Inter-Society Color Council *News*

ANNUAL MEETING REPORT

Number 290 MAY-JUNE 1984

REPORT OF THE PRESIDENT, LOUIS A. GRAHAM

Thank you for the opportunity and honor of being your ISCC president for a fast, fast two years.

As outgoing president, I have little to say and only a little time to say it.

Your organization is in good shape, both financially and spiritually. The team of officers, board members and chairmen you have given me to work with have been, as usual, great, But you will not remember me, or my adminsitration, in ISCC for long.

Yet I would take this opportunity to recommend a book to you:

Megatrends by John Naisbitt.

Although the paperback cover is a pretty whirl of a rainbow, it has *little* to say about color, and what little it says, I do not entirely agree with.

However, it made me think about color and color trends, and here are my ramblings;

I title these thoughts: Mega Color Trends: *One man takes ten looks at color.*

One (1): First trend: probably ten million color matches are made now in one day in industry.

Probably one hundred million total color matches are made each day when artists, computer color graphics and all else are included.

Two (2): Now or within two years, instrumental color systems will be making more color decisions in one day than humans have in all of history.

Three (3): A prediction – and please keep in mind *Chemical Abstracts* computerized molecular structures capability:

More new practical colorants – minor and major variants – will appear in the next ten, plus the last five years – than in the last highly productive one hundred years.

And this despite the governments and environmentalists of this world.

Four (4): More color professionals will appear in the next ten years than have appeared in the last one hundred years.

Five (5): More meetings on color have occurred in the last five years and will occur in the next five years than in the last fifty or even 500 years.

(A secret I share with you: I didn't attend all those meetings in the last five years and *you* can't attend all those in the next five years. Look at your budget! Be prepared to choose carefully!)

Six (6): Some color journal not unlike – (listen Fred Billmeyer, Editor) – *Color Research and Application* will in the next five years go electronic and start to reach *in one working day* more color professionals than all the color literature of all the years until now.

Seven (7): The world's greatest color scientist – he or she – has yet to appear. (If 90%-95% of all types of scientists who ever lived are living now – why should my statement not be believable?)

Eight (8): The true insight into the merger of color perception and color vision theories will appear in the near future – perhaps before the year 2000 – and this will open up color economic opportunities of *enormous* potential.

Nine (9): An important trend: "Fast" and "slow" color together.

Faster instrumentation and fantastically fast computation will produce a reaction and a hope: *Slower viewing – more appreciation* of color. As more and more volor and color decisions become available, we will seek colors more quietly vibrant – a seeming contradiction in terms. I refer to "personal" color experiences which will range over a *larger* gamut, while individuals will be more selective in their color choices and combinations.

More people will view more color, and more "good color," in the museums of this world, and yes, in the product markets, crafts shows, street art galleries, flea markets and art stores than ever before.

Ten (10): There will be for some color organization more opportunity to be of service in the fields of color in the next 5.3 years than in the last 53 years.

I say 53 years because that is the chronological age of the Inter-Society Color Council (Dorothy Nickerson, original individual member of ISCC – are you listening?).

Please! Let this responsive service organization be ISCC.

Joyce Davenport: Incoming President –

Allan Rodrigues: Incoming President-Elect – both of you please stand up.

These two are already at work.

They will help make it happen.

But, the rest of you – you color professionals here present and not present – those beyond this room, beyond this day, you – our color scientists, designers, artists, technologists – all of you –

You will be making color work for you, for us and for all mankind.

REPORT OF THE PRESIDENT-ELECT, JOYCE S. DAVENPORT

This is my second year as president-elect of the council and also as the chairman of the problems committees. The two years have passed very quickly, but not without leaving many deep impressions and fruitful experiences.

I am very grateful to all who have supported me, and who have donated their time and efforts to the aims and purposes of the council, and by doing so made the responsibilities of this office somewhat easier.

I would like to thank the problem committee's liaisons, Robart Hoban, Rolf Keuhni, Joy Turner Luke and Allan Rodrigues for their hard work and communication with me. As it has been said before; the project committees are the heart and soul of the Inter-Society Color Council. In spite of the difficulty, it has been demonstrated, to meet more than once a year, that this effort has produced significant progress. To whose committees who have taken the opportunity to do this I extend a special thanks.

My thanks to Bill Thornton who assumed the responsibilities of the member-body liaison from me, at a time when he was overwhelmed with the project of starting his new company, Prime Color Inc. Bill has done an admirable job and has communicated with most of the delegations. During the year we have gained two new member-bodies, the Assoc. for Finishing Processes of the Society Mechanical Engineers and the very active and dynamic Detroit Colour Council, who have changed their status from a sustaining member. Congratulations to both.

"Color and Imaging" was the theme of the 1984 Williamsburg Conference. It was a very successful meeting thanks to the chairman Dick Ingalls and the arrangement chairmen Bonnie Swenholt and Tom Webber.

I would like to thank the out-going board of directors for all their efforts and input during their term, but they need not think of relaxing for we are not going to allow them to become inactive, we intend to keep you busy. To the incoming board, may I say "welcome," we have a lot of hard work ahead of us, but this is a team effort and we know we can accomplish our goals.

To Lou Graham our president for the last two years – I would like to express my appreciation for his help and thoughtfulness. Lou need not think of relaxing as he has already been drafted into the team working for the future good of the council.

REPORT OF THE SECRETARY
THERESE R. COMMERFORD

Election of new officers and directors took place early in 1984. Ms. Joyce S. Davenport, as the President-Elect, automatically succeeded Mr. Louis A. Graham to the office of president. Dr. Allan B. J. Rodrigues was elected president-elect. Ms. Therese R. Commerford and Mr. Edward T. Connor were reelected secretary and treasurer respectively. Replacing Directors Warren Reese, Barbara Schirmeister and Thomas G. Webber are Nancy Jo Howard, IMG, Peter Kaiser, AIC, OSA, and Danny C. Rich, IMG. Officers will serve a two-year term, while the directors will serve on the Board for the next three years, 1984 to 1987.

The Board of Directors approved the election of the Detroit Colour Council as a member body of the Council at its meeting on April 7, 1984. The Detroit Colour Council has been a Sustaining Member of the ISCC for many years. The Inter-Society Color Council extends its welcome and best wishes to the Detroit Colour Council as its newest member-body.

The Council regrets to announce that the Gravure Technical Association resigned as a member-body this past year. ISCC is unhappy over this decision of GTA's, and the loss of a valuable member. It is hoped that GTA will reconsider its decision and once again become a member-body of the Council.

A total of thirty-nine individual members were elected to membership by the Board of Directors in the past year. These new members are included in the following table, which lists the number of ISCC members in each of several categories as of May 31, 1984. The actual numbers fluctuate from month to month, as new members are added.

Membership Category	*Number of Members*
IMG: United States	533
Canada	17
Other Countries	95
IMGR (retired)	18
IMGS (student)	8
Honorary Members	14
Delegates	222
AIC Representatives	27
Member-Body Liaison	34
Library Subscribers	16
Total Membership*	899

*Many delegates and AIC representatives are also IMG's; hence, the total membership is not the sum of the above items.

ISCC has a new honorary member. By action of the Board of Directors at their meeting on April 7, 1984, Mr. Max Saltzman, ACHS, IMG, was elected an Honorary Member of the Council.

Dr. Fred W. Billmeyer, Jr., former long-time secretary of ISCC, is retiring from Rensselaer Polytechnic Institute at the end of the 1984 academic year. He will continue to serve as editor of Color Research and Application, the journal endorsed by ISCC. Dr. Billmeyer reports that many outstanding papers on color will be published in the Journal's coming issues. ISCC members are encouraged to subscribe to the Journal at the special member rate.

In February, ISCC cosponsored a Williamsburg Symposium with GATF. The conference entitled, "Color and Imaging" was held in Williamsburg, Virginia on February 12-15, 1984. It was both a very interesting and successful meeting. The 1984 Annual Meeting was held in Southfield, Michigan on April 8-10. This extremely successful and attended meeting was held in conjunction with the Detroit Colour Council and the Detroit Society for Coatings Technology. The 1985 Williamsburg Conference will be held February 11 to 13, 1985. The conference theme will be, "Color: Then and Now." The 1985 Annual Meeting will be held in Pittsburgh, Pennsylvania, April 14 to 16, at the Sheraton Station Square Hotel. This meeting will precede the meeting of the Symposium on Color and Ap-

pearance Instrumentation (SCAI).

REPORT OF THE TREASURER AND FINANCE COMMITTEE, EDWARD T. CONNOR

The financial strength of your Society continued strong in 1983. The fund balance increased an estimated $12,476 during the year to $48,819. This unusual increase was due to favorable income from the Williamsburg Conference and investments and deferral of some expenses to 1984.

The approved Budget for the calendar year 1984 follows. It is presented vs the preceeding year. The 1984 Budget projects a $1,700 loss due to higher expenses.

Major "features" of the 1984 Budget are:

1. Higher net dues income due to improved billing and collection procedures.
2. Lower net income from meetings due to foregoing fee increases (despite rate increases).
3. Higher income from investments due to improved cash management.
4. Higher spending in:
   a. The Newsletter and audit areas due to deferral of disbursements from prior period.
   b. The Presidents' Office to reflect realistic requirements of current operations.
   c. Printing areas that do not occur each year.
   d. Publicity and Special Projects to reflect planned enhancement of activity and services of your Society.

May I extend my sincere thanks to the members of the Finance Committee: Mr. Charles G. Leete, Mr. William N. Hale, Jr. and Mr. Warren B. Reese, and to my fellow officers, the Board of Directors and all of the members of the Inter-Society Color Council for their guidance and cooperation during this successful year for your Council.

Inter-Society Color Council
1984 Proposed Budget

INCOME	*1983 BUDGET*	*1983 ACTUAL*	*1984 (Proposed) BUDGET*
Dues	$14,000	$11,472	$14,000
Annual Meetings	1,500	1,552	1,500
Williamsburg	5,500	9,864	3,500
Interest	2,000	2,367	3,100
Miscellaneous	535	440	500
	$23,535	$25,695	$22,600
EXPENSES:			
Newsletter	$10,000	$ 8,713	$11,500
President's Office	200	151	2,000
Secretary's Office	3,500	1,974	2,500
Treasurer's Office	800	556	900
Directors' Meetings	500	288	400
Committees	400	298	400
Publicity/Special Projects	1,500	0	1,000
Audit	800	0	1,800
Miscellaneous	200	191	300
	$17,900	$12,171	$20,800
NON-RECURRING			
Newsletter Cover	$ 1,000	$ 0	$ 1,000
Print By-Laws	0	0	1,000(1)
Print Membership	825	994	1,000(2)
Awards	400	54	500
	$20,125	$13,219	$24,300
SURPLUS	$ 3,410	$12,476	($ 1,700)
FUND BALANCE	$39,753	$48,819	$47,119

(1) Amortized over 3 Years (1984, 1985, 1986) at $1,000/year
(2) Amortized over 2 Years (1984, 1985) at $1,000/year

THOUGHTS ON RECEIPT OF THE MACBETH AWARD, 1984, RUTH JOHNSTON-FELLER

The receipt of an award in one's later years is a time for remembering . . . So many memories come rushing back. Yet in a few brief paragraphs one can only select a small number to comment on.

It is said that, in learning, "we build on the shoulders of giants" – those who have studied and worked before us. In the realm of color science, the period of my learning was such a time of "giants": Judd, Nickerson, Wright, Evans, Duncan, Saunderson, Stearns, Davidson, Hemmendinger, MacAdam, Wyszecki, Saltzman, Billmeyer, and so many others. In trying to sort out my most memorable experiences, I must first pay tribute to the many giants who have led the way and give special thanks for the privilege of knowing them and learning from them.

In reminiscing about the past years, I conclude that my most satisfying memories are related to the joining of science and art through color and the materials used to produce it. To the artist, color is the medium of expression, whereas, to the scientist, colorants dispersed in a vehicle are the medium and, as such, have individual physical characteristics which can be measured. In the immediate past, most artists didn't know or care . . . even . . . about the physical behavior of their materials. More than one art school teacher, as well as some well-known contemporary artists, have said "it would stifle the artists' creativity to have to learn any science concerning the materials they use." Science stifled Leonardo da Vinci? The knowledge of vehicles stifled van Eyck?

How very welcome, then, were Artists' Equity's requests a number of years ago for help in developing some technical information about their painting materials! I was Chairman of the ISCC Problems Committees at that time and like to think that I have been of some help. Thanks to their very hard work, under the chairmanship of Joy Turner Luke and in affiliation with ASTM, an ISCC member body, artists of the future will have access to materials that are properly labeled and classified.

Perhaps scientifically-trained people will never completely understand the creative process that the gifted artist goes

through; and, perhaps, the converse is also true . . . the artist will not completely understand how the scientist gets his kicks out of unravelling the logic underlying the behavior of materials. However, the meeting of these two disciplines in the Inter-Society Color Council, provides the opportunity for getting acquainted and for communicating with one another.

Early in my years of working in color technology, I was privileged to meet and work with the man I eventually married, Dr. Robert Feller. For many years, we systematically collected data concerning the failure of pigmented systems following exposure to deleterious environments, slowly piecing together the logic which would allow us to predict the results of long-term exposures. We are finally publishing the results of our many years of study in a series of articles published primarily in journals of art conservation. As with most efforts in research, however, more questions keep arising and, hence, the work is never finished. In this experience I think the creative artist can also share; he never completes his statements of his inner vision so that he, too, experiences the frustration of forever unfinished business. I suppose, however, that it is this forever unfinished work that keeps us all running, artist and scientist alike.

At such a time of remembering, one's basic underlying thanks go, as well, to one's employers . . . those individuals in governmental, industrial, academic, or philanthropic organizations who supported the work and paid the bills. These persons deserve a special thanks for their faith. There have been many who supported my efforts during my many years of working, having been employed at one time or another by each of these four types of organizations or institutions. One of these persons was Norman Macbeth, Jr., who established this award in memory of his father, and who was always enthusiastic and supportive. Gratitude for the help of these administrative people is a primary emotion when remembering the past years at this time.

Another favorite memory is that of teaching the short courses for people new to the field of industrial color technology. Many of the students have gone on and enlarged their knowledge. Many are now active participants in the ISCC and in various of its member bodies. One can't help but be proud of them.

The ISCC's 1984 annual meeting was a very stimulating experience, a result of the dynamic and energizing leadership of color-bitten "bugs," those fascinated with the experience of color. Organizations tend to go through cycles of vigor and languor, but from what I can see of the enthusiasm, leadership, and vigor at the 1984 meeting, ISCC is still serving the objectives that the charter members envisioned for it, fulfilling the role of catalyst for the interaction of diverse ideas and interests in color. Long may it continue to be so as ISCC evolves in new directions, changing . . . but constant in a common enjoyment of the impact of color in the visual experience!

Rugh Johnston-Feller

MAX SALTZMAN AWARDED HONORARY MEMBERSHIP

For the past 28 years, with the exception of the Korean War period, Max has been associated with the field of colored organic pigments and dyestuffs. He began his career in color as a member of the technical staff of Harmon Colors. His early work involved objective color measurement, colorant identification, and criteria for the proper selection of colorants. He organized and directed the laboratory for the spectrophotometric measurement of color. Following the acquisition of Harmon by Allied Chemical Corporation in 1961, he became Technical Assistant to the Vice President, National Aniline Division of Allied. In this position he was responsible for the research budgets for pigments and pigment intermediates. In addition, he continued his work in color technology computer color matching, color measurement and specifications. When the National Aniline Division was combined into the Industrial Chemicals Division in 1966, Max was appointed Senior Research Scientist at Allied Chemical's Research Center in Morristown, New Jersey. He retired from this position in 1973, continuing as consultant through 1976.

In 1974 he began his present work as a Research Associate, Institute of Geophysics and Planetary Physics at the University of California, Los Angeles (UCLA), a position he presently holds. At UCLA he has been able to pursue his hobby, the analysis of archeological and artistic objects for their coloring matter. He has made significant contributions in this area, collaborating with numerous museum staffs both in the United States and many foreign countries.

He has always been interested in education and has served continuously since 1966 as Adjunct Professor of Chemistry at Rensselaer Polytechnic Institute in Troy, New York, where he counsels and aids in the supervision of graduate students in the field of color and helps teach summer courses in color technology for industrial chemists and managers.

He continues his industrial interests by serving as a consultant in color measurement and control for PPG Industries.

His interest and skill in pedagogy is also apparent in the elementary book, *Principles of Color Technology,* which he coauthored with Professor F. W. Billmeyer, Jr., published by Wiley-Interscience in 1966. It has served to introduce many thousands of students and industrial workers to the science of color. Max and Fred are currently revising and updating the book.

Max has combined an unusual and unique combination of expertise, a thorough knowledge of the chemistry of coloring materials, dyes,and pigments, with a full appreciation for the tools and techniques of color technology, "color measurement," colorant formulations, etc. His paper, "Chemistry and Technology of Color Pigments," presented on the occasion of the celebration of the Fiftieth Anniversary of the Organic Coatings and Plastics Chemical Division of the American Chemical Society (ACS) in 1974 is deserving of careful study as an introduction to the chemistry of colorants. It was incorporated as a chapter in the book, *Applied Polymer Science,* issued by the ACS in 1975.

The world of art and archeology knows a somewhat different person, a scholar and historian, devoted to the study of ancient artifacts and colorants used in their making. Proof of

the reputation he has established in this field was an invitation to present a paper before the XCII International Meeting of the prestigious Congress of Americanists in Paris, 1976, where he discussed "The Analysis of Dyes in Textiles of Ancient Peru."

Perhaps most important of all is the help and encouragement he has given to numerous people in need of guidance and help with individual problems of color technology, colorant analysis, color control, and colorant selection. His generous help and interest on this personal level has endeared him to so many persons in the field of color and colorant technology that it is difficult to discuss these subjects without mentioning his contributions or conversations.

He has played an active role in the work of many technical societies as well. A list of his publications (not necessarily complete) as well as a list of his society memberships is attached.

Ruth Johnston-Feller

Publications

I. BOOKS

Principles of Color Technology (with Professor F. W. Billmeyer, Jr.), Wiley-Interscience, New York, NY, 1966.

II. ARTICLES AND PRESENTATIONS:

"Color Matching via Pigment Identification," *Dyestuffs,* Volume 43, September, 1959.

"Colored Organic Pigments: Why so Many? Why so Few?", *Official Digest,* Federation of Societies of Paint Technology, Volume 35, March, 1963.

"Color Measurement With the Eye and Other Instruments," *Color Engineering,* Volume 1, December, 1963.

"The Identification of Colorants in Ancient Textiles," *Dyestuffs,* Volume 44, June 1963. (Presented to the International Institute for the Conservation of Historic and Artistic Works, New York University Institute of Fine Arts, June, 1963.)

"Color As An Engineering Material," J. Society of Plastics, *Engineers,* Volume 19, May, 1963, p. 476.

"Variables in the Measurement of Colored Samples," *Color Engineering,* Volume 3, September-October, 1965.

"Colorant Identification" in "Fundamentals and Problems of Color: Analytical Aspects of Color," A Symposium, *J. Paint Technol.* Volume 39, June, 1967.

"Computers, Color Matching and Common Sense" [Can't remember where this was presented and can't find a publication, but remember the paper well.]

"Colorants – Dyes and Pigments," Presented at the annual meeting of the Americal Chemical Society, September, 1968. (Symposium on Color Technology, M. Saltzman, Co-chairman.)

"Color Differences and Color Tolerances." Presented at the Federation of Societies for Paint Technology, Annual Meeting, New York, September, 1968.

"Identification of Colorants in Ancient Textiles." Lecture at the Walters Art Gallery, Baltimore, Maryland, March, 1968.

"Variables in the Measurement of Colored Materials, *J. Paint Technology,* Volume 39, p. 360 (1967).

"People – The Vital Ingredient in Color Instrumentation," *PaVaC Award Lecture,* to the New York Society for Paint Technology, June, 1969.

"Industrial Color Technology, Co-Editor with R. M. Johnston, Advances in Chemistry Series No. 109, American Chemical Society, Washington, D.C., 1971.

"Chemistry and Technology of Color Pigments," *Applied Polymer Science,* J. K. Craver and Roy W. Tess, Editors, Organic Coatings and Plastics Chemical Division, American Chemical Society, Washington, D.C., 1975. (Publication of the invited papers presented at the ACS Annual Meeting, Atlantic City, New York, 1974, on the occasion of the Fiftieth Anniversary of the formation of the Organic Coatings and Plastics Chemical Division of the ACS.)

"Computer Color Matching, A View from Retirement," *Color Research and Application,* Volume 1, p. 167 (1976). Publication of a paper presented by M. Saltzman at the ISCC Williamsburg Symposium on "Computer Color Matching, 10 Years Later" held in January, 1976. [Mr. Saltzman had been chairman of the first ISCC Williamsburg Symposium on "Computer Color Matching" held in 1966. He was honorary chairman of the 1976 Symposium.]

"The Analysis of Dyes in Textiles of Ancient Peru," presented by invitation to the XCII International Congress of Americanists, Paris, France, September, 1976.

REPORT OF THE 1984 ANNUAL BUSINESS MEETING

The 1984 annual business meeting of the Inter-Society Color Council was called to order by President Louis A. Graham at about 1:00 P.M., Monday, April 9, 1984. After the Secretary reported a quorum of voting delegates was present, the President reported the official results of the election for officers and directors. He introduced the incoming officers: Ms. Joyce S. Davenport, President; Dr. Allan B. J. Rodrigues, President-Elect; Ms. Therese R. Commerford, Secretary; and Mr. Edward T. Connor, Treasurer. The incoming directors were next identified; Dr. Nancy Jo Howard, Dr. Peter Kaiser, and Dr. Danny C. Rich.

Secretary Therese R. Commerford gave a brief report on the number of new individual members in ISCC since the last Annual Meeting, a total of 39. The Secretary's report is reproduced elsewhere in this Annual Report issue. Mr. Edward T. Connor gave a brief oral Treasurer's report, also reproduced in its entirety in this issue.

President Graham recognized Dr. Allan B. Rodrigues, Chairman of the Annual Meeting, and thanked him for his efforts in making this meeting the success that it was. Mr. Graham also thanked the two co-sponsoring societies, the Detroit Colour Council and the Detroit Society for Coatings Technology.

President Graham next announced that the Detroit Colour Council had been approved for membership as a Member-Body. He congratulated the Council, and asked the chairman of their delegation, Mr. William Longley, to rise and be acknowledged. Mr. Graham also congratulated the Association for Finishing Processes of the Society of Mechanical Engineers for their recent addition to the list of ISCC Member-Bodies.

The President presented Certificates of Appreciation to retiring Directors Barbara Schirmeister, Warren Reese, and Thomas G. Webber; to retiring Past-President William D. Schaeffer; to the chairman of the 1984 Williamsburg Conference, Richard D. Ingalls; and to retiring Project Committee chairmen Theresa F. Zook, Project Committee 39; Robert Tausendfreund, Project Committee 25-D; Anthony J. Pentz, Project Committee 36; and Ralph Besnoy, Project Committee 27.

Mr. Graham announced that there had been two new Honorary Members added in the past year, Mr. Kenneth L. Kelly and Mr. Max Saltzman. He called for additional nominations, and asked these be sent to the secretary.

The President reviewed the three ISCC awards and recognized Dr. Steve Bergen, Chairman of the Awards Committee. He called on Mr. Milton Pearson, Chairman of the Godlove Award, to stand, and reminded the members that nominees for this award are being solicited now. Mr. Graham spoke on the Macbeth Award, and mentioned the award was on display before the Annual Business Meeting. He acknowledged the members of the Macbeth Award Committee; Mr. Robert F. Hoban, Chairman, and Mr. Richard Hunter, Mrs. Barbara Schirmeister, Dr. William A. Thornton and Ms. Jacqueline Welker. He thanked the Committee for their excellent choice of this years recipient of the Macbeth Award, Mrs. Ruth Johnston-Feller.

The Macbeth Award citation was given by Mr. Max Saltzman. After the presentation, Mrs. Johnston-Feller responded with brief remarks.

Respectfully submitted,
Therese R. Commerford, Secretary

THE DYNAMICS OF AUTOMOTIVE COLOR

Concluding the 1984 annual meeting of the ISCC was a symposium that was jointly sponsored by the ISCC, Detroit Colour Council, and the Detroit Society for Coatings Technology. The symposium was an overwhelming success, drawing nearly four hundred participants. This is probably the largest attendance ever at an ISCC annual meeting symposium.

The morning session was chaired by Gerald R. Thorley of Chrysler Corporation. Mr. Thorley set the tone for the rest of the symposium with his opening remarks which included the statement, "No single factor is more important to automotive design than color!" The first three speakers confirmed his statement by describing the role of color and appearance in the design stages of automotive manufacturing. Trevor M. Creed of the Ford Motor Company talked about the need for designs to lead the prevailing trends but not by too much. A design that is too close to the leading edge of design trends is very often unacceptable to public. This provides a formidable task for the automobile designer who must submit his designs three or four years in advance of production. His predictions for the next three years include increased use of modular designs and aerodynamic styling. There will be more electronics and new materials used to enhance the space and comfort of the downsized cars. He believes that ergonomics, not symmetry will be the leading force. In color there will be more multi-color fabrics and more harmony between exterior and interior colors. The criticallity of color matches is increasing, especially on interior components.

David Warn of General Motors described their efforts at simulating the color appearance of automobiles on a color graphics computer terminal. They are now able to simulate both diffuse and specular illumination and reflectance from several directions simultaneously. Using several of the latest algorithms he showed slides of simulated illumination from spotlights, barndoors, flaps, and so on, just as a still photographer would use to highlight certain features of the car. The surface correction of Cook and Torence provide realistic effects of the blending of light reflected from metallic and non-metallic surfaces.

June B. Roche of Milliken and Company described the latest trends in fashion colors. It seems that color has been rediscovered as a creative design tool. The latest trends from Europe are toward softer and lighter colors. The colder, gray tones from the Japanese influence are giving way to a larger color selection allowing the consumer to experiment with color in their lives.

David P. Bash of the Ampacet Corporation talked about the parameters that affect the colorants used to color various forms of plastic used in the interior spaces of automobiles including woven textile fibers. Primary importance is given to thermal and UV light stability. Other areas of concern include color matching of different materials, color control in manufacturing, metamerism, and communication of color and color problems.

Milton I. Hardt of the Sherwin-Williams Company talked about the problems of producing refinish coatings for the automotive industry. He described the compounding of color matching problems when one tries to match 15 to 30 new colors per manufacturer per year for 10 to 20 manufacturers world wide. If the supplier then tries to make these matches in 3 to 4 different resin systems the task become almost a nightmare. Metamerism is a major problem and must be dealt with sensibly. The manufacturer knows he must make some compromise in either the match or the physical properties or both. Overall a refinish supplier may make 1200 to 2400 critical color matches per year.

The afternoon session was chaired by James E. Abell of the General Motors Corporation. This was a sort of mini-symposium on Instrumental Control of Automotive Color.

The first speaker was William Longley of Ford Motor Company. He stressed that the automotive industry needs objective color evaluation of the many parts that go into a car. These parts may be supplied by a large number of small firms supplying one component for the total assembly. All such parts must still match the rest of the car. There are many difficulties to achieving such a goal. Old shapes, printed patterns, woven patterns, gloss differences, and surface texture all provide significant problems to the standard color instrument. Mr. Longley emphasized that the nature of the object can affect the measurement and asked how can numerical tolerances be specified for such conditions. Even in the case where there is no measured color difference two observers may not agree on the quality of the match. He was especially critical of suppliers

who use instruments and calculate color coordinates for standard illuminates and view the samples under non-standard sources. He recommended using the spectral power distribution of the light source for all colorimetric calculations. He also indicated good success by Ford in Europe with the new J & P Coats color difference formula. Unfortunately, there is still considerable lack of confidence in objective measurements on the part of both users and suppliers of colored parts. Ralph A. Stanziola of Applied Color Systems discussed the use of the Maxwell spinning disk as a tool to improve color communications. It is possible to simulate the color and to some extent the appearance of colored objects without having to produce the objects. Transmit that simulated color across the country and be confident that what the person receiving the communication will be viewing the same stimulus that the sender is viewing. The Maxwell disk is preferred to a CRT display for two reasons. First, the instrument to instrument stability is better. The Maxwell disk system can be manufactured to within a tolerance of 0.1 CIELAB color-difference units. Second, the metamerism induced is far less severe. A typical set of CRT phosphors will have an average color difference of 59 CIELAB units compared to 2.4 units for the Maxwell disk using the seven CIE color rendering index samples as target colors.

The last speaker was William A. Balloon from E. I. duPont. He described a system for controlling the application of metallic flake coatings on an automotive production line. Using a two angle reflectance measurement and computer control of a dozen application variables they are able to paint body parts with metallics coatings such that the day-to-day variation is less than or equal to 0.15 CIELAB color difference unit. He admitted that the new mica pigments were much more difficult to control.

Overall the meeting was well received. The speakers held to their allotted time and questioning was lively and informative. The results of Mr. Balloon left the audience noticeably moved by his estimates of manufacturing precision.

Danny C. Rich

REPORTS OF STANDING COMMITTEE CHAIRMEN

REPORT OF THE BY-LAWS COMMITTEE THOMAS G. WEBBER, CHAIRMAN

It was proposed that the By-Laws be amended to give the Board of Directors the option of suspending a By-Law or standing rule temporarily. This amendment was passed by a majority of the voting delegates and becomes Article XI.

REPORT OF THE LONG RANGE PLANNING COMMITTEE, RICHARD D. INGALLS, CHAIRMAN

A Long Range Plan to Prepare and Distribute Information about Color through Printers, Publishers, and Educational outlets was proposed and presented to the Fall ISCC Board meeting by this committee chairman.

The intention is to select and prepare information on color that represents the best understanding of color science and its practical application in the arts and industries, to illustrate the material in 8½ X 11" formats, and to produce color separation films. The films would be duplicated and provided to those printers and publishers who will agree to print copies and distribute them free to educational institutions. The literature would be written at the elementary, intermediate and adult level. Printers would be able to print the material when they occasionally have space available on press. Publishers would be able to include the pages as part of an article.

The Board indicated interest and directed the formation of a sub-committee to be formed to select the information to be illustrated and published. A committee has been formed for this purpose with Professor W.D. Wright acting as consultant. Other members are Ralph Stanziola, Alan Robertson, and Dusty Rhodes.

The Board of Directors will be asked to approve this effort as a new committee entitled the COLOR KNOWLEDGE-TOMORROW COMMITTEE, and work is intended to start for the first phase, the selection of the information. This will take approximately two years.

This chairman has resigned from the chairmanship of The Long Range Planning Committee in order to concentrate on the task of a ten year effort for putting information on color in the hands of the youth of tomorrow.

REPORT OF THE MEMBER-BODY LIAISON COMMITTEE, WILLIAM THORNTON, CHAIRMAN

It is always a special pleasure to welcome new member-bodies into the ISCC fold, with their new insights, new contributions, and new problems. Recently we have gained AFP (the ASSOCIATION FOR FINISHING PROCESSES of SME), and the DETROIT COLOR COUNCIL, and EDRA (the ENVIRONMENTAL DESIGNERS RESEARCH ASSOCIATION) is coming on strong.

We have heard recently from: AMERICAN ARTISTS PROFESSIONAL LEAGUE: I spoke to Angelo Grado in Brooklyn; he promised to send some news of AAPL for the Newsletter. AMERICAN CERAMIC SOCIETY: Joe von Tury; they are into restoration of historic buildings along the traditional RR line from Washington to New York. Worked in the Senate Building, replacing several thousand tiles from a decorative floor; the problem being to make the new tiles look old. Now at work on the Baltimore station, trying to match the wear in the decorative ceramics needing replacement. AMERICAN CHEMICAL SOCIETY: Larry Lerner; new chairman of delegation; they had a regional meeting in Newark on color chemistry. AMERICAN INSTITUTE OF ARCHITECTS: an AIA member in San Diego recently was one of the most knowledgeable chaps in regard to color that I have heard in a while; lots of new ideas; we need a new start with AIA. ENTOMOLOGICAL ASSOCIATION OF AMERICA: Howard Frank was just back from South America; studying color vision in mosquitoes; different species respond differently to color. INDUSTRIAL DESIGNERS SOCIETY OF AMERICA: Ray Spilman spoke of Mary L. Buckley's "Light, Color and Poetry," in vol. 8, no. 4 of Color Magazine;

his own films: "Color on Products," value of professional color guidance in choice of color, and "Color and Human Factors," to point up proper use of color on controls. NATIONAL PAINT AND COATINGS ASSOCIATION: Juliet Benedicto, new Associate Director; she will assign new chairman and voting delegates. And from many OTHERS, whose reports you will see in these pages.

Some reminders and suggestions: Each member-body should have a 'chairman of the delegation' who is a voting member, two more voting delegates, and up to seven additional delegates; it is good to have three new delegates, three experienced delegates, and three 'old timers;' some young, 'activist' delegates; the delegation should wade-in to ISCC affairs, contribute a whole page to the ISCC Newsletter occasionally, cultivate efficient interaction with the Board, other member-bodies, and particularly with the problem-committees; we need news, questions, inquiries, complaints from each member-body.

REPORT OF THE MEMBERSHIP COMMITTEE, ROLF G. KUEHNI, CHAIRMAN

The membership committee of the ISCC was reconstituted by the Board of Directors in the second half of 1983. Its membership consists of: Nancy Jo Howard, Romesh Kumar, Treva Pamer, Charles Sturm, and Rolf G. Kuehni as chairman.

Copies of a communication "Make Your Life a Little More Colorful" has been sent to the editors of 22 journals of membership bodies. It proposed personal membership in the ISCC to readers with an interest in color.

A note "What is The Individual Membership Group" has also been written by the chairman at the request of the board and submitted to the president.

REPORT OF THE PUBLICATIONS COMMITTEE, MARY ELLEN ZUYUS, CHAIRMAN

The reactivation of the Publications Committee has already proven responsible for a much complimented recent issue of the News. The members of the committee are: Paula Alessi, Edward L. Cairns, Harry Hammond, III, Raymond Spilman, Thomas G. Webber and Mary Ellen Zuyus. The committee anticipates that regular contributions of a lively and informative nature will keep the readers of the News abreast of current happenings in the field of color.

REPORT OF THE PUBLICITY COMMITTEE, FRED W. BILLMEYER, JR., CHAIRMAN

Publicity releases have been prepared and sent out covering the 1984 Williamsburg Conference, the 1984 Annual Meeting, the newly-elected Officers and Directors, and the Macbeth Award and new Honorary members. All these releases went to approximately 325 journals and magazines and in addition to such hometown newspapers and university alumni magazines as were requested.

The address list for journals has been transmitted on computer tape to the Secretary's office, which will take care of reproducing and mailing future press releases.

On his retirement at RPI, the Chairman has submitted his resignation as of the date of the Annual Meeting.

REPORT OF PROJECT COMMITTEE 6 SURVEY OF COLOR TERMS, C. JAMES BARTLESON, CHAIRMAN

Committee on standby status. No report.

REPORT OF PROJECT COMMITTEE 18 COLORIMETRY OF FLUORESCENT MATERIAL

No report has been received.

REPORT OF PROJECT COMMITTEE 22 PROCEDURES AND MATERIALS FOR INSTRUMENT CALIBRATION, DANNY C. RICH AND CHARLES J. SHERMAN, CO-CHAIRMEN

The annual meeting was called to order by co-chairman Danny Rich. There were 34 people present. The minutes of last year's meeting were read and approved without correction. The first order of business was to review the current status of the committee's "Guide to Material Standards and Their Use in Color Measurement." Jack Hsia of the National Bureau of Standards reported on work by the ASTM committee E13.01. They have approved a new method for stray light determination and are working on two more. Wilbur Kaye of Beckman has reported to the ASTM that current methods significantly underestimate the amount of stray light present in a spectrophotometer.

Jack also reported that the Bureau is pressing ahead to implement the CORM program. Cal McCamy of the Macbeth division of Kollmorgen indicated that the CORM plan will allow instrument manufacturers to test their own instruments against NBS scales without having a prototype standard at the NBS laboratory. The Munsell Color Laboratory at RIT will be the first non-commercial implementation of an intemediate calibration laboratory.

Jack Hsia then reported on the results of the HALON pressings round robin. The results were very interesting. The reflectance was very much influenced by the density of the pressed plaques. The results indicated that pressing from a simple hand press, while being fairly fragile, showed remarkably consistent reflectance values over the range of 400 to 2000 nm. The spectral properties in the UV (250-400 nm) showed the greatest variability. Beyond 2000 nm the electronic structure of the material, water content and other chemical factors were thought to confound the measurement data. A follow-up experiment is being conducted to focus on the region where the repeatability was the best – a plaque density of about 1 gm/cc. It was re-emphasized that PPG still holds the patent rights to the use of HALON as reflectance standard or sphere coating. Presently, there are only two sources of the material, both in finished form. Hemmendinger Color Labs will furnish pressed plaques and Lab Sphere will provide a HALON coated integrating sphere. Harry Hammond suggested looking into the surface texture effects of hand pressings. No one knew of a

place to obtain commercial powder presses in the U.S. Zeiss in Canada will still sell them, however. The NBS has issued a set of reflectance values for HALON in a paper in the *Journal of the Optical Society of America,* Vol. 71, July 1981. Jack Hsia indicated that the measured values of the low density pressings were close enough to the published values to allow the use of HALON as a transfer/working standard. There should also be a publication of the transmittance values of the new melt of didymium glass for wavelength calibration.

Dr. F. W. Billmeyer, Jr. reported on work from his lab by Mr. Yuan Chem (visiting scientist from the People's Republic of China) and on similar work by Pierre Blaise of France for the characterization of fluorescent colors. The work involves placing compensating filters between the light source and the integrating sphere. The Chen technique is designed to compensate for the changes in integrating sphere efficiency due to the fluorescent radiance factor. The Blaise technique differs in that the filter is placed in the sample beam only. Both methods appear to work as well as the calculation method. A report of both techniques should appear in *Color Research and Application* shortly. Dr. Billmeyer believes that single beam instruments, such as offered by Hunter Labs, Inc. and Applied Color Systems, Inc., will be able to use these techniques effectively.

The meeting was adjourned by D. C. Rich.

REPORT OF PROJECT COMMITTEE 25D, J. RICHARDSON AND LEONARD WIENER, CO-CHAIRMEN

Highlighting this year's meeting of the Subcommittee was a report given by Robert F. Hoban concerning a newly organized committee of the AATCC, RA-98: Strength Assessment of Colorants, and a recently conducted "round robin" comparison of the strengths of 3 Acid dyes by Transmittance and Reflectance. The strength variation by Transmittance was well beyond what would have been considered acceptable, especially with the trend toward narrowed tolerances within the industry necessitated by automated dyehouses. During the discussion which followed, the consensus was that the variation encountered might have been smaller if a standardized procedure (as previously established by this Subcommittee) had been utlized.

I have written to the Chairman of RA-98 offering the services of this Subcommittee. It would seem logical to repeat the first trial using the regular procedure of each participant as well as a standard procedure which would be supplied with the samples. Each member of the Subcommittee and/or attendee of the April meeting will be asked to volunteer their services for this effort. It is anticipated that a task of this magnitude will yield a resurgence of activity within 25D.

REPORT OF PROJECT COMMITTEE 25P STRENGTH OF COLORANTS – PIGMENTS, JACKIE WELKER, CHAIRMAN

A brief summary of where subcommittee 25P stands at this time follows. At this point in time I think we all agree that there is no one perfect way to characterize or measure tinting strength of colored pigments. In our work on green we learned a lot about error. The variation in the test procedure was greater than the different methods of calculating tinting strength. A standard error of 2.5% shows that specifications of less than 5% are unrealistic. Before any recommendations can be made it will be necessary to conduct future round robins. It has been recommended that analysis of grind and tint ladders would be desirable and that we should continue to look at X, Y, Z and wavelength with specular included and excluded and with and without the Saunderson correction. We have learned enough at this point that the replication of panel, spray and measurement should not be necessary.

The next step would be to repeat the test with other colors; perhaps red, yellow and blue. We should again determine the proper pigment to binder ratio for the test by running a ladder and perhaps this time we would request that they also run their normal test procedure side by side so we can evaluate that variable as well.

Future programs should follow the same procedure but with pigments that were close but not the same and adjusted to a standard depth of shade either instrumentally or visually.

We should also attempt to involve four laboratories as we did in the past.

REPORT OF PROJECT COMMITTEE 27 INDICES OF METAMERISM, RALPH BESNOY AND ALLAN B. J. RODRIGUES, CO-CHAIRMEN

The activities of the Committee have divided themselves into two areas during the past year. The first of these is the continuing evaluation of the questionnaire which the Committee sent out two years ago. The other activity has been the continued gathering of observations in the visual experiment.

In August the Committee met in Newark, NJ for a day for the purpose of reviewing the tabulated answers to the definitions of metamerism questionnaire. At this meeting many questions arose requiring deeper evaluation of the responses to the questionnaire. Subsequently, this deeper evaluation was completed and distributed to the meeting's attendees. The raw results of the questionnaire and the subsequent deeper analysis form the basis on which the Committee will now pursue the questionnaire to its conclusion.

In addition to the analysis of the questionnaire, the Committee diligently pursued the collection of observations in its experiment dealing with the visual assessment of metameric color pairs. The Committee's light booth traveled to the Philadelphia College of Textiles and Sciences, and to Charlotte, NC. In both locations additional observations were collected from persons from several industries and with varying degrees of experience. Toward the end of the year approximately forty observers had been collected all told, and the Committee felt that further collection would not substantially improve the quality of information already at hand, and so the collection was terminated and an evaluation of the data began.

At the Annual Meeting in April in Detroit the Committee divided itself into three subcommittees each to deal with a separate endeavor within the Committee. The first group, chaired by Ralph Besnoy, will pursue the questionnaire to publication or dissemination. The second group, chaired by

Dan Rich, will evaluate the collected data of the present experiment. The final group, chaired by Roy Berns, will entertain a new visual experiment. Each of the working groups has at least five active participants in addition to the chairman.

The second condition of your Committee can be reported to be healthy and active.

REPORT OF PROJECT COMMITTEE 25-F STRENGTH OF COLORANTS – PIGMENTED FIBERS, GEORGE SONN, CHAIRMAN

Subsequent to the 1983 Louisville Meeting, it was decided to conduct a round robin of measurements in polypropylene, in both fiber and plastic plaques, using Pigment Red 214. Procedures were as follows:

1) Prepare a 25% concentrate of Pigment Red 214 in polypropylene.

2) Make let-downs with additional PP to levels of 0.1% and 0.5% actual pigment (0.4% and 2.0% concentrate respectively). Label samples as "Control."

3) Prepare a second set of let-downs with additional PP to levels of 0.09% and 0.45% actual pigment (0.36% and 1.8% concentrate respectively). Label samples as "90% of Control."

4) Prepare spinnings or plaques as desired.

5) Measure for strength, and DE. Report in % of strength, and DE, for "90% vs Control.

Note:

1) When plaques are prepared, TiO_2 is added as required by the processors's standard procedure, to yield tints for measurement.

2) Unless otherwise stated, all measurements are specular included.

Company Reporting	*Sample*	*Units*	*90% vs 0.1% Control* % Strength	DE	*90% vs 0.5% Control* % Strength	DE
Color Formulators	Plaque	CIELAB	92.00	1.20	93.80	1.10
		FMC-II		4.40		4.00
Phillips Fibers	Fiber	FMC-II	87.20	1.20	89.40	1.20
Indol						
(Measurement by Sandoz)	Plaque	CIELAB	92.05	1.39	99.18	0.32
		FMC-II		4.88		0.52
*Amoco**	Plaque					
	(1)	CIELAB	91.88	1.26	91.61	1.33
		FMC-II		0.20		0.23
	(2)	CIELAB	91.39	0.60	91.61	1.33
		FMC-II		1.24		0.23
	Spinning	CIELAB	91.33	1.47	91.44	1.49
		FMC-II		0.38		0.76

Notes: *Amoco prepared a third set of plaques at 1.0% concentrate – results were:

CIELAB	92.00	1.20	
FMC-II		4.40	

(1) TiO_2 level held at constant 5.0% on weight of total let-down.

(2) TiO_2 level held at constant TiO_2/pigment ratio at all levels.

REPORT OF PROJECT COMMITTEE 30 COLOR IN THE BUILDING INDUSTRY,

Committee on standby status. No report.

REPORT OF PROJECT COMMITTEE 32 IMAGE TECHNOLOGY, PAULA J. ALESSI, CHAIRMAN

Paula Alessi called the meeting to order at 3:00 P.M. on Sunday April 8, 1984. Sixteen people were in attendance, ten of whom were active committee members. The first order of business was to distribute among the participants the current active membership list, the 1982 and 1983 annual reports, and the colorant gamut bibliography issued by this committee.

The scope of this committee involves handling problems common to various imaging systems, such as photography, printing, television, and video displays. Since the scope is so broad, the committee has been dealing with the one problem of major concern to each of the imaging systems represented by the membership. That problem is colorant gamut. First we studied how the colorant gamut of each imaging system is characterized, both theoretically and practically. Now we would like to define a method that would allow us to relate the colorant gamut of one imaging system to that of another. At the 1983 ISCC annual meeting, Paula proposed use of the Munsell Color Cascade as a common metric for interrelating the colorant gamut of various imaging systems. Since there were not enough active committee members present to discuss

the feasibility of her method, Paula repeated her proposal to the more representative audience at this meeting. The proposal involves comparing the actual gamut of the Munsell Color Cascade with the gamut resulting from a photographic reflection print of the Cascade. Details of the presentation will not be presented here because they were covered in the 1983 annual report. (Any one wishing to receive a copy of the proposal which includes text as well as figures should contact Paula J. Alessi at Kodak Research Labs, 1669 Lake Ave., Rochester, N.Y. 14650).

Paul McManus of Tektronix is going to try to calculate the theoretical CRT phosphor gamut from the calculated tristimulus values (CIE standard illuminant C) based on the Munsell Color Cascade spectral reflectance data provided by Paula. Then he will compare this theoretical gamut with what the CRT phosphors can practically produce. Then we will try to relate the photographic reflection print system gamut to the CRT gamut.

Milt Pearson of the R.I.T. Research Corp. is one of our graphic arts representatives. He also presented some data in the area of colorant gamut determination. He computed gamuts for a CRT and an ink-jet printing system based on black, white and the single point of maximum saturation for the single and two color combinations. First he plotted the gamut of a CRT display in terms of metric lightness (L*) against metric chroma (C*) for the single and two phosphor combinations (see Figure 1). The screen white point was taken: as the illuminant at approximately 9300K. In this CRT gamut, the single green phosphor and the two phosphor combination colors, yellow and cyan, have L* values greater than the white point. One probable reason for this is that, in order to place the white point at 9300K, constraints are placed on the intensities of the three phosphors that are not present for the single phosphor or the two phosphor combinations. Paula reminded others of the work done by Clapper, Gendron and Brownstein (JOSA, 63, 625-629, 1973) which reported a similar phenomenon in the gamut determination for a color transparency photographic system. With the white point falling at a particular density above the minimum density of the transparency, they found it was possible for other colors to fall beyond the white point in the gamut determination. Milt then showed a corresponding plot of the CRT gamut in CIE a* vs. b* terms for the single and two phosphor combinations (see Figure 2). Again the screen white point was taken as the illuminant at approximately 9300K. Next, using the same technique, Milt showed the gamut of an ink jet color printer by plotting metric lightness (L*) against metric chroma (C*) (see Figure 3) and CIE a* vs. b* (see Figure 4) for the single and two colorant combination colors, using illuminant D65.

It is important to note that in reflection systems, including halftones or dot structures, the gamut profiles tend to be slightly concave. Also, the L* vs. C* gamut plots (Figs. 1 and 3) represent some hue distortion as the complementary hues do not fall exactly 180° apart as seen in the a* vs. b* plots (Figs. 2 and 4).

Superimposing Figures 1 and 3 and 2 and 4 gives some insight into the problems involved in comparing the gamut of different imaging systems. The desired objective would be to compare the two gamuts under more common ground where the shapes may be as similar and the magnitudes as equal as possible. The two major problems in such a gamut comparison of this type are:

1.) To define and express a compatible white point between the two systems.

2.) To define an appropriate metric capable of specifying a color in one imaging system which is perceptually equal to a similar specification in the other system.

Milt proposed that solution of one or both of these problems could serve as objectives for this problem committee.

Finally Milt described two common color-related problems encountered in the printing end of the graphic arts industry. First he showed the hue difference that can result in a red depending on the direction of a bidirectional ink jet printing head (see Figure 5). Second he showed the effect of changes in the concentration of cyan colorant on a*, b* location (also Figure 5). This is really a change in metric chroma, C*.

Paul McManus of the Human Factors Research Group at Tektronix, Inc. expressed interests that parallel those of this committee in the following four areas:

1. The colorimetry and colorant gamut of video displays.
2. The colorimetry, color quality, and colorant gamut of hard copy (particularly that made using ink-jets).
3. The problem of transferring a color image from a video display to hard copy.
4. Color notation as it affects the user of a graphics terminal.

There is work going on at Tektronix that may help to further this committee's objectives. It involves experimentally studying the matching characteristics of the NTSC phosphors, both with spectral sources and with reflective surfaces. The reflective surfaces include Munsell chips and samples made on a Tektronix hard copy apparatus. Preliminary results are:

1. The phosphor-matching functions experimentally obtained do not match those obtained by calculation from colorimetric data on the phosphors. The differences are significant.
2. The matching ratios for Munsell chips also depart from predicted values to a comparable extent.
3. Paul and other group members have participated in the development of ink and paper systems that give greatly improved hard copy color quality for ink-jets. These systems have ranges of color space (the saturated cyans and yellows) that are outside the phosphor gamut. This occurs even though, of course, there is an area of the video color space that lies outside of the hard copy gamut.

Paul and other Tektronix group members may make the following contributions to the future objectives of this committee:

1. Clarification of the video matching characteristics and of the consequent re-evaluation of the effective video display gamut.
2. Demonstration of matching procedures between the two main areas of electronic imaging, video displays and hard copy devices, and definition of their limitations.
3. A proposal for a user interface suitable for a graphic artist working at a video display.

Figure 1 Gamut of a CRT display plotting metric lightness (L*) against metric chroma (C*) for the single and two phosphor colors. The screen white point was taken as the illuminant at approximately 9300K.

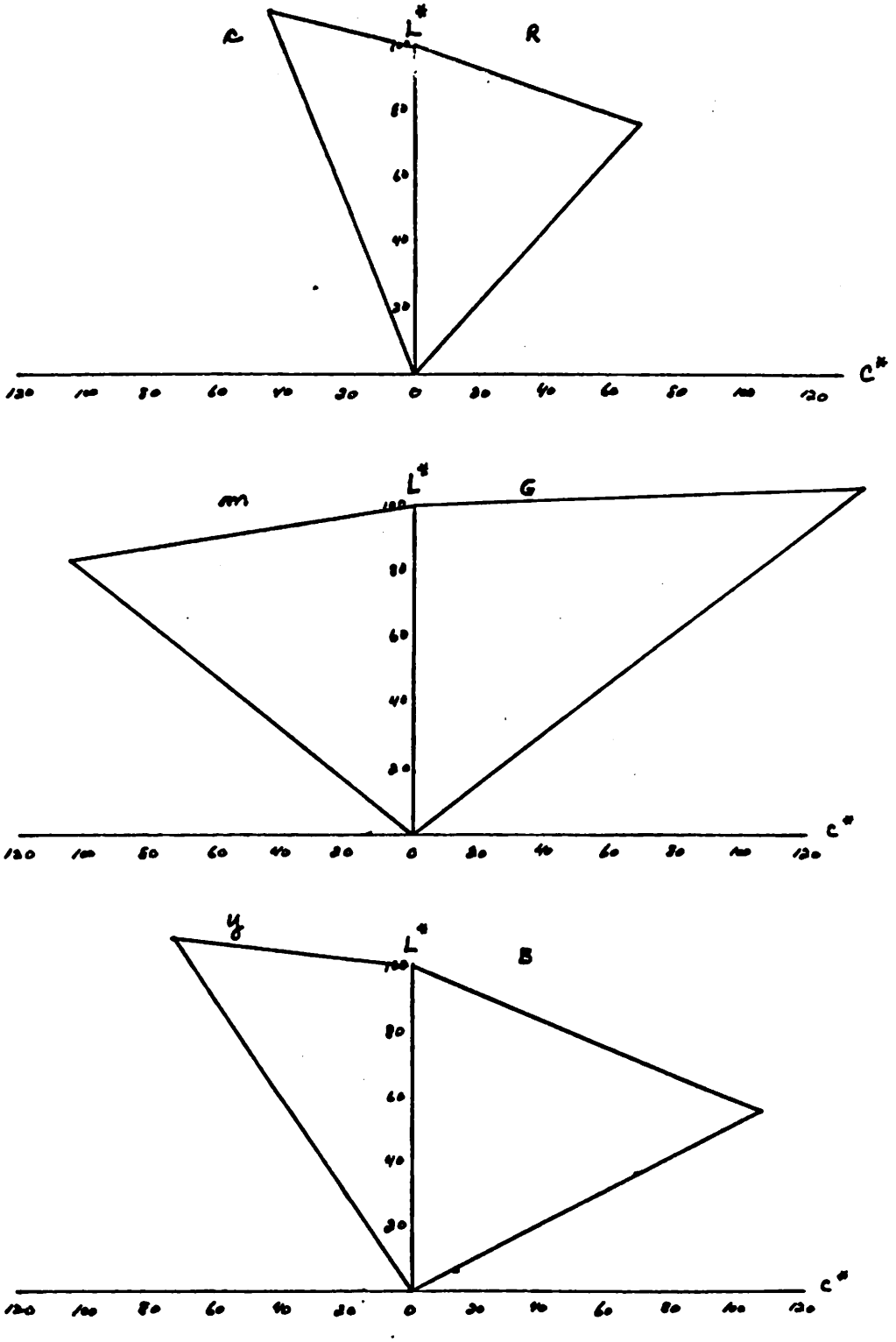


Figure 2 Gamut of a CRT display showing the CIE a* and b* locations for the single and two phosphor colors. Again the screen white point was taken as the illuminant at approximately 9300K.

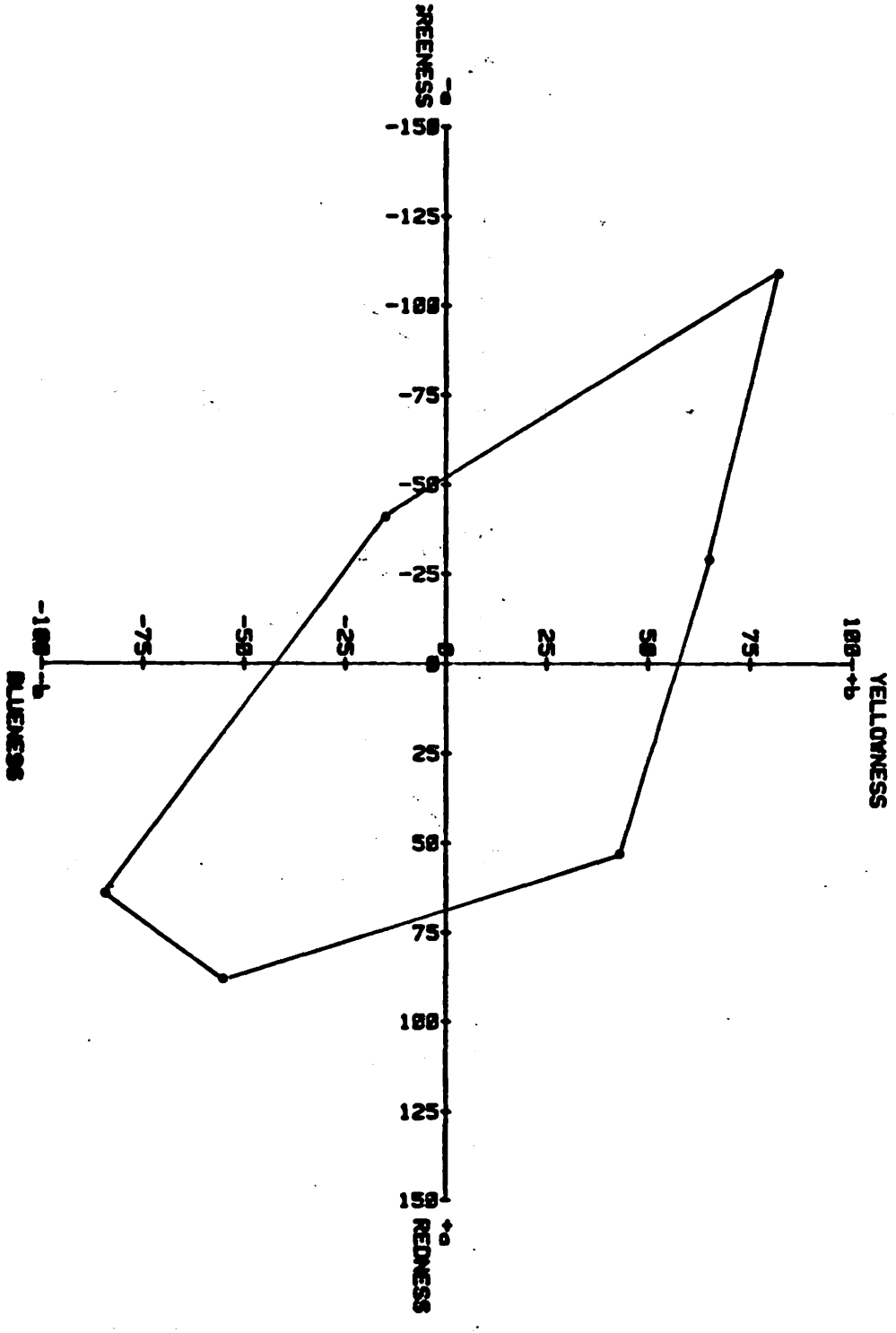


Figure 3 Gamut of an ink jet color printer plotting metric lightness (L*) against metric chroma (C*) for the single and two colorant colors. The white point was taken to be a D65 illuminant.

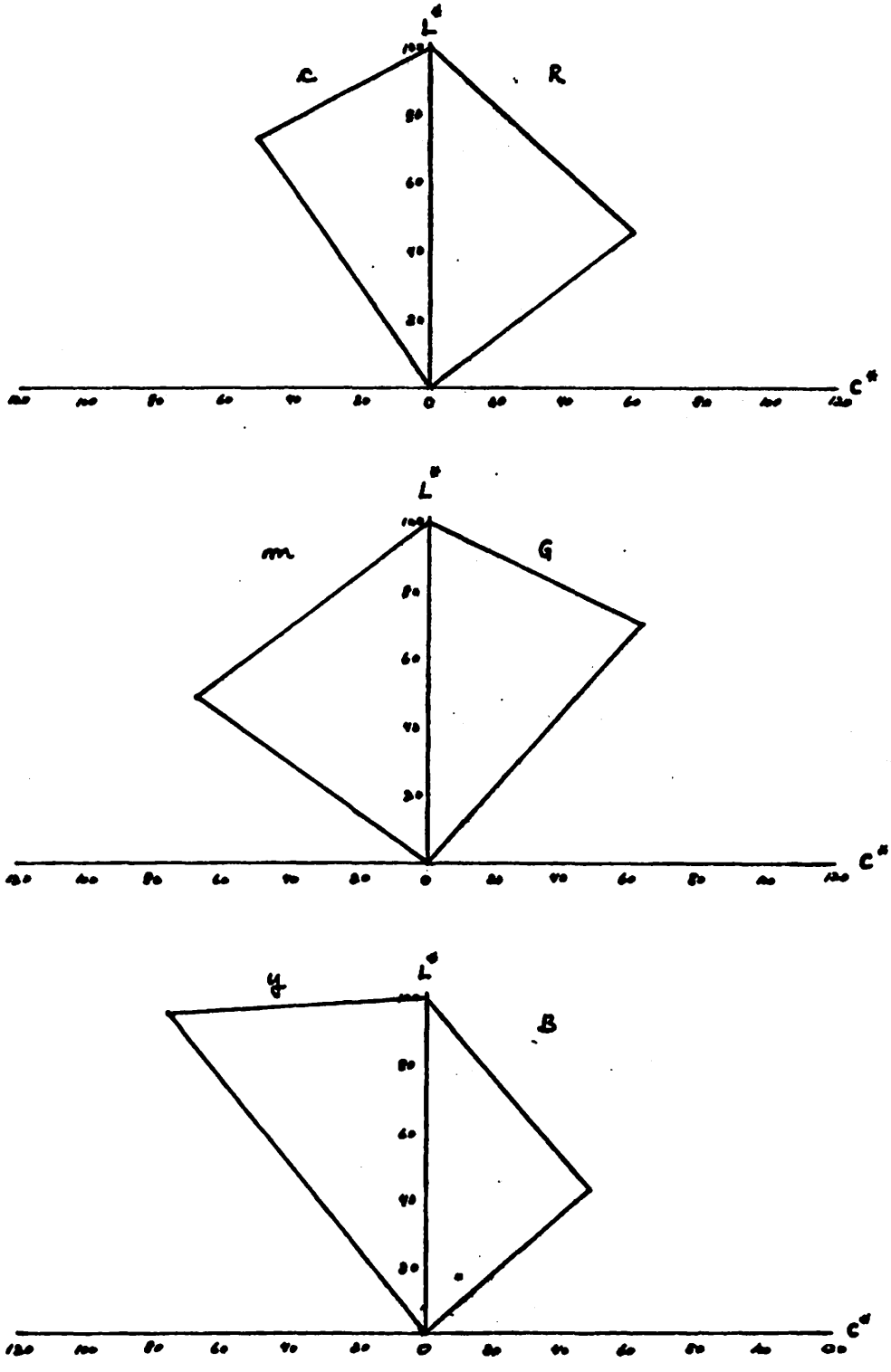


Figure 4 Gamut of an ink jet color printer showing the CIE a* and b* locations for the single and two colorant combinations using D65 as the illuminant.

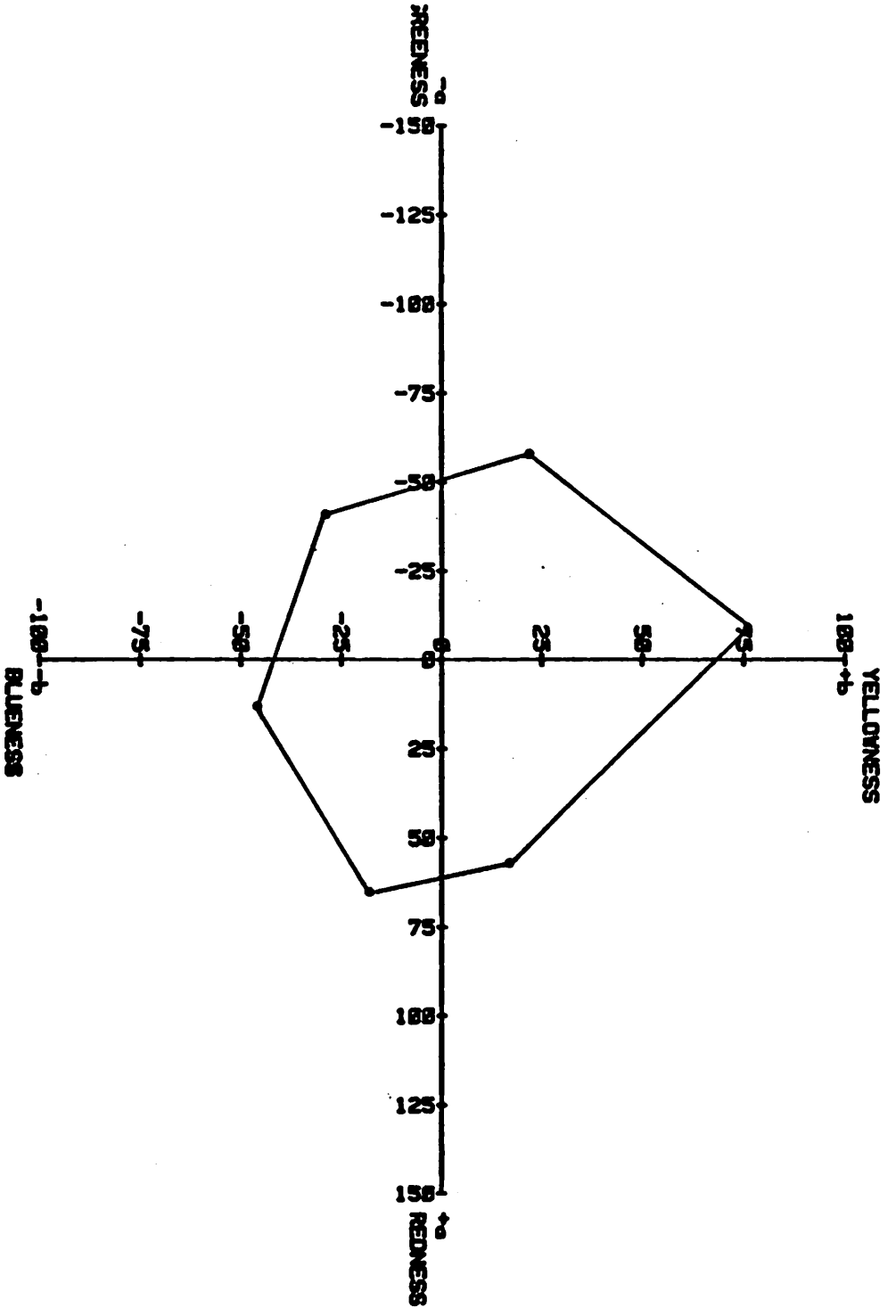
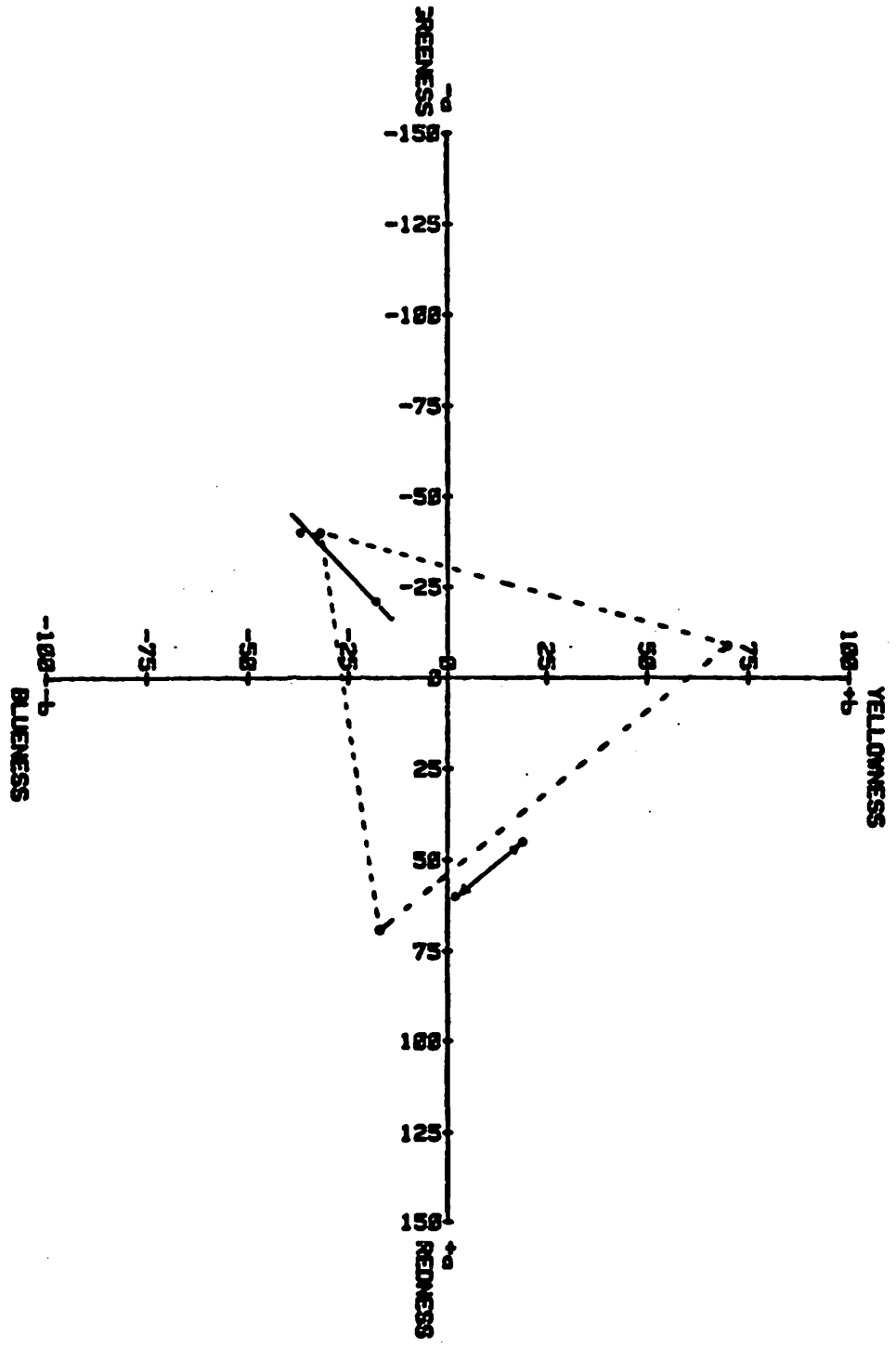


Figure 5 CIE a*, b* plot showing two reds as a result of a bidirectional ink jet printing head and the effects of changes in cyan colorant concentration.



A discussion section, led by Paula Alessi, focused on which direction the committee should proceed. This committee has a history of containing many members who have an interest in image technology but very few who are actually willing to contribute any work.

Lou Graham of Burlington Industries asked our committee to address a problem commonly encountered in the use of color video displays to represent actual textile samples. How and under what conditions should the appearance match between the color video display and the textile sample be made? What better place to answer such a question, as well as the other imaging system related points referred to above, than in the image technology problem committee of the Inter-Society Color Council? We should work more closely together with J. Rennilson's CIE committee on self-luminous displays. Since no one from that CIE committee was present to report on their progress, Paula is going to correspond with J. Rennilson to establish where his committee stands and discuss whether or not a joint effort would be worthwhile.

This committee has only one active member in the following three imaging systems: Milt Pearson for Graphic arts; Paul McManus for video diaplays; and Paula Alessi for photography. We need more experts in each of these fields before we can be effective. Fred Billmeyer suggested that we remind the ISCC general membership of our existence, familiarize them with our important mission, and try to recruit more active members. Paula, along with the help of Paul McManus, will try to generate some interest among the Society for Information Display which has a member body delegation to the ISCC. Roy Berns of the R.I.T. Munsell Color Science Foundation also expressed a willingness to help in any way, especially if our committee would like to see any specific research done at that university. The ultimate goal, after making all these contacts and acquiring more active members with the expertise we require, would be to call a mid-year meeting at which the experts could define specific problems and methods of solving them. Such a meeting would probably take place on the R.I.T. campus thanks to the generous offer made by Franc Grum for use of their facilities.

Before closing this meeting, Paula shared the interest of a new member of this committee, Richard Juday of NASA, who was unable to attend. He is interested in the use of color for vector graphic representations and has written a master's thesis on the subject. Any one wishing to discuss his findings or to help this committee pursue work in this area should contact Richard at SCR4 NASA Johnson Space Center, Houston TX 77058 (phone: 713-483-4017).

The meeting was adjourned at 4:45 P.M.

REPORT OF PROJECT COMMITTEE 33 HUMAN RESPONSE TO COLOR, MARY BUCKLEY AND WALTER GRANVILLE, CO-CHAIRMAN

Introduction

There are probably as many responses to light color as there are people. The interpretation of these responses is influenced by many factors. Many emotional needs are fulfilled by subjective choices of color and light; intellectual-aesthetic responses to other needs have just begun to be explored.

Designers, on all levels and in all areas, must be aware of these items. It is the intention of this committee via committee members to investigate the above areas.

Stimulus

The most basic categories of stimulus are hue, lightness or darkness, and chroma. One rarely experiences just one of these three attributes, but one sees a combination of stimulus and successive contrast phenomena. These dynamic elements of visual perception produce an expanded list of attributes that greatly influence design decisions.

First, let us start with the stimulus and break up what we see into component parts of colorant and light.

Colorant Properties	*Perception*	*Light Properties*
Hue; (the hue of the surface) (the name on tube of paint)	*Color*	Spectral power – Distribution (Curve) of light affect of what we see
Lightness or darkness. Tints and shades. Amount of reflected light.	*Value*	Brightness. The perceived intensity of light.
How different a color is from gray purity. Chroma.	*Saturation*	Monochromatic light.

These three attributes really apply to our perception of light and do not take into consideration the reaction of surface properties and nature of the illumination. Iridescence, opalescence, phosphorescence, and fluorescence are a result of the correct illuminant usage and surface properties. Light may also be used to enhance fluctuation effects such as sparkle, flicker, flitter and shine. Metal and glossy surfaces exhibit diffuse and specular reflection respectively. Metals generally have a high refractive index; (light does not penetrate the surface) and therefore have a high reflectance value. Varied textures may be achieved by combining different colorants, substrates and subtle use of illumination.

A partial listing of the more complex attributes of light and color follows:

Attributes of Color and Light

Visual Texture	Size
Shape	Location
Duration	Iridescence
Lustre	Fluorescence
Shine	Sparkle
Shimmer	Glow
Opaque	Translucent
Transparent	Mist (Atmosphere)
Matte	Gloss

Human Response to Light and Color

We believe it is important and useful to consider the human response to color as consisting of a sensory, an emotional and an intellectual aspect. These are simultaneously applicable to some extent in every response. Factors believed to influence human response include:

PHYSICAL-SENSORY:

Light changes our perception of color, shapes, and forms.

EMOTIONAL-CULTURAL:

Many emotional needs are fulfilled by subjective choices of color and light. (See list of factors that influence our responses)

INTELLECTUAL-AESTHETIC:

The intellectual and aesthetic needs and responses need to be explored.

List of Factors Believed to Influence the Human Response to Color

1. Styles of color usage in fashion including fads and trends.
2. Lighting: Style of lighting and its use to create different moods. Tinted and reflective glass effects. Color rendition of light sources.
3. Age: Need for more light with increasing age. Glare masks ability to see, especially with increasing age. Viewers sight line.
4. Economic factors: Initial cost versus life expectancy of materials. Choice of materials and finish (gloss) for ease of maintenance. Standard of living.
5. Geographical factors: Climate, including seasonal changes. Character of landscape.
6. Social factors: Crowding, territoriality, personal space, privacy.
7. Ethnic factors: Culture and tradition.
8. The arts: Painting, architecture, literature, music, theatre, poetry, etc.
9. Other considerations: Skin color. Identification colors: safety, fire exits, radiation hazard, fire extinguisher location, etc. Color memory. Vision and visual phenomena: color vision defects, color adaptation and constancy, after images, discrimination of color differences, metamerism, etc.

REPORT OF PROJECT COMMITTEE 34 COLOR DIFFERENCE PROBLEMS

REPORT OF PROJECT COMMITTEE 35 COLOR OF LIVING TISSUE STEPHEN F. BERGEN, CHAIRMAN

Subcommittee 35 held its Annual Meeting on Sunday, April 8, 1984 in Detroit Michigan. During this past year Dr. Ken Turner has taken the reins of the Color Matching Committee of the American College of Prosthodontists. The main project for this year is the compiling and approval of the glossary of prosthodontic terms. That committee of the College has been charged with compiling color terms to be included in the glossary. Subcommittee 35 will be part of that review process.

At this past Annual Session, the use of a spectrophotometer with fiber-optic capabilities was discussed. The instrument, connected to an I.B.M. P.C. has the capability of reading and analyzing spectral data from a tooth and displaying its appropriate data and curves on a C.R.T. or printer. The table top spectrophotometer is a state of the art instrument and holds much promise for dental as well as many other fields.

Another topic that was discussed was the use of color in medical therapy. Color and psychology has been linked over the years in an effort to explain and predict himan behavior. Color as a form of physical therapy is not as well known and our discussion centered around the use of color for treatment of a back injury. Success (relief from pain) was reported, although the mechanism is not well understood.

The use of the color 'GREEN' in a hospital operating room environment was also discussed. Much has been said and written on that topic, including a seminar at a past I.S.C.C., Human Response To Color Subcommittee meeting. One of the conclusions drawn centered around the more accepted concept of green as a soothing, easy on the eyes color.

During the subcommittee meeting, several research projects were proposed. Graduate students would be prime investigators. The 3 subjects discussed were as follows:

1. What are we measuring when we measure porcelain and enamel and what do the different layers contribute?
2. Is metamerism really a problem between natural teeth and restorative materials or is it a matter of color difference?
3. If color difference is our problem, which equations would apply to our model?

The session was fruitful and the exchange of ideas reinforced the need to continue evaluating color with respect to human tissues.

REPORT OF PROJECT COMMITTEE 36 EXAMPLES OF INDUSTRIAL COLOR DIFFERENCE ACCEPTABILITY, ANTHONY J. PENTZ AND W. RICK MATHEW, CO-CHAIRMEN

Most of the time spent by this committee this year was directed at the evaluation of the samples submitted for the acceptability experiment and the analysis of the most effective method to eliminate the skew in the past evaluations due to category words.

With regards to the category wording, we found that by *not* using words such as "tight, loose, bad, good, etc.," (which have a tendency to classify the evaluator personally as to what quality of products he might ship or accept), that the sample category ratings were much more evenly distributed. When "bad, good, tight, loose, etc.," were used, approximately 70-80 percent of all samples were rated as unacceptable. However, when we changed the scale to the one listed below, the same set of samples rated by the same group of people, produced an unacceptable rating of less than 30 percent.

1 = Acceptable in any commercial applications

2 = Acceptable in majority of commercial applications
3 = Acceptable in some commercial applications
4 = Acceptable in limited commercial applications
5 = Unacceptable for commercial applications

Now with references to the quality of the samples. The general consensus is that the quality of the sample distribution from the standard is not adequate on most of the sample sets to develop proper limits or precise category boundaries. This is not surprising since the sets were not specifically developed for the experiments but were commercially available samples, however, some of the sets do show promise of providing relative data for the experiment.

Recommendations

It is the recommendation of this committee that we appropriate some funds to have a specific set of samples prepared for the last phase of this experiment. The committee will seek funds in the coming year for the development of this sample set, as well as establishing specifications and parameters for its preparation. It is felt that if this sample set is properly designed, that this will be an excellent starting point for the preparation of a commercial tolerance guideline book to be used to help industry define color tolerances using visual samples.

REPORT OF PROJECT COMMITTEE 37 ARTISTS' MATERIALS, MARK GOTTSEGEN, CHAIRMAN

The Artists' Materials Committee met at the ISCC Annual Meeting, April 8, 1984, in Southfield, MI, with 10 members and 2 guests present. The minutes from the 1983 meeting were approved.

Three sections of the proposed handbook on the ASTM Standard were presented for discussion by the Committee: "What Color Is It?," "Lightfastness Tests," and "Tinting Strength." "Tinting Strength" was the simplest of the presentations, being a clear and concise resumé of the problems of determining tinting strength, and proposed visual and instrumental tests. A few definitions of terms were requested to be entered in the body of the paper.

"Lightfastness Tests" and "What Color Is It" were discussed at length and determined to be too technically involved and complicated for the intended audience. Both will be rewritten at a much simpler and straightforward level and brought up for discussion at next year's meeting. The Committee is still waiting for short sections on "reading a label" and "scientific color theory."

In other business, those present voted on a motion to accept the report by Billmeyer, Kumar, Pamer, and Luke on the identification of pigments as a Project Committee 37 Report, unless written objections or comments are received by Mrs. Luke by April 22, 1984. It was also mentioned that Zora Pinney has agreed to chair an ASTM D.01.57 Task Group (#10) on tests for evaluation by consumers: artists' test methods. Those with suggestions for simple tests that artists can perform to evaluate their materials are requested to contact Mrs. Pinney.

The next meeting of the Project Committee will be in Pittsburgh PA, during April 1985. Members with items for the new business agenda are urged to contact the chairman.

REPORT OF ISCC PROJECT COMMITTEE 38 PHILATELIC COLOR DESIGNATION DONALD L. MacPEEK, CHAIRMAN

In effect, the Committee on Philatelic Color Designation has been dormant for the past year for reasons primarily associated with the early retirement of the chairman and the subsequent adjustments in lifestyle, including the establishment of a consulting business. We remain with one immediate major objective, the publication of an article in the philatelic press which illustrates the application of our techniques to a specific country area.

The chairman has the responsibility to complete this work which has now been strengthened by the review and evaluation of additional classic material which has become available. The revisions are essentially complete and following some forthcoming travel, final assembly can begin. The committee now recognizes the need to enlist the help of interested philatelists in other countries who would extend the application of our techniques. During the year, we have noted citations in the literature showing that our findings and recommendations have received expanding support. Progress has been slow but we are convinced we have been heard.

REPORT OF PROJECT COMMITTEE 39 COLOR OF GEMS

Committee on standby status. No report.

REPORT OF PROJECT COMMITTEE 40 COLOR EDUCATION RESOURCES AND MATERIAL, EVELYN STEPHENS, CHAIRMAN

Project Committee #40, Color Education Resources and Material, has collected an impressive amount of educational material on color under the chairmanship of Nancy Jo Howard who has recently been forced to resign due to the pressure of other duties. Nancy retains her interest in the committee and plans to remain an active member. The committee is now in the capable hands of Evelyn Stephens.

The next step which Evelyn plans, is to contact colleges around the country to find out which ones offer color courses and exactly how the courses are taught. The committee will work out a suggested syllabus for one semester and one year color courses and make them available along with slides and the other educational material which has already been collected.

Evelyn believes it is especially important to assist colleges in upgrading their color courses and to support the few places in the country which currently offer good professional training in color. A career in color does not occur to many high school students and there are few courses which introduce them to the possibilities.

Joy Turner Luke, Coordinator

REPORTS FROM MEMBER-BODY DELEGATIONS

REPORT FROM THE AMERICAN ARTISTS' PROFESSIONAL LEAGUE
ANGELO GRADY, CHAIRMAN

No report has been received.

REPORT FROM THE AMERICAN ASSOCIATION OF TEXTILE CHEMIST AND COLORIST DELEGATES, ROLAND LEE CONNELLY, SR., CHAIRMAN

No report has been received.

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

The American Ceramic Society Delegation was among the first formed within the Inter-Society Color Council. It was organized by Dr. Isay Balinkin of Cincinnati.

The Society has 11 Divisions, of which 6 Divisions have interest in color, and are mostly represented in the Delegation. They are the Porcelain Enamel, Glass, Materials and Equipment, Structural Clay, Whitewares and Design Divisions.

The A.C.S. Delegation in cooperation with members of the ISCC, continue to arrange talks and symposiums on color presented at the Annual Meetings.

News Notes and Names in the News:

A combined symposium, "Glazing, Decorating and Color," for the Design and Materials and Equipment Divisions, will be presented at the A.C.S. Annual Meeting in Pittsburgh, Monday morning, April 30.

Laurence D. Gill has been named product manager of ceramics, Pemco Products Group, Inorganic Chemicals Div., Mobay Chemical Corp., Baltimore, Md. He will have both technical and marketing responsibilities for the company's ceramic activities. Mr. Gill, who holds a B.S. in engineering from Johns Hopkins University, has been with Pemco for 25 years.

Two sectional groups of glazed architectural terra cotta recently were salvaged for the newly established Ross C. Purdy Museum of Ceramics at the American Ceramic Society Headquarters in Columbus, Ohio. These colorful examples are the first pieces of architectural terra cotta in the collection. The Purdy collection includes significant ceramic objects representing achievement in technical and artistic ceramics.

Deguss AG has a 16-page booklet on 70 new decorating colors for porcelain, earthenware, bone china, and vitreous china. The publication describes and illustrates the 35 color shades and two associated fluxes, a high percentage of which are also suitable for rapid firing and intermixing. Processing is also discussed, as well as levels of permissible lead and cadmium release.

Drakenfeld Colors, part of the Pigments Department of Ciba-Geigy Corp., announces a multimillion dollar expansion and upgrading of its manufacturing facilities in Washington, Pa. With the new modernized manufacturing facilities, Drakenfeld looks to improve product quality and meet projected market needs in all of its active business areas through the mid-1990's. Scheduled completion is 1984.

The Baltimore Station, first of eight railroad stations to be renovated under the Northeast Corridor Improvement Project (adopted by Congress in 1976) requires the replacement of several thousand pieces of Rookwood architectural faience, made in Cincinnati over 75 years ago. F. Joseph von Tury has been assigned to do the research required to match the existing original material which is characterized by mellow tones of green and cream colors, some with craquele and speckled glazes.

In the January 1984 issue of the *Ceramic Bulletin*, under the Product Guide, there are 35 firms listed under "Coloring Agents and Supplies," 16 firms under "Decals," and 22 firms under "Decorating Materials and Supplies."

F. J. von Tury

REPORT FROM THE AMERICAN CHEMICAL SOCIETY DELEGATES.
LAWRENCE R. LERNER, CHAIRMAN

The Industrial & Engineering Chemistry Division of the American Chemical Society held a symposium entitled "Symposium on Developments in Color Chemistry" on May 22 & 23 at the Middle Atlantic Regional Meeting held in Newark, NJ. Approximately half the papers were presented by ISCC members. The following is a list of the authors and the titles of their papers:

K. Nassau:	Chemistry and Physics of Color
J. Peterson:	Computer Color Match Prediction
L. R. Lerner:	Recent Advances in Organic Pigments
T. Palmer:	New Standards for Artist's Colors
G. R. Bird:	Strategies for the Development of New Laser Dyes
S. M. Gerber:	Substitutes for Benzidines
M. B. Bochner:	Ecology and Toxicology of Dyes: Industries' Multifaceted Approach to Handling the Problems
R. Stanziola:	Color Communications
D. W. Riley:	Effect of Color Concentrates on the Rheology of PVC Compounds
S. Commanday, G. Sonn:	Anomalous Behavior of Phthalocyanine Blue in Polypropylene Fiber
R. A. Charvat:	Rigid PVC Panel Assessment by Infrared and Panel Body Temperature Measurements
K. Kramer, K. Mathur:	Use of Inorganic Pigments in Rigid Polyvinyl Chloride for Exterior Applications
N. W. Wager, J. P. Spiegel	Mixed Metal Oxides – A Unique Class of Pigments

In addition an intriguingly entitled workshop was presented and was listed as follows in the program:

"Workshop – Using and Understanding the English Language in.Undergraduate Chemistry. *T. O. Tally, D. Sgusted"*

Our delegation met at the Annual ISCC meeting in Detroit and appointed L. R. Lerner as Chairman for the coming year.

The new chairman reported that there are some openings on the delegation for new members and encourages any ISCC/ ACHS members who are interested in helping to plan and implement new programs for the delegation to contact him at Mobay Chemical Corporation, P. O. Box 419, Hawthorne, NJ 07507 (201-942-3232 x 445).

REPORT FROM THE AMERICAN COLLEGE OF PROSTHODONTISTS, STEVEN F. BERGEN, CHAIRMAN

This report is combined with that of Project Committee 35 and may be found under Project Committee Reports.

REPORT FROM THE AMERICAN PHILATELIC SOCIETY DELEGATES, DONALD L. MacPEEK, CHAIRMAN

This report is combined with that of Project Committee 38 and may be found under Project Committee Reports.

REPORT FROM THE AMERICAN PSYCHOLOGICAL ASSOCIATION DELEGATES, EDWARD H. RINALDUCCI, CHAIRMAN

No report has been received.

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

ASTM activities in the field of Color and Appearance have been reported in ISCC NEWS throughout the year. Progress has been made recently on the following items:

(1) A book containing all the ASTM standards on color and appearance measurement has been published. See "Book Review" in this issue of ISCC NEWS.

(2) The proposed "Practice for Color Measurement of Fluorescent Specimens" has been approved by the Society. It is assigned ASTM Designation D 991. It will appear in the 1985 Annual Book of ASTM Standards, and it can be purchased separately from ASTM Hq in Philadelphia.

(3) The proposed revision of E 308, "Method for Color Computation in the CIE System," has been approved by the members of the Subcommittee on Colorimetry and Spectrophotometry. It will now be sent to ballot of the Appearance Committee.

(4) A draft of a proposed "Method for Specifying Color by the Natural Color System (NCS)" will be sent to the members of the Subcommittee on Colorimetry and Spectrophotometry. They will be asked: "Should the Subcommittee consider NCS for development into an ASTM standard method for specifying color?" This proposal, if adopted, would supplement, not supercede, ASTM D 1535, Standard Method of Specifying Color by the Munsell System, originally published 26 years ago.

REPORT FROM THE AMERICAN SOCIETY OF INTERIOR DESIGNER DELEGATES ANNA CAMPBELL BLISS, CHAIRMAN

Members of the ASID delegation to ISCC conducted a very successful workshop on color at the Society's national conference in Boston in July. An overflow audience participated in a discussion of "Color Resources for the Interior Designer." Jack Lowery provided an historical base for today's design and Anna Campbell Bliss discussed current research affecting it. Drawing from recent experience Barbara Schirmeister presented the development of a new line of fabrics influenced by Japanese color and design. ISCC activities and the magazine *Color Research and Application* were also cited as resources.

Mary Buckley Parriot has also continued to meet with members of Project 33 Committee and will submit a separate report of their progress. Other sessions relating to color were organized for the Graham Foundation in Chicago and the Color Marketing Group in Washington, D.C. by Anna Bliss.

In New York City the ASID Subcommittee on Color and Light met February 28th to review recent progress on the annotated bibliography for medical facilities and to further define its scope. Present were Jack Lowery, Adriana Bitter, Eleanor Pepper and Anna Bliss. With the support of President William Richards Whaley, a small budget has been made available and permitted hiring a good research person who has helped reduce the number of pertinent references from medical, scientific and design sources. Publication is expected in 1985 and will be sent free to ASID members and for a small fee to libraries and non-members.

Barbara Schirmeister will assume responsibilities for the ASID delegation while the chairman is enjoying the color of Rome and hopefully some progress in her research there.

REPORT FROM THE AMERICAN SOCIETY OF PHOTOGRAMMETRY DELEGATES

No report has been received.

REPORT FROM THE ARTISTS EQUITY ASSOCIATION DELEGATES, LINDA LEWIS TAYLOR, CHAIRMAN

At long last artists can go to an art supply store for paint and know what they are buying. New labeling on paint tubes and jars now gives the pigment name, a lightfastness rating, a more specific color name in the form of a Pigment Index number, vehicle identification, and a conformance statement that the paint conforms to the quality and health requirements of ASTM standards D4302 and D4236. For paint used by children there is a health label certified by the Arts and Crafts Material Institute.

In 1977 Artists Equity Association, the national organization representing visual artists, and 5 major art materials manu-

facturers, Binney and Smith; M. Grumbacher, Inc.; Hunt Manufacturing Company; Martin/F. Weber; and Winsor & Newton, requested that ASTM begin the long process necessary to develop these national consensus standards.

Artists Equity member Joy Turner Luke has served as Chairperson for both ISCC and ASTM committees developing the labeling on artists materials.

All artists are grateful to Joy for instigating these studies, and are aware of her dedication to a long drawn out process. It is incredible that artists have waited so long for this necessary information about the materials they use and wonderful that the information is now available. Artists Equity Association is now beginning to study colored pencils and markers and silk screen inks.

REPORT FROM THE COLOR ASSOCIATION OF THE UNITED STATES DELEGATES MARIELLE BANCOU, EXECUTIVE DIRECTOR

A series of industry roundtables covering fields as varied as children's and athletic wear to art and interior design were added to the Association's seminar program during this past year. The issuance of four regular seasonal fashion forecasts, one yearly environmental/interiors forecast, and bi-monthly newsletters, continued as part of CAUS major activities.

To accommodate the year's phenomenal 45% membership rise, The Color Association moved to new enlarged headquarters (343 Lexington Avenue, in New York) this past winter. The directors feel that this move will facilitate a greater use of color archives and resources.

CAUS's Board of Directors wishes to acknowledge special contributions to The Association's forecast roundtables on contract colors by Nancy Carlson, Sharon Clarke-Fodor, Len Corlin, F. McSherry Ellman, Katherine Forman, Ann Haight, William Marley, Barbara Schirmeister. In the fashion area we were strongly assisted by Ellen Bradley, Eleanor Douglas, Caryl Hudson, Sheri Maurer, Elaine Monroe, Barbara Verble. Digests of all seminar presentations as well as advance forecast information appear in CAUS newsletters.

The present color explosion and acute awareness of color's selling potential meant more printed coverage and the first-time-ever TV coverage of The Association's fashion shade forecasts.

Along with a full color page in *Time* magazine, the following publications reported on The Associations activities: *Accent, Activewear, Ambassador, BF/IA, Bride's Contract, Dallas Times Herald, Decor, Decorative Retailer, Interior Design, Kansas City Star, Leather & Shoes, Los Angeles Times, Maternity Matters, Newsday, Notivest, Oakland Tribune, Philadelphia Daily News, Southwest Floor Covering, Sporting Goods Dealer, Teens & Boys, Western Wear & Equipment, Window Energy Systems,* and *Women's Wear Daily.*

CBS's Two-on-the Town ten-minute segment on the CAUS Women's Forecasting Panel Meeting was televised in late January. NBC's Today Show footage on the psychological impact of fashion shades was also filmed in The Association's office.

Managing Director, Dolores Ware spoke at The American Printed Fabrics Council Meeting and ACCENT's Jewelry Market Conference, both of which were in New York City. Associate Director, Margaret Walch gave talks at the 1984 San Francisco Visual Merchandising Market, New York City's Panhellenic League, Monterey Peninsula's ASID, Allied Corporation's Phoenix Meeting, The Eastern Lamp & Lighting Annual Dinner in New York City, and SKIWEAR's New York City Conference.

The past year also witnessed a broadening and developing of CAUS international relationships.

On April 26, in Paris, CAUS Directors were guests in attendance at a National day on Color, which was held under the auspices of the Centre Francais de la Couleur. (CFC).

On May 9-10, at the new Science Museum-Musee de la Villette, in Paris, a two-day seminar on color was staged. Marielle Bancou, our executive director, spoke on the Association's activities, and along with Professor Francois Parra (CFC), was interviewed by the French TV.

Ms. Bancou also paid a special visit to curator Broadhurst of the British Color Museum in Bradford, England, and on her return presented CAUS directors with a plan for a proposed mini-color-museum in the USA.

Looking ahead to 1985, CAUS has accepted to be in charge of arrangements for an American contingent which is expected to attend the five-day World Congress on Color, in Monte Carlo. Please take note that Professor Parra (CFC) has been appointed the organising head for this Congress by the International Association of Color (AIC).

In keeping with The Association's historical interest in furthering education on the subject of color, CAUS was host to more than a thousand university and high school students who visited our offices in small and large groups.

The Color Association continues to produce and to distribute official U.S. Army color specification cards along with the 10th Edition of *The Standard Color Reference of America.* Additionally, in recognition of growing U.S. markets for sporting and workout dress, CAUS also published an American Athletic & Activewear Color Card. The Card's thirty-two, silk-screened colors include official Olympic and traditional sports shade favorites.

Summing up, The Color Association's progress during this year has exceeded its projected three year program of broadened activities.

REPORT FROM THE COLOR MARKETING GROUP DELEGATES JAMES GRABOWSKY, CHAIRMAN

Color Marketing Group held their Spring 1983 meeting in Atlanta, Georgia where the emphasis was on consumer color directions for '85. Participants from 17 different industries spent more than 15 hours in workshops to more clearly define "Color Directions 85" as a more valid directional color tool. Color Direction 85 was published with 34 forecast colors including 5 woodgrains, 13 ascending or trend colors and 41 established colors, with 11 forecast colors indicating the general movement of Color in 1985.

Color in the contract market was discussed at the fall 1983 meeting held in Washington, D.C. A panel of contract workshop captains outlined the forecast colors to be produced on color cards and distributed at the spring meeting.

CMG sponsored four regional meetings in 1983. Regional meetings are one day seminars organized and run under the direction of the regional coordinator.

"Influence: The Motivation for Change" was the topic of the Northeast regional meeting held in New York City last March at which time the prevailing influences of the Orient, as well as market trends in retail, publishing and museum collections were examined. Cleveland, Ohio hosted the Central Region meeting and provided members with an informative visit to G.E.'s Nela Park and a program that related lighting and color on a personal as well as a technical level.

In August 1983 the Western Region went on "A Voyage Into the Dimension of Color" ofering discussions on color technology, color perception, color interaction and color matching.

Northeast Region met in December 1983, this time in Lancaster, PA. to delve into the Pennsylvania Dutch distinctive blend of color, texture and designs. The group was also invited to visit the Interior Design Center of Armstrong World Industries.

Color Marketing Group's Spring 84 meeting will be held at the Opryland Hotel in Nashville, Tennessee, May 9 thru 11. The theme is "Color in Motion in Nashville." The highlights of the meeting will be the presentation of the "Color Direction for 1986" and the Tracking Groups report on the success of CMG's 1982/83 color palette.

Color Marketing Group Membership grew in 1983 to 767 members with 134 having chairholder status.

James Grabowsky

REPORT FROM THE DETROIT COLOUR COUNCIL, W. V. LONGLEY

The DCC has formed a technical committee to consider recommendation of a standardized test method for determination of numerical color difference of automotive parts and materials. If successful, the committee will offer the recommendations to the automotive companies whose representatives have expressed a desire to avoid proliferation of equipment and procedures.

The technical committee began meeting on July 26, 1984 at the General Motors Technical Center and planned an intensive schedule to finalize recommendations. Committee members, in addition to auto company personnel, were selected from automotive suppliers of exterior coatings, fabrics, carpet, plastics, coated fabrics, exterior film and colorants. Advisors were selected from the instrument manufacturers.

As a member body of ISCC, DCC will provide updates to appropriate project committees. The ISCC board is represented on the technical committee. A full committee membership list will appear in the next issue of this newsletter.

REPORT FROM THE DRY COLOR MANUFACTURERS ASSOCIATION DELEGATES A. M. KEAY, CHAIRMAN

No report has been received.

REPORT FROM THE FEDERATION OF SOCIETIES FOR COATINGS TECHNOLOGY DELEGATES JACQUELINE WELKER, CHAIRMAN

No report has been received.

REPORT FROM THE FOUNDATION FOR ANALYTICAL RESEARCH IN THE ARTS, LTD., DELEGATES, ROY H. WHITE, CHAIRMAN

No report has been received.

REPORT FROM THE GEMOLOGICAL INSTITUTE OF AMERICA DELEGATES, VINCENT MANSON, CHAIRMAN

No report has been received.

REPORT FROM THE GRAPHIC ARTS TECHNICAL FOUNDATION DELEGATES, RICHARD D. WARNER, CHAIRMAN

No report has been received.

REPORT FROM THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA DELEGATES, WILLIAM A. THORNTON, CHAIRMAN

The IES was founded in 1906 to advance the art, science and practice of illumination. It has seventy active committees, under the broad headings of 'technical and research' and 'design and application;' one of these, 'Psychological Aspects of Lighting,' is preparing research goals on psychological effects of lighting – aesthetic reactions to lighting – and invites designers to call or write to discuss their thoughts on this subject: Corwin Bennett, Kansas State U., (913)532-5607; Randy Burkett, KOK-St. Louis, (314)421-2000.

Its International Illumination Design Award recognizes professional standards in creativity and originality of lighting design.

Some of the research proposals (48 proposals to cost $3.5 million) received by the IES Lighting Research Institute and of interest to ISCC involve vision, psychology, and lighting applications.

This August, at the IES Annual Conference in St. Louis, President Howard Brandston relinquishes his gavel to James E. Jewell of Pacific Gas and Electric.

The two-volume IES Handbook has an extensive section on 'color,' periodically revised by the IES 'Color Committee,' within which group occurs most IES work on color. The present work of this committee is on a monograph entitled 'Color and Illumination,' which should be interesting and useful to

ISCC members; I will see that it becomes available to all of us. It will be good, low-key stuff on the nature of light, human color vision, color-rendering, color perception, color language, aesthetics, color harmony, schemes, and preference, color dynamics, photography, etc.

Present delegation: Thornton, chairman; W. Walter, G.L. Howett voting delegates; A.R. Robertson, A.F. Styne, A.L. Hart, P.C. Hughes, D. Pastore, delegates.

Dr. Rogers B. Finch is Executive Vice-President of IES, John Kaufman is Technical Director, and Melanie Manning is Director of Development. These are the fine people to whom to go for better contact with the world of lighting. They must hear about your problems in order to respond to your needs.

REPORT FROM THE INDIVIDUAL MEMBER GROUP VOTING DELEGATES

No report has been received.

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

No report has been received.

REPORT FROM THE MANUFACTURERS COUNCIL ON COLOR AND APPEARANCE DELEGATES, JAMES G. DAVIDSON, CHAIRMAN

No report has been received.

REPORT FROM THE MYCOLOGICAL SOCIETY OF AMERICA DELEGATES KENT H. McKNIGHT, CHAIRMAN

No report has been received.

REPORT FROM THE NATIONAL ASSOCIATION OF PRINTING INK MANUFACTURERS DELEGATES, ALFRED DIBERNARDO, CHAIRMAN

No report has been received.

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

No report has been received.

REPORT FROM THE OPTICAL SOCIETY OF AMERICAN DELEGATES, C. JAMES BARTLESON, CHAIRMAN

No report has been received.

REPORT FROM THE PHILATELIC FOUNDATION DELEGATES, TIMOTHY A. HOLMES, CHAIRMAN

No report has been received.

REPORT FROM THE SOCIETY OF INFORMATION DISPLAY DELEGATES, IFAY E. CHANG, CHAIRMAN

No report has been received.

REPORT FROM THE SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS DELEGATES, ROLAND J. ZAVADA, CHAIRMAN

Thirteen thousand engineers, scientists, and technicians from every corner of the world attended the Society's 125th Technical Conference and Equipment Exhibit in Los Angeles from October 30 through November 4, 1983.

"Future Sights and Sounds," the conference theme, was reinforced by the presentation of many papers on the science of color:

Automated Process Monitoring, Emulsion Evaluation, and Printer Control Using an Apple Computer . . . and Its Place in a Computerized Film Laboratory Optimizing the Screen Quality from Color Duplicates.

Optimizing the Screen Quality from Color Duplicates.

CCS IV: A New Color Timing System for Film.

Choosing Eastman Color Negative Film 5247 or Eastman Color High-Speed Negative Film 5294.

The Care and Handling of Brite Arc and Brite Beam Lamps.

Two New Fujicolor Motion-Picture Negative Films.

Aquacolor Underwater Camera Systems: Breaking the Available Light and Color Barriers Underwater Using Eastman Color High Speed Negative Film.

Dimmable HMI Lighting System for a TV Studio.

The Evolution of High Definition Television.

The Challenges of High Definition Television.

HDTV Laser-Beam Recording on 35-mm Color Film and Its Application to Electro-Cinematography.

Design Considerations for Compatible Two-Channel HDTV Systems.

HDVS Test Signal Generator.

High-Resolution TV for Motion-Picture Production.

End-User Digital High-Resolution Video Conversion.

The Ultimate High-Definition System.

Film to Tape: An Operator's Perspective.

A Low-Contrast Color Print Film.

The Film Reproduction Programmer FRP 60 – An Advanced Color Corrector with Automatic Film-to-Tape Transfer for the FDL 60.

Modern Trends in Color Broadcasting Camera Systems.

Development of a Real-Time Registration Adjustment System for a Color Camera.

Shading-Free Digital Registration Correction for 3-Tube Color TV Cameras.

The 30-mm High-Resolution Diode Gun Leddicon.

Adaptive Contrast Corrector Using Real-Time Histogram Modification.

The Development and Application of Colorization.

Xenon Short Arc Lamps: Designs for Extended Life.

Modern Color Photographic Systems.

FR 35 Telecine Picture Stability Improvement.

Among the many papers presented at the Society's 17th Annual TV Conference on February 4 and 5, 1983 in San Francisco, several were on the subject of color:

New Chrominance and Luminance Components for Multiplexed Component Video Signals in HDTV Systems.

Extended Definition Television with High Picture Quality.

Compatible Systems for High Fidelity Television.

Tools for Interactive Picture-Processing Systems.

Outstanding contributions to color technology were recognized by the Society:

The Herbert T. Kalmus Gold Medal Award was presented to Dr. Harry R. Beilfuss for his role in the development of a high-quality motion-picture print film with low-fade characteristics which improved the useful life of color motion-picture prints and which can have a significant effect in preserving a historical record of the art of motion pictures for the future.

Mr. Karel G. M. Staes was the recipient of the Agfa-Gevaert Gold-Medal Award in recognition of his contributions to the improvement of the interface between motion-picture film and television imaging systems.

To recognize the two outstanding papers originally published in the SMPTE Journal during the previous calendar year, the Journal Award for television was presented to Ralph C. Brainard, Dr. Arun N. Netravali, and Dr. D. E. Pearson for their paper, "Predictive Coding of Composite NTSC Color Television Signals," published in the March 1982 SMPTE Journal.

The Journal Award for motion pictures was given to Glenn L. Kennell, Frank Reinking, Stephen W. Spakowsky, Richard C. Sehlin, and Geoffrey L. Whittier for "Eastman Color High Speed Negative Film 5293," published in the October 1982 SMPTE Journal.

Papers on color published in the SMPTE Journal during 1983 (volume 92) are appended.

Papers Published in the SMPTE Journal, Volume 92 1983

JACOBSEN, MICHAEL. Picture enhancement for PAL-coded TV signals by digital processing in TV receivers. No. 2, Feb., pp. 164-169.

LUTTIO, KENNETH and BERGGREN, GLENN. Xenon short arc lamps for film projection: The state of the art after 20 years. No. 2, Feb., pp. 184-190.

MAGES, LOREN J. Mobile electric power sources for location lighting. No. 3, Mar., pp. 296-302.

STAES, KAREL and MARKIE, WALTER. The interface of color negative film and telecine. No. 3, Mar., pp. 303-307.

NEWELL, P. B. Performance of the 1200-w PAR 64 brite beam lamp. No. 5, May, pp. 583-585.

SHIFRIN, ART. Researching and restoring pioneer talking pictures: The 70th anniversary of the theatrical release of Kinetophone. No. 7, July, pp. 739-751.

LIEKENS, WILFRIED. Psychophysical relationship of image-quality characteristics of motion-picture color films. No. 9, Sept., pp. 927-937.

PREO, PAUL. Projection performance of theatrical motion-picture films using xenon short-arc lamps. No. 9, Sept., pp. 938-944.

MINO, EDWARD and PERRY, RODNEY S. Lubrication of 35-mm release prints for extended projection print life. No. 10, Oct., pp. 1051-1057.

KISHIMOTO, HISAE and HARA, MAKOTO. Two new Fujicolor motion-picture negative films. No. 11, Nov., pp. 1174-1178.

MURATA, NOBUO; HIRANO, CHIKAFUSA; OHOKA, MASAHARU and NAGAHARA, SHUSAKU. Development of a 3-MOS color camera. No. 12, Dec., pp. 1270-1273.

SEHLIN, R. C.; REINKING, F. R.; SPAKOWSKY, S. W.; CLIFFORD, D. L.; WHITTIER, G. L.; and SZAFRANSKI, W. A. Eastman color negative film 7291. No. 12, Dec., pp. 1302-1309.

KELLY, JOSEPH and BERGGREN, GLENN. Screen illumination of 35-mm film projection. No. 12, Dec., pp. 1310-1313.

GOOES, ROLAND and BLOMAN, HANS-EVERT. An inexpensive method for preservation and long-term storage of color film. No. 12, Dec., pp. 1314-1316.

REPORT FROM THE SOCIETY OF PHOTOGRAPHIC SCIENTISTS AND ENGINEERS DELEGATES, RUSSELL H. GRAY, CHAIRMAN

No report has been received.

REPORT FROM THE SOCIETY OF PLASTICS ENGINEERS, COLOR AND APPEARANCE DIVISION DELEGATES, ANTHONY J. PENTZ, CHAIRMAN

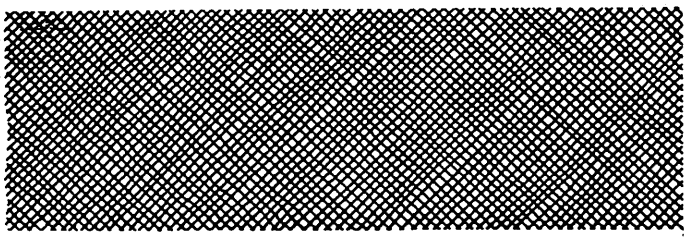
No report has been received.

REPORT FROM THE TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY DELEGATES, S. J. POPSON, CHAIRMAN

No report has been received.

FIRST CALL ISCC NOMINATIONS

The ISCC Nominating Committee is seeking nominations for the three openings in the Board of Directors which will occur at the end of calendar year 1984. The Nominating Committee is chaired by Lou Graham and includes Franc Grum, Fred Billmeyer, Alan Robertson and David Engdahl. Please address correspondence to Lou Graham, Burlington Industries, Inc., PO Box 21327, Greensboro, NC 27420.



APPLICATION FOR INDIVIDUAL MEMBERSHIP

Approved at Board of Directors Meeting, June 9, 1984

Mr. John Anderson
c/o Boris Kroll Fabrics
41 State Street
Paterson, N.J.
07501-3597

Is Assistant Vice-President of Dyeing & Print Finishing at Boris Kroll Fabrics. His work is concerned with color application and control on textiles. Interests include color formulations for textiles, and color problem solving.

Mr. Walter G. Ball
1812 Sherwood Street
Allentown, PA 18103

Is associated with New Jersey Zinc Co. in technical services. His work has involved solving customer problems of titanium dioxide in coatings, plastics, paper and rubber formulations. Presently involved in chrome yellows and moly-oranges for coatings, plastics and inks.

Mr. Joseph J. Benenate
83 Burlington St.
Woburn, MA 01801

Has been a member of the faculty at RIT. Presently, at Graphics Plus Corp. of Woburn, MA. His work has been in the photographic and arts fields. Is interested in color measurement, perception, and color standards.

Mr. Thayer A. Brown, Jr.
433 Building, Dow Chemical Co.
Midland, MI 48640

Is in research and production of plastics; specifically the coloring of styrenic plastics, production of color concentrates, and precolor resins. Is interested in the precise definition and control of color in plastics manufacture and application.

Mr. Stephen B. Daniel
Decorative Products Division
3M
P.O. Box 2600
Farmington Hills, MI
48018

Has been a teacher of art, but presently supervisor in automotive color and graphics development. Is involved in paints, silk screen, and graphics. Interests include color matching, color measurement, pigments and color development.

Miss Judith Ann Frost
Box 279
4201 Henry Ave.
Philadelphia, PA
19144

Has just earned a degree in Textile Engineering at Philadelphia Textile and plans to enter Clemson as a gradaute student in Color Science. Interests in color just beginning, and a result of having taken Dr. Howard's course in Color Science.

Mr. William Dean Jackson
P.O. Box 1551
Bainbridge, GA 31717

Is Color Control Manager, Amoco Fabrics Co. He is concerned with pigmentation of synthetic textile materials (color formulation, quality assurance economics). Interests are continued development of scientific/industrial color research & application, with emphasis on coloration of synthetic fibers, yarns and fabric.

Mr. David M. Johnson
491 Columbia Ave.
Holland, MI 49423

Is presently a Color Technologist for BASF Wyandotte Corp., working with dyes, pigments and fluorescent dyes. Interests include pigment and dyestuff quality control, computer color matching, color difference formulae, and color strength calculations.

Mr. William S. Laycock
EM Chemicals
5 Skyline Drive
Hawthorne, NY 10532

Currently Technical Service Manager of a manufacturer of AFFLAIR® pearlescent pigments. Has 30 years experience with coloring of plastics. Interests include sample preparations for measurement in plastics, coatings, paint and ceramics; and color measurement, including that of pearlescent items.

Miss Judy A. Manuel
11820 N.W. 37th St.
Coral Springs, FL 33065

Is employed by PMS Consolidated at the Corporate Technical Center. Her work involves teaching and product development in the plastics field. Interests include the interaction of pigments and dyes with various plastics, and educational resources that are available on color.

Mr. Matthew J. Plaza
5423 Houser Way
West Bloomfield, MI
48033

Is with PPG where he directs development of colors for future model years of their automotive customers. Presents annual color shows of proposed colors. He is interested in development of unique, glamorous finishes for automotive products.

Mr. Edward N. Thomas
3900 South West Murray Blvd.
Beaverton, Oregon 97005

Art is his chief color interest. His work is in styling and design, related to paint and textiles.

Mrs. Barbara Tiffany
323 Spruce St.
Philadelphia, PA 19106

Is involved in textiles for home furnishings. Her professional concerns with color are as a textile designer, as a space planner, in product development for home furnishings, in marketing new products for the home, and as an advisor to retailers.

Mrs. Amparo R. de Torres
310 S. Easton Rd., A302
Glenside, PA 19038

Her work involves the control, fading and lighting of textiles in a museum environment. She has taken the Color Science course at Philadelphia College of Textiles and Sciences, and done research there. Her interests are in the application of color science to conservation of historical textiles, in museum illumination, and in natural dyes.

Mr. Dennis L. Williams
Mead Central Research
8th & Hickory
Chillicothe, Ohio
45601

Is currently responsible for coating and evaluation of unique prototype color imaging systems; including sensitometry, densitometry, colorimetric analysis, and aging studies. Interests include integral and analytical sensitivity, color densitometry, colorimetric analysis, color matching, color reproduction and color purity.

WE NEED YOUR HELP ! ! !

The ISCC problem committee no. 32, image technology, needs your help. For those of you who may not know who we are, we address problems common to photography, printing, television, CRT and other video displays and other imaging systems. The problems involve rendition, measurement, and specification of color. Our ultimate goal is to derive methods to relate results obtained from one imaging system to those from any other. Solutions to our problems require the interaction of members from diverse fields sharing a common interest in the color problems associated with their imaging systems.

We have defined many specific problems that need solutions. However our current membership does not consist of enough experts to help us solve these problems. We need more expertise, especially in the area of video displays. If you are actively working in any of these imaging fields and would like to assist us in our efforts to improve the state-of-the-art color analysis techniques for inter-relating various imaging systems, please contact Paula Alessi. I would also urge you to read our 1984 annual report for a more detailed discussion of who we are and why we need your help.

Paula J. Alessi
Chairperson for ISCC committee no. 32
Eastman Kodak Company
1669 Lake Ave.
Rochester, N.Y. 14650

OPTICAL SOCIETY OF AMERICA

Continuing the series on member bodies, the ISCC this issue features the Optical Society of America. (OSA)

Just to set the record straight, this Society is not an eyeglass company, even though the name might suggest that to the less familiar. Some of its members are, however, very much engaged with optical devices, of which eyeglasses are certainly to be included. Actually, membership in OSA is open to any scientist, engineer, or technician who is actively engaged or trained in at least one of the many branches of optical science.

One of the larger member bodies of the ISCC, the OSA was founded in 1916 by a group interested in increasing and diffusing the knowledge of optics and in promoting cooperation among designers, manufacturers, and users of optical apparatus of all forms. The society now numbers over 8500 members from the USA and 50 other countries. Members come from education, business, and governmental fields and includes a number of Nobel laureates. In addition, over sixty corporations with a vital interest in optics belong – to promote and encourage the work of the society.

This work is embodied in publications, meetings, and awards. OSA's prestigious publications are to be lauded as they account for a majority of the available printed information in the world on research and data on optics. All members receive subscriptions to Optic News, Physics Today, and the Journal of the Optical Society of America B. Four other journals are published regularly and also, English translations of two Russian optics journals are offered. Two of its special publications are the Science of Color dealing with physical and physiological aspects of color, and the Uniform Color Scales both of which are well known to many in the ISCC and extremely well known to some ISCC members who helped produce them.

The OSA is organized into eighteen different technical groups who usually meet and sometimes present special symposia during the Society's Annual Meeting. All of these groups have a varying degree of interest in color but to two of them: Color; and Vision, this interest is paramount. Most of the world's knowledge about the Science of Color originated from within these groups and many of our members are very active in them.

At present Jim Bartelson is chairman of OSA's delegation to the ISCC which include Franc Grum, Alan Robertson, Robert Boynton, James Davidson, Glenn Fry, Peter Kaiser, Angela Little, and David MacAdam. We in the ISCC obviously share both interests and members with the OSA – we even, to a degree, share a logo as the OSA's also shows a triangle as the triangular cross section of a prism with a light ray intersecting and passing through it.

The Optical Society of America has offices in Washington, D.C. with Jarus Quinn as executive director. We are happy to have this prestigious group as a member body and look forward to sharing color interest for many more years.

Ed Cairns

COLOR SCIENCE ASSOCIATION OF JAPAN

Officers of the Color Science Association of Japan (CSAJ) for 1984-1985 are the following:

President: Prof. Yoshinobu Nayatani (Osaka Electro Communication University)

Vice-president: Prof. Tadashi Tomiie (University of Sacred Heart); Mr. Yukio Murata (Sumitomo Chemical Cooperation Ltd.); Prof. Hiroshi Kansaku (Chukyo University).

The address of CSAJ is as usual: c/o Japan Color Research Institute, 1-19, Nishiazabu 3-chome Minato-ku, Tokyo 106, Japan.

Genro Kawakami

BOOK REVIEW

ASTM Standards on Color and Appearance Measurement

1st Edition, 1984, Sponsored by Committee E-12 on Appearance of Materials. Published by American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103, 242 pages, $39.00.

This handy compilation comprises 34 ASTM appearance-type standards that are applicable to a variety of materials and products. The table of contents also lists the titles of 73 ASTM standards of limited applicability, such as to only one class of material. These listed methods can be consulted by reference to the designated volumes of the Annual Book of ASTM Standards in which they appear. The list also includes the titles of 18 standards and seven technical information sheets published by the Technical Association of the Pulp and Paper In-

dustry (TAPPI). Four test methods applicable to the appearance of textile materials, published by the American Association of Textile Chemists and Colorists (AATCC), are also listed.

The book contains a brief foreword by the compiler, Richard S. Hunter, former Chairman of the Committee and now Chairman of the Executive Subcommittee. He is the recipient of the ASTM Award of Merit and the Society's highest award, Honorary Membership.

A most useful adjunct of the compilation is the set of tables prepared by Mr. Hunter.

Table 1 lists the distinctions between chromatic and geometric attributes of the appearance of objects.

Table 2 classifies objects according to their geometric light-flux distributions.

Table 3 contains the TAPPI standards and technical information sheets. Table 3A lists the AATCC methods.

Table 4 lists by attribute and material the titles of standards for color.

Table 5 lists standards involving geometric distribution of light.

The compilation is more valuable than an index to appearance standards, and the tables make the book much more useful than a simple collection of reprints. No one working in the field of appearance evaluation or quality control should be without a copy on his desk. The price may seem high, but the cost of trying to work without the book could be much higher. Address your order today to ASTM Publication Sales at the Philadelphia address above. Permit me to add that if you are not a member of ASTM, you might do well to consider becoming a member. By doing so you can enjoy the privilege of participating in the work of one or more ASTM committees. In addition you will receive a 20% discount on ASTM publications.

Harry K. Hammond III

LETTER TO THE EDITOR

Going through some ancient files the other day I discovered a number of reprints of an article I wrote in 1951. "Classifying Colored Stocks." It details a practical method of organizing – in a standard 3x5 card cabinet – almost any kind of sample. The suggestions still seem pertinent, and include a short explanation of the Munsell System. I'll be glad to send a copy to any ISCC member who includes a stamped, self-addressed envelope with his or her request.

Charles W. Fletcher
99 MacDougal Street
New York, New York 10012

MEETINGS

ISCC 1985 Annual Meeting and Symposium on Color and Appearance Instrumentation

The next Annual Meeting of the ISCC will be held in Pittsburgh, April 14-16, 1985, at the Sheraton Hotel at Station Square. The three days of ISCC project committee meetings, workshops on color and speakers will be followed by a symposium on instrumentation for measuring color and appearance in the coating industry to be held at the same hotel on April 17-18. This extended program will be jointly sponsored by the Inter-Society Color Council, the Federation of Societies for Coating Technology and the Manufacturers Council on Color and Appearance.

The theme for both events will be "Color: The End User" and a special "bridge" session on April 16 will serve to tie the back-to-back events together. It will be possible to choose to attend either or both of these programs. This can mean a whole week of information on color and the opportunity to see the latest instrumentation. The setting for these meetings will be especially interesting since Station Square has been transformed from a train station into a vital shopping and eating area well worth visiting between sessions.

The program for the ISCC section will follow the general format of the 1984 meeting except that some project committee meetings will be held Sunday morning, April 14, to reduce the overlapping of these meetings which continues to be a common complaint from people who have to choose between several sessions they would like to attend.

The instrumentation symposium will be divided between "hands-on" workshop sessions and general oral presentations on instrumentation, sample preparation and statistical control. Special emphasis will be devoted to coil coating and automotive applications. The format of the program is being designed to offer a "working meeting" environment, and registrants will be invited to bring samples with them.

General program sessions for FSCT are under the direction of Jacki Welker of PPG Industries. Arrangements for workshops during the second part of the program and instrument displays are being handled by Charles Leete of the Manufacturers Council on Color and Appearance. The ISCC program chairman is Joy Turner Luke with Bonnie Swenholt in charge of arrangements.

AIC International Congress

The International Colour Association is sponsoring the International Congress Colour 85 in Monte Carlo June 16-22, 1985. The aim of the Congress is to discuss colour phenomena in all aspects. The broad coverage of the program includes science and fundamental research, industrial applications, art and culture, communication and anthropology. For further details contact Dr. Fred W. Billmeyer, Jr., 2121 Union Street, Schnectady, N.Y. 12309.

Colour in Information Technology

The Institution of Electronic and Radio Engineers in cooperation with a number of other bodies is organizing the Conference on Colour in Information Technology. The conference will be held at the University of Surrey in Guildford, Surrey, England March 25-29, 1985.

A call for papers has been issued and interested contributors are invited to correspond with the Conference Secretariat,

IERE, 99 Gower Street, London WCIE 6AZ (Phone 01-388 3071). Mr. Ifay F. Chang, President of the Society for Information Display, is a member of the organizing committee for the conference. His address follows: IBM T. J. Watson Research Center, P.O. Box 218, Yorktown Heights, New York 10598.

Request for Proposals

The Lighting Research Institute, Inc. (LRI), a not for profit organization formed in 1982 to promote and sponsor basic and applied research and development in North America for all forms of lighting is making its annual request for proposals based on its research agenda. Proposals are being sought for the following research areas with an emphasis on those areas which have direct human application:

• PHOTOBIOLOGY – to determine the possible effects of illumination on human health for:

1. Systemic effects, through the eyes, of the visible component of the spectral power distribution of illuminants, such as neurondocrine effects, and biological rhythms.

2. Systemic effects through the skin, such as ultraviolet induction of skin cancer and immunological effects.

3. Direct physical-chemical hazards such as retinal degradation, and cataract induction.

• VISION – to determine the relationship between light and vision so that the lighted environment can be designed to provide adequate and comfortable conditions for seeing by conducting research toward:

1. Prediction of color appearance and color discrimination.

2. Visual Performance – (perception, visibility, and dynamic, e.g. transient adaptation.).

3. Cross-cutting areas (color preference, discomfort glare).

• SYSTEMS APPLICATION – Engineering, Physical Sciences, and Economic Research on Lighting Systems to formuate and verify:

1. Models of Light.

2. Models of Lighting Systems.

3. Measurement, Test, Evaluation and Design Methods.

• PSYCHOLOGY – to investigate human responses and behavior in real environments by conducting studies of:

1. How the distribution of luminances and color affects human feelings, mood, behavior, fatigue, and productivity.

2. Psychological/aesthetic reaction to street and highway lighting encompassing discomfort glare, safety and fatigue.

Criteria for selection of proposals for funding will be based on *scientific* and *technical merit,* and also on: *appropriateness* for funding by LRI based on the research agenda; *timing* – both long and short term will be sponsored with an initial leaning given to short term, *risk;* and *significance of the research* based on criteria for a given research area (e.g., health consideration for photobiology).

The deadline for receipt of proposals is September 14, 1984. For a copy of the Institute's Research Agenda, Proposal Application, and/or further information please contact:

Richard L. Vincent, Program Manager, Lighting Research Institute, 345 East 47th Street, New York, N.Y. 10017, (212) 705-7918.

RESERVED FOR MISSING SUB-COMMITTEE REPORTS

RESERVED FOR CONTRIBUTIONS FROM MEMBER-BODIES

CALENDAR

AIC
International Congress Colour 85, June 16-22, 1985, Monte Carlo

AMERICAN SOCIETY OF INTERIOR DESIGNERS
National Conference, August 16-19, 1984, Chicago

FEDERATION OF SOCIETIES FOR COATINGS TECHNOLOGY
Annual Meeting, October 24-26, 1984, Chicago, IL

ISCC 1985 ANNUAL MEETING
April 14-16, Sheraton Station Square Hotel, Pittsburgh, PA

ISCC 1985 WILLIAMSBURG CONFERENCE
"Color: Then and Now," February 11-13, 1985

SOCIETY FOR INFORMATION DISPLAY
Conference on Colour in Information Technology, March 26-29, 1985, University of Surrey, Guildford, Surrey

PANTONE, INC. COLORS NEWSLETTER

A very generous donation of paper and color printing from Pantone, Inc. has restored the color spectrum to the front page of the NewsLetter. The ISCC Board of Directors wishes to express its thanks to Pantone, Inc. for this tangible expression of support and help.

1. Any person interested in color and desirous of participating in the activities of the Council for the furtherance of its aims and pusposes . . . . shall be eligible for individual membership (By-Laws, Article I, Section 2). Application forms for individual membership may be obtained from the Secretary (address given above).

2. 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 Cooper-Hewitt Museum, 9 East 90th Street, New York 10028.

Deadlines for submitting items to be included in the Newsletter are: February 15, April 15, June 15, August 15, October 15, and December 15; in other words, the fifteenth of the even-numbered months.

Send newsletter items to:
Ms. Mary Ellen Zuyus
Hunter Associates Laboratory, Inc.
11495 Sunset Hills Road
Reston, VA 22090

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