, thus, published and a just tribute of admiration and recognition can be rendered to the translator of such a publication.

Meanwhile the publication, which was spread over a series of articles published in two years (in scientific articles) in numerous issues of the review, made the consultation difficult and uncomfortable.

It is assumed that the text could not be published in one volume for material reasons. Should one abandon the publication of such an interesting and extremely cherished work for the paint chemists of the whole world, including numerous art amateurs, who would be able to learn about the instruments and ingredients of masters and workers about which our museums are proud?

We did not believe that. It appeared to us that an effort should be made for its publication at the time when one justly looked for a better knowledge of conditions for the conservation and occasionally even restoration of masterpieces of painting, and in the country where such a work as "The Art of Varnish Painter" of Watin has been published in at least 12 editions.

We found the same desire as Mrs. C. Versini and furthermore her simple and enthusiastic attachment to the idea. After a friendly understanding of H. and J. P. Rabaté and the administration of Ste SOPRODOC, as well as the kind permission of the British Museum, we were encouraged to study the possibilities of a material realization of the publication of "Mayerne Manuscript."

With the cooperation of the printers, Audin frères of Lyon, the Mayerne manuscript will be published in the form of a volume of approximately 208 pages, in 18 x 23 cm format. The participation of all interested parties is necessary for this purpose in the form of a subscription at a price of 45 Francs per copy for the metropolitan France and 55 Francs for foreign countries (this price includes packing and postage). The price will be raised after the subscription.

The book will be ready for mailing in about six months, which makes it possible to deliver the subscription copies during 1973.

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### NOTE:

The Council promotes color education by its association with the Cooper-Hewitt Museum. It recommends that intended gifts of historical significance, past or present, related to the artistic or scientific usage of color be brought to the attention of Christian Rohlfing, Cooper-Hewitt Museum, 9 East 90th Street, New York, New York 10028.