

Inter-Society Color Council News

ANNUAL MEETING REMINDER

The 51st Annual Meeting will be held at the Sheraton Center Hotel, Charlotte, North Carolina, April 18-20, 1982. A full program, including a visit to Cannon Mills, is scheduled. A final program and registration information will be in the mail to the membership shortly.

SYMPOSIUM ON COLORIMETRY OF SELF-LUMINOUS DISPLAYS

The ISCC and The Society of Information Display are pleased to announce joint sponsorship of a special Symposium on Colorimetry of Self-Luminous Displays. The Symposium will be held April 21, 1982 following the ISCC Annual Meeting. Details of the program are included in the Annual Meeting information packet.

ELECTION OF OFFICERS AND DIRECTORS

The ISCC Board of Directors announced the results of the recent election at the Spring Meeting of the Board of Directors in Louisville, February 4-5.

Officers

President:	Louis A. Graham, AATCC, IMG
President-Elect:	Joyce S. Davenport, FSCT, IMG
Secretary:	Therese R. Commerford, AATCC, IMG
Treasurer:	Edward T. Connor, IMG, MCCA

Directors

Fred W. Billmeyer, Jr., ACHS AIC, APS, IMG, SPE
Richard D. Ingalls, IMG
Rolf G. Kuehni, AATCC, IMG

Congratulations!

LOUIS A. GRAHAM, PRESIDENT

Louis Graham is Manager of Corporate Research and Development of Burlington Industries, Inc. Mr. Graham joined Burlington Industries at their Corporate Research Center in 1967. In 1968 the Color Laboratory was organized and, in 1970 the Dye Application Laboratory responsibilities were also assigned to Mr. Graham. In recent years these laboratories have been concerned with developments in dyeing and printing of all synthetic and natural fibers, resulting in developments for solvent dyeing, vacuum dyeing, pigment dyeing and reactive dyeing. The Color Laboratory has been active in the development of computer programming for color technology and the

Number 276

JANUARY-FEBRUARY 1982

more efficient use of instrumentation for color measurement throughout Burlington Industries.

From 1950 through 1967, Mr. Graham was employed by American Viscose Corporation, subsequently American Viscose Division of FMC Corporation. During those years he was, successively, Plant Quality Control Manager, Plant Color Specialist, Corporate Color Specialist and Section Leader for Research and Development in synthetic fibers. Mr. Graham graduated from the University of Virginia with a Bachelor's Degree in Chemical Engineering and from the University of Louisville with a Master's Degree in Chemical Engineering. He has published in several technical journals and holds several patents.

In 1962, along with Everett R. Call and Robert Eppinger, he was one of the co-founders of the Color Marketing Group (CMG) and also served as the first President of CMG from 1962 to 1965. He has been a member of the Inter-Society Color Council since 1958, serving, at times, on several problem subcommittees and as a delegate from CMG. He is presently a member of the Society of Dyers and Colourists (SDC), the American Association for Textile Chemists and Colorists (AATCC), Alpha Chi Sigma Chemical Fraternity (AXE), Kiwanis, and, in past years, a member of the American Society of Quality Control (ASQC), American Institute of Chemical Engineers (AIChE), and the Optical Society of America (OSA). Mr. Graham was recently an Associate Adjunct Professor of the Textile School of the State University of North Carolina at Raleigh. He is listed in *Who's Who for the East and for the Southeast* as well as *Who's Who in Finance and Industry*.

JOYCE S. DAVENPORT, PRESIDENT-ELECT

Joyce Davenport is Supervisor, Color Development, Color Research at DeSoto, Inc. She has an extensive background in color science in the plastics and coating industries and has lectured in business and industry.

Miss Davenport is a member of the ISCC Board of Directors, Co-Chairman of Subcommittee 25-P, Member-Body Liaison, Chairman of the Color Marketing Group delegation, and a member of the FSCT delegation. In addition, she serves on the CMG Board of Directors as Treasurer and as the Chairman of Technical Direction.

She attended the University of Nottingham, majoring in Chemistry. Further study in interior design was completed.

THERESE R. COMMERFORD, SECRETARY

Therese Commerford is presently employed by the U. S. Army Natick Research and Development Laboratories as a research chemist with Process Technology Section, Textile Research

and Engineering Division.

Miss Commerford earned a Bachelor of Science degree in chemistry from Lowell Technological Institute. Prior to joining Natick, she spent eighteen years at the Derby Company. She served as Supervisor of the Color Laboratory for most of that time.

Miss Commerford is a member of Sigma Xi Honor Society, the American Association of Textile Chemists and Colorists, the Inter-Society Color Council and the Optical Society of America. She is presently a Vice-President of the American Association of Textile Chemists and Colorists, as well as a member of its Executive Committee on Research, Technical Committee on Research and Long-Range Objectives Committee. She served as a Director of the Inter-Society Color Council from 1977 to 1980.

Miss Commerford is active on many committees, including Research Committees RA 50 (Colorfastness to Light) and RA 36 (Color Measurement) of the American Association of Textile Chemists and Colorists, Project Committee 25 (Determination of the Strength of Colorants — Dyes), Project Committee 27 (Indices of Metamerism), and Project Committee 34 (Color Difference Problems) of the Inter-Society Color Council. She was Chairman of The 1979 Symposium, "Color Science in the Textile Industry," sponsored by Research Committee RA 36 of the American Association of Textile Chemists and Colorists, held in Charlotte, North Carolina. Miss Commerford has lectured on color at the color courses sponsored by Clemson University and the workshops on color given by the American Association of Textile Chemists and Colorists.

EDWARD T. CONNOR, TREASURER

Edward T. Connor, Corporate Vice President of Pacific Scientific Company, and President of the Company's Gardner/Neotec Instrument Division (Silver Spring, Maryland) was born in Greenburg, Pennsylvania and earned a Bachelor of Science degree in Electrical Engineering at the University of Pittsburgh. Mr. Connor spent 10 years with General Electric in marketing position and was later president of Instrument Development Laboratories, Inc. prior to joining Gardner Laboratory in 1971. During the years he has served as President and a Director of MCCA, as a Director of CTS, as a Senior member of ISA and as a member of ISCC — becoming Treasurer in 1980. He is heavily involved in community affairs also being the President of his Citizens Association, a past President of Rotary Club, a Director of the YMCA and active with United Fund, Little League and the Zoning Board. He and his wife Louise have six children and five grandchildren. For relaxation he enjoys being outdoors — golfing, bicycling along the Potomac, or working in his yard.

FRED W. BILLMEYER, JR., DIRECTOR

Dr. Billmeyer is Professor of Analytical Chemistry at Rensselaer Polytechnic Institute. He directs the Rensselaer Color Measurement Laboratory and is Editor-in-Chief of *Color Research and Application*, among other responsibilities. He was President of the ISCC from 1968 to 1970 and has been

Secretary since 1970.

Dr. Billmeyer was previously associated with the Plastics Department of E. I. du Pont de Nemours and Company. In addition, he held the position of Lecturer in High Polymers in the Department of Chemistry, University of Delaware, and he was Visiting Professor in Chemical Engineering at The Massachusetts Institute of Technology.

Dr. Billmeyer is active on many committees, including D-1 (Coatings), D-20 (Plastics), and E-12 (Appearance), of the American Society for Testing and Materials, TC-1.3 (Colorimetry) and TC-2.3 (Materials) of the International Commission on Illumination (CIE), and the U. S. National Committee of the CIE. He is a member of the Board of Directors of the Color and Appearance Division of the Society of Plastics Engineers. He is a Trustee of the Foundation for Analytical Research in the Arts, a Trustee and Secretary of the Munsell Color Foundation, a member of the Advisory Board for the series "Chemical Analysis," Editorial Advisor to the journal, "Optical Spectra," and a Section Editor for "Chemical Abstracts."

Dr. Billmeyer has received two major awards from professional societies: the Armin J. Bruning Award of the Federation of Societies for Coatings Technology in 1977, and the Macbeth Award of the Inter-Society Color Council in 1978.

Dr. Billmeyer graduated from the California Institute of Technology with a Bachelor of Science degree in Chemistry and from Cornell University with a Ph.D. in Physical Chemistry.

RICHARD D. INGALLS, DIRECTOR

Dick Ingalls is a Color Consultant to Armstrong World Industries in Lancaster, Pennsylvania. Both Mr. Ingalls and his wife, Marjorie, are active members of the ISCC and are co-inventors of a method to produce target colors on photographic materials (patent pending). They produced the OSA illustrations in the 1981 Spring issue (Vol. 6, No. 1) of *Color Research and Application*.

Mr. Ingalls was born in Spokane, Washington, and earned a Bachelors degree from Seattle University, followed by his Masters in Painting from San Francisco State College. He has taught secondary and college level courses. Mr. and Mrs. Ingalls are owners and publishers of *Tourmaps* for several cities including London, England.

Although Mr. Ingalls is an artist, he approaches color from the scientific side. He uses spectrophotometric methods to achieve results in his work in producing colorimetry samples.

ROLF G. KUEHNI, DIRECTOR

Rolf G. Kuehni, received the degree of Textile Chemist from Fachhochschule Niederrhein in Krefeld, Germany. He is Group Manager of Development and Color Technology of the Verona Dyestuff Division, Mobay Chemical Corporation in Union, New Jersey, where he is involved in computer colorant formulation. Mr. Kuehni has authored and coauthored some twenty papers related to color technology and dyestuff application technology, published in American and European journals in

addition to the book *Computer Colorant Formulation*. He is a member of the Inter Society Color Council, the Optical Society of America, the American Association of Textile Chemists and Colorists and is an associate editor of the journal *Color Research and Application*.

NOMINATIONS FOR ISCC SERVICE AWARD

The ISCC Service Award Subcommittee is soliciting nominations for the first ISCC Service Award. This award was established by the Board of Directors in 1980 so that individuals who gave outstanding service to the Society could be recognized in a special way. Service could be in the form of organizational, clerical or technical.

The information required for nomination for the Service Award is:

1. name and address of nominee
2. professional affiliation (company or institution, etc. if any)
3. title (present or most recent and duties)
4. other professional society affiliations and any positions held
5. nature of interest and activity in color
6. evidence of service given toward the advancement of the ISCC
7. additional general background information
8. source of nomination

The Service Award Subcommittee members are as follows: Mr. Calvin S. McCamy, Mr. Charles W. Jerome, Dr. Paul H. Hoffenberg and Mr. Ralph Stanziola (Chairman).

Please send nominations to the Chairman, c/o Applied Color Systems, Inc., P.O. Box 5800, Princeton, NJ 08540.

ISCC BADGES

ISCC now has available local badges in limited quantities. These beautiful blazer patches with clutch pin fastening may be purchased at the Annual Meeting in Charlotte, North Carolina, at a reduced price at the meeting only for \$18.00. The price will increase thereafter.

NEWS OF MEMBERS

Honorary Member

A recent inquiry from the Board of Directors to all living Honorary Members resulted in the following letter from Walter J. Kiernan:

"I am very flattered that the ISCC Board of Directors would have remembered me after so many years. I retired from Bell Labs eleven years ago, but I have never forgotten my many friends in the ISCC.

You ask me to tell you of my present activities and interests. At my retirement, I resigned all positions in various societies and industry associations that would have required Bell Labs support facilities; however, I have retained honorary, emeritus and fellow status in five societies. This keeps me on my toes, keeping abreast of scientific developments in physics and chemistry at no cost to myself. Since I am in the seventies,

I have no desire to undertake any new activities. I might add that Bell Labs keeps its retired employees flooded with weekly reports of their latest developments.

A wonderful wife, three married children and seven grandchildren are my stimulus to keep from vegetating. Also, my great delights are to read nineteenth century literature, listen to classical music (especially that generated by my wife) and to view developments in the ballet world.

I would have enjoyed attending the Golden Anniversary of the ISCC, but I had a bothersome ailment at that time. Fortunately, I have completely recovered after an operation and a hospital stay.

I carefully read the ISCC Technical Report 81-1, 1981 Long-Range Planning Conference. It reminded me of the long planning discussions in the ISCC Board meetings, beginning with my directorship in 1958. Unfortunately, so few of the agreed-upon plans came into fruition; many of the 56 items listed in the report are of long standing. I do hope that these future plans will bear fruit in the years ahead!

Please give my regards to the ISCC Board. My best wishes for their success in developing the ISCC color programs."

William J. Kiernan

Color Marketing Group Presents Dimmick Award

Color Marketing Group has honored three individuals for their outstanding contributions to color marketing. Louis A. Graham, Burlington Industries, Inc., José Martín, Allied Corp.



Color Marketing Group presents "Forrest L. Dimmick Award" at fall meeting, "24 Karat Color", Denver, October 10, 1981. Accepting the award — Louis A. Graham, Burlington Industries.

and Beatrice West, Beatrice West Studios, Inc. received CMG's highest honor, the Forrest L. Dimmick Award, at the group's fall meeting held in Denver, Colorado, on October 10, 1981.

In presenting the award to Lou Graham, the cofounder and first president of CMG, Capehart said, "At a time when the



Color Marketing Group 1982 Board of Directors and Officers. Photo courtesy Joyce S. Davenport.

world of color was fragmented, Graham recognized the power of color when combined with the skills of marketing. He saw color's ramifications for business and industry and brought together the creative, technical and marketing people from many multibillion dollar industries to work together and develop the very principles of color marketing." Lou Graham was a color engineer developing fibers and a color specialist for the Sales Department when he cofounded CMG in 1962. He has continued to be active in all color areas. Currently, he is senior Manager, Corporate Research and Development for Burlington and is President-Elect of the Inter-Society Color Council.

APPLICATIONS FOR INDIVIDUAL MEMBERSHIP APPROVED AT BOARD OF DIRECTORS MEETING FEBRUARY 4-6, 1982

Miss Deborah E. Bennett 29 Lorenz Avenue New Rochelle, New York 10801
Color matching (computer) at variable angles of metallics and fibers — is what you see, what you get? Color and its effects on one's personality. Modern instrumentation for color measuring. Ciba-Geigy Company.

Mr. Reuven Binder Scitex Corporation PO Box 330 P/O STCL-592 Herzlia "B" ISRAEL 46103
SMPTE, SPSE. Color Matching and control in print processes and systems. Color proofing in graphic-art systems. Computer color-match programs in printing and textiles. Color in photographic systems, research and development.

Ms. Donna Blakemore 1898 Spring Street Smyrna, Georgia 30080
All aspects of color, such as art (creativity), psychology, principles and application, and beyond, to expand my knowledge in color to further the development of beauty. Work involved in creative hair color, teaching, educating other cosmetologists the theory of color, so they can understand the formulation of hair color and its application, educating my clients on color awareness and expressing themselves with color.

Ms. Nancy Copeland 3149 California, Apt. 4E San Francisco, California 94115
Color matching, color mixing, color manipulation through control. Teaching color science, coloration creation for fashion industry, color design in the visual arts, teaching dyeing classes with attention to limitations of dyes and fabrics.

Mr. Abraham A. Donato, Jr. 13629 Zaremba Drive Brook Park, Ohio 44142
FSCT, NPCA, SPE. Color matching, design, and sales to plastic industry, to promote the pearlescent look in paint, coatings, inks and plastics. Detroit Colour Council.

Mr. Otto Elsner College of Textile Tech. & Fashion 12 Anna Frank Street Ramat Gan, ISRAEL 52526
AATCC. Color matching — color difference. Dyeing and finishing of textiles. College of Textile Technology and Fashion.

Miss Debra A. Hanes 8109 Algon Avenue Philadelphia, Pennsylvania 19152
AATCC, AChS. Research in color measurement and computing, quality control. Student at Philadelphia College of Textiles and Science, assistant dyer with B&B Dyeworks, Inc.

Mrs. Cindy M. Hunt 4912 Behrwald Brooklyn, Ohio 44144
Color matching of a variety of products. Most popular include flat and gloss standards (paint) metallic samples (automotive) pearls (cosmetics). Color-card business.

Mrs. Barbara K. Lewis QUME Corporation 2350 Qume Drive San Jose, California 95131
Setting tolerances, matching colors in paint, plastic and inks. Developing standards for industrial use. Promoting more sophisticated control of color within the silk-screening industry.

Mrs. Eleanor S. Nadeau 341 East 70th Street New York, New York 10021
ASID. Interior design, although I am also interested in the chemical, ophthalmologic, and other aspects of color. How best to specify color, and how to understand the various aspects that change color like illumination, texture, etc.

Mr. Martin Z. Skalski 209 Washington Avenue Brooklyn, New York 11205
IDSA. A graduate student at Pratt Institute doing my thesis work on the effects of color upon 3-dimensionality and unity between forms and spaces and color. Student member.

Mr. Thomas J. Skierski The Harshaw Chemical Company 1945 East 97th Street Cleveland, Ohio 44106
FSCT, GATF, NPCA. Computer formulation and matching of colors in various product lines relative to customer service, sales, marketing, manufacturing, quality control, and research.

Ms. Mary Ellen Zuyus
Hunter Associates
Laboratory, Inc.
1195 Sunset Hills Road
Reston, Virginia 22090

The development of new techniques in controlling color and appearance measurement problems; providing information and education services to those interested in color and appearance.

For Information Only

Mr. Ara Hourdajian
Microcolor International, Inc.
Unit 11B
Midland Park Center
Midland Park, New Jersey

SPSE. Color micrographics in publishing. Non-voting delegate, SPSE.

Mrs. F. E. Lainie Mann
Gemological Institute of America
1660 Stewart Street
Santa Monica, California 90404

GIA. Application of color in art/design; psychological aspects in education (teaching) and industry (marketing); scientific aspects (optics, perception) and research in color standardization (particularly as applied to gemology and

graphic/reproduction art). Voting Delegate from the Gemological Institute of America.

CHANGES IN MEMBERSHIP LIST JULY 10 - OCTOBER 15, 1981

A. Changes in Status

Dr. C. James Bartleson: off AIC
Dr. Andreas Brockes: off AIC
Mr. Leonard R. Dearth: off delegate to IMGR
Col. James T. DeVoss: APS/V not L
Mr. Anders Hård: on AIC
Prof. Tarow Indow: off AIC
Ms. Constance Rezendes: off ASID
Dr. Alan R. Robertson: off AIC
Dr. Heinz Terstiege: on AIC
Dr. Gunter Wysecki: on AIC
Mrs. Lisa Bareiss Hepfinger: from IMGS to IMG

B. Additions

Ms. Elisabeth Bayle, IMG
73 Harvard Avenue
Allston, Massachusetts 02134

Mrs. Barbara Trisler, IMG
1416 Fruitdale Avenue
San Jose, California 95128

Ms. Janet Bliman, IMG
180 Buffington Rd. #201
Akron, Ohio 44313

Mr. Gary R. Carr, IMG
1001 Southbridge Street
Worcester, Massachusetts 01610

Mr. Vilas C. Gupte, IMG
MG Consultancy Services Ltd.
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Bombay 40021, INDIA

Mr. Ara Hourdajian (New delegate SPSE)
Microcolor International, Inc.
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Midland Park, New Jersey 07432

Ms. Marjorie E. Kreilick, IMG
2713 Chamberlain Avenue
Madison, Wisconsin 53705

Mr. Gerald R. Mengel, IMG
Rohm and Haas Company
Independence Mall W.
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Mr. Steven A. Pla, APS/E
Librarian
American Philatelic Research Library
PO Box 338
State College, Pennsylvania 16801

Mr. Guerrando Poles, IMG
Stazione Sperimentale
Piazza Leonardo de Vinci 26
20133 Milano, ITALY

Mr. Daniel J. Pollman, IMG
PO Box 46
Axis, Alabama 36505

Mr. Girts Purins, IMG
Dept. of Studio Arts
University of Pittsburgh
Pittsburgh, Pennsylvania 15260

Dr. Lucia Ronchi, AIC (Replaces Vasco Ronchi)
Assoc. Offica Italiana
Istituto Nazionale di Offica
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50125 Firenze, ITALY

Mr. Scott Stamm, IMG
Rte. 5, Vesta Apt. 4
Warsaw, Indiana 46580

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Los Angeles, California 90028

Dr. Johannes J. Vos, AIC
Institute for Perception TNO
Kampweg 5, Postbus 23
Soesterberg, The Netherlands

Mr. Keith A. Wagner, APS/L
American Philatelic Society
PO Box 800
State College, Pennsylvania 16801

Mr. Don Waldbillig, IMG
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3M Center, 582-1-16
St. Paul, Minnesota 55144

Ms. Janet Walker, IDSA/E (was Goldman)
Editor, IDSA
6802 Poplar Place
McLean, Virginia 22101

C. Deletions

Mr. Jerry A. Foute, IMG (resigned)
Dr. Richard E. Lombardi, IMG (resigned)
Mrs. Georgia W. Plaisted, IMG (resigned)
Mr. Charles P. Schreiner, IMG (resigned)
Mr. Davis Selander, IMG (resigned)

Mr. Joseph T. Funk, IMG (no address)
Ms. Sarah Rudin, IMG (no address)

Mr. Peter Krause, SPSE (off delegate)
Mr. Richard L. Maley, APS (off delegate)
Mr. Frank Zurlo, MCCA (off delegate)

Dr. Antal Nemcsics (off AIC)
Dr. Lorenzo Plaza (off AIC)
Prof. Vasco Ronchi (off AIC)

Ms. Janet Goldman, IDSA/E: change of name to Walker

D. Change of Address

Mr. James B. Brown, CMG/V
3410 Mill Pond Road
Charlotte, North Carolina 28211

Mr. Samuel D. Denopoulos, IMG
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Pelham, New Hampshire 03076

Ms. Anita DeVivo, APA/E
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Dr. Robert Alan Funk, IMG
4243 N. Arnold Mill Rd.
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Mrs. Lisa Bareiss Hepfinger, IMG
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Kansas Street
Natick, Massachusetts 01760

Dr. Leo M. Hurvich, APA/V
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202 Junipero Serra Blvd.
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Mr. Kenneth L. Kelly, APS, IMG
#46 Village Green
Southern Pines, North Carolina 28387

Dr. Victor J. Mimeault, IMG
AMPACET Corporation
250 So. Terrace Avenue
Mt. Vernon, New York 10550

Mr. Norman Patrick, SID/V
901 East Orange Street
Lancaster, Pennsylvania 17602

Mr. Alvin O. Ramsley, IMG
U.S. Army Natick Laboratories-Commander
ATTN: DRDNA-ITC (Ramsley)
Natick, Massachusetts 01760

Ms. Marilyn K. Squier, IMG
1330 Regal Row
Dallas, Texas 75247

Mr. Brian J. Wynne, IDSA/L
Industrial Designers Soc. America
6802 Poplar Place
McLean, Virginia 22101

CHANGES IN MEMBERSHIP LIST OCTOBER 15, 1981 - JANUARY 31, 1982

A. Changes in Status

Mr. A. Allen Dizik: from IMG to IMGR
Mr. Paul A. McManus: add SID/V
Dr. Janos G. Schanda: off AIC

B. Additions

Miss Deborah E. Bennett, IMG
29 Lorenz Avenue
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Mr. Reuven Binder, IMG
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Herzlia "B"
ISRAEL 46103

Ms. Donna Blakemore, IMG
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San Francisco, California 94115

Mr. Abraham A. Donato, Jr., IMG
13629 Zaremba Drive
Brook Park, Ohio 44142

Mr. Otto Elsner, IMG
College of Textile Tech. & Fashion
12 Anna Frank Street
Ramat Gan, ISRAEL 52526

Mr. Franz Gerritsen (on AIC)
Nederlandse Vereniging voor Kleurenstudie
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The Netherlands

Mr. Edward Gips (new ASID/L)
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Miss Debra A. Hanes, IMG
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Mr. H. Hayoz (on AIC)
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SWITZERLAND

Mrs. Cindy M. Hunt, IMG
4912 Behrwald
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Santa Monica, California 90404

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Dr. Antal Nemcsics (on AIC)
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Techn. University of Budapest
Mueguetem RPK 3
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Dr. E. Sauras (on AIC)
Comite Espanol de Color
Instituto de Optica
Serrano 121
Madrid 6, SPAIN

Mr. Martin Z. Skalski, IMGS
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Brooklyn, New York 11205

Prof. Dr. Sobczak (on AIC)
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Ms. Mary Ellen Zuyus, IMG/V
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C. Deletions

Ms. Jean R. Auvil, IMG	(non payment of dues)
Mr. Robert W. Chute, IMG	(non payment of dues)
Mr. Michael Ferrill, IMG	(non payment of dues)
Miss Marcella Graham, IMG	(non payment of dues)
Mr. Dwight A. Holtzen, IMG	(non payment of dues)
Mr. Joseph Kettenacker, IMG	(non payment of dues)
Mr. Ken G. Probst, IMG	(non payment of dues)
Mr. A. J. Rizzer, IMG	(non payment of dues)
Mr. George A. Robinson, IMG	(non payment of dues)
Dr. Frederick R. Ruckdeschel, IMG	(non payment of dues)
Mr. Robert Safir, IMG	(non payment of dues)
Mr. Stephen R. Schultz, IMG	(non payment of dues)
Mrs. Idaherma Williams, AEA, IMG	(non payment of dues)
Mr. Luis C. Lopes, IMG	(non payment of dues)

Mr. Norman L. Fritz, ASP	(no address)
Mr. Howard T. Jones, IMG	(no address)
Mr. John James Lanczycki, IMG	(no address)
Dr. Bernard J. Liska, IFT/E	(no address)
Miss Judith H. Lubar, IMGS	(no address)
Miss Florence Whitehill, AAPL/L	(no address)
Dr. Henry K. Wren, IMG	(no address)

Dr. A. Cruz	(off AIC)
Drs. J. J. Opstelten	(off AIC)
Mr. A. O. Wullemin	(off AIC)

Ms. Linda Jansson (off ASID/L)

Mrs. Jacqueline Becker, GIA/V (replaced by Mrs. F. E. Lainie Mann)

D. Change of Address

Mr. Alexander Akselrod, IMG
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3M Center
St. Paul, Minnesota 55144

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Boronia 3155
Melbourne, Victoria
AUSTRALIA

Mr. Michael Freeman, IMGS
School of Art and Design
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Champaigne, Illinois 61820

Mr. Donald Genaro, IDSA
Henry Dreyfuss Associates
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Mr. Harry K. Hammond, III, ASTM/C
Gardner-Neotec Inst. Div.
Pacific Scientific Company
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Lt. Daniel G. Henderson, IMG
Commandant USCG (GEOE-4)
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Mr. Richard D. Ingalls, IMG
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Miss Julia J. Taff, IMG
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Mrs. Zora Sweet Pinney, IMG
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Los Angeles, California 90025

Prof. R. E. Redmann, IDSA/V, IMG
Design Department
University of Bridgeport
Bruel Hall, 600 University Avenue
Bridgeport, Connecticut 06601

Mr. Richard Strain, IMG
6614 West Cherry Lynn Drive
Phoenix, Arizona 85033

Dr. W. A. Thornton, IES/C, IMG
Westinghouse Electric Corp.
One Westinghouse Plaza
Bloomfield, New Jersey 07003

Mr. Bruce H. Todd, FSCT, IMG
S. C. Johnson & Son, Inc.
Racine, Wisconsin 53403

Mr. Thomas Vonier (AIA), IMG
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Washington, D.C. 20009

Mr. Roger F. Wells, IMG
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NEWS OF MEMBER-BODIES

Member Delegations

There will be a scheduled meeting of the member-body delegations during the Annual Meeting, April 18-20, in Charlotte, North Carolina. All delegation chairmen please plan to attend Sunday 8:30 - 9:00 PM. It is important that you remember to bring your annual reports.

NEWS OF PROJECT COMMITTEES

Subcommittee 25P — Determination of the Tinting Strength of Colorants Room B — 10 AM — April 20, 1982, Annual Meeting

No scheduled program is planned. However, there will be an opportunity for members who wish to join a new testing program to discuss the project at this time.

Joyce S. Davenport

Project Committee #27 — Questionnaire on Metamerism

The term "metamerism" is interpreted in many different ways by industrial colorists. This committee expressed its concerns in a recent article (Color Research and Application, Vol. 5, No. 4, 220-221, Winter 1980) and has now undertaken the task of defining the many concepts expressed in common usage of the word. A questionnaire was mailed to over 600 people working in color around the world. They were asked to either agree or disagree with 44 statements referring to metamerism and color matching. The response to the survey has been extremely encouraging. It should give us a better understanding of industrial problems related to metamerism. Results will be discussed at the committee meeting at Charlotte in April.

We thank the many people who responded to the questionnaire. We also encourage others to still send in their responses.

Ralph Besnoy
Allan Rodrigues

Co-chairmen, Project Committee #27

SPECIAL MEETING FOR ISCC PEOPLE IN THE ARTS

There will be a meeting for ISCC people interested in the arts at 4-5 p.m. on Sunday, April 20, 1982 during the ISCC Annual Meeting which will be held at the Sheraton Center Hotel in Charlotte, North Carolina. The purpose of the meeting will be to discuss the color interests which drew arts people to join the ISCC and what further ISCC committees, symposia and workshops might be established to serve those interests.

Everyone is welcome. Come and make your concerns known. Finding where interests coincide among designers, architects and artists will facilitate planning cooperative programs. Problems unique to a certain field may warrant study by a small group.

Work going on in current Project Committees will also be described and questions answered to help you decide which sessions to attend later during the meeting.

Joy Turner Luke

PRODUCTS AND SERVICES

Colour Technology Course

The Colour Group of India is sponsoring a refresher course on "Colour Technology" to be held at Hotel Sea Rock Bandra, Bombay, March 2-6, 1982. This one-week intensive course provides both theory and practice in measurement of colour and its role in production color control. For further information, please write to the Editor.

CALENDAR

ISCC Annual Meetings

1982: April 18-20 – Charlotte, NC
1983: April 10-12 – Louisville, KY

ISCC Williamsburg Conference

1983: February 6-9 – Williamsburg, VA
COLOR AND ILLUMINATION

American Association of Textile Chemists and Colorists

Color Measurement Symposium
December 1-2, 1982 – Greensboro, NC

American Society of Interior Designers

National Conference
July 28 - August 1, 1982 – San Francisco, CA

Color Marketing Group

Spring National Meeting
May 2-4, 1982 – St. Charles, IL

Dry Color Manufacturers Association

Annual Meeting
June 13-16, 1982 – White Sulphur Springs, W VA

CUBOCTAHEDRON MODEL OF THE OSA UNIFORM COLOR SCALES SPACE

See Blue Inserted Page

The spatial relationship used in the OSA Uniform Color Scales space is the cuboctahedron. While this geometry has useful properties for color scales it is not a common geometric figure nor are the properties of this spatial arrangement easily visualized. In a recent article Billmeyer [Color Research and Application 6, 34 (1981)] describes the cuboctahedron in relationship to the OSA scales and shows perspective figures of the geometry. Still the spatial properties of the space and especially the many cleavage planes (two dimensional color scales) through the space may be hard to "see." The accompanying figure is a plan of the surface of a cuboctahedron which can be used to make a three dimensional model of a cuboctahedron. By making the model the properties of the OSA space may be more easily seen and understood.

The model can be constructed as follows. Cut a piece of stiff paper or cardboard to the shape of the figure. Assembly of the model may be easier if you cut a tab on the outside of every second edge on the perimeter of the plan. If cardboard is used it is advisable to lightly score one side of the cardboard with a sharp knife along the marked lines. Next fold the plan along the lines. Bring adjacent edges of the plan together and fasten the edges with tape or glue. Work around all the edges of the plan until the model is completed.

David H. Alman

Federation of Societies for Coatings Technology

Annual Meeting
November 3-5, 1982 – Washington, D.C.

Graphic Arts Technical Foundation

Spring Meeting
March 22-25, 1982 – Pittsburgh, PA

Optical Society of America

Annual Meeting
October 18-22, 1982 – Tucson, AZ

Society of Photographic Scientists and Engineers

Annual Conference
May 9-14, 1982 – Rochester, NY

CIE PUBLICATION ON DAYLIGHT SIMULATORS

A report in English, "A Method for Assessing the Quality of Daylight Simulators for Colorimetry" has been published by the Commission Internationale de l'Eclairage (CIE Publication No. 51). The publication is the result of active cooperation between different countries and has been produced by the

members of CIE Technical Committee 1.3 (Colorimetry) which has representation from 25 countries.

A method is provided for evaluating the suitability of a test source as a simulator of CIE Standard Illuminant D₅₅, D₆₅, or D₇₅. For each of these three standard illuminants, spectral-radiance-factor data are supplied for five pairs of non-fluorescent samples that are metameric matches. The colorimetric differences of the five pairs are computed for the test illuminant; the average of these differences is taken as the Visible Range Metamerism Index, and this is used as a measure of the quality of the test illuminant as a simulator for non-fluorescent samples. For fluorescent samples, the quality is further assessed in terms of an Ultraviolet Range Metamerism Index; this consists of the average of the colorimetric differences computed with the test illuminant for three further pairs of samples, each pair consisting of a fluorescent and a non-fluorescent samples which are metameric under the standard illuminant.

Copies of this document, CIE Publication No. 51, may be obtained postpaid at \$24.00 each from Dr. Kaus D. Mielenz, Secretary, U.S. National Committee, CIE, c/o National Bureau of Standards, Washington, DC 20234. Payment should accompany the order and should be made payable to "U.S. National Committee, CIE."

REPORT OF THE 160TH MEETING OF THE COLOUR GROUP HELD ON 1 APRIL 1981 AT THE CITY UNIVERSITY, DAME ALICE OWEN BUILDING

The meeting was a report of the Colour Group Working Party dealing with colour standards. (Working Party 8). Four papers were presented by two speakers: Mr. F. Malkin of B. Ceram, R.A. and Mrs. J. A. Compton of the N.P.L.

Mr. Malkin's first talk dealt with "Comparisons of Instruments using the Ceramic Colour Standards."

The need for stable colour standards arose from the requirement of industries involved in colour measurement. Standard colours were needed to help check the precision, reproducibility and the accuracy of colour measuring instruments and to assist with colour match predictions.

The final set of standards consisted of twelve tiles; three neutrals as a check of instrument linearity and nine colours, chosen to provide a reasonable coverage of colour space, as a check on instrument spectral response.

Some time after production and calibration of the various sets a survey was carried out in an attempt to find out how the sets were being used and how the measurements obtained on various instruments compared with the N.P.L. data.

The uses to which the standard were put included: production control, instrument development and calibration, as a check on inter instrument consistency and also a local "hitching posts" for measuring devices.

The colorimetric results of the survey showed that spectrophotometers were generally better than colorimeters. Modern instruments were better than older ones, to the extent that the data from new devices fell within the variation of the colour standards. Dealing with the specular component proved

to be a problem with the integrating sphere devices.

Mr. Malkin stressed the need for careful and regular maintenance of the measuring instruments because this had a dramatic effect on the accuracy.

Mr. Malkin's second talk was entitled "Towards the second series of Ceramic Colour Standards."

The stocks of the first set, which were made in 1968, are almost exhausted. Once again a collaborative programme of work at B. Ceram R.A. and at N.P.L. was initiated to develop a replacement set of standards.

The previous survey of instruments has given valuable information on how the first set of standards have performed by showing the colours that best segregate the instruments. For example, the dark blue tile was a difficult one to measure even for spectrophotometers, so it serves the purpose of testing the performance of integrating spheres. A good argument for including a similar colour in the new set.

Experience with the first set of colour standards led to the proposal of a number of improvements. One such improvement is the inclusion of two colour difference tiles which differ from a corresponding diagnostic standard by a known amount. Improvements are proposed to make the surface gloss more consistent and to improve the surface profile, so that the tiles sit properly on the instruments. Changes to the spectral reflectance of the standards are intended in an effort to simplify the analysis of spectrophotometric errors.

There are many problems involved in the implementation of these improvements not least of which is the time scale for development because the stocks of the previous standards are expected to run out by the end of the year.

The Thermochromic Properties of the Ceramic Colour Standards by J. Anne Compton

As more and more sets of tiles were calibrated at NPL, it became evident that several of the colours showed thermochromic (or photochromic) effects.

Thermochromism/Photochromism is a reversible change of absorbance induced by a change of temperature/irradiation.

Thermochromism in the Pink and Brown tiles had been noticed during preliminary colour measurements at BCRA. The first NPL determination of the magnitude of the thermochromic effect in each tile colour was made with the Cary 14 integrating sphere using prolonged polychromatic irradiation and a thermocouple to estimate the temperature rise. This method was not entirely satisfactory as difficulty was experienced in measuring the temperature rise reliably and no distinction could be made between thermochromism and photochromism. However a large amount of useful pilot data was obtained.

A second investigation required modifications to the Cary integrating sphere. The cap containing the sample port was replaced by a hollow-wall cap, through which water was circulated at a controlled temperature. This was either 25°C or 35°C, spectral reflectance measurements being made at each temperature for each tile. Detailed investigation could now be made as the earlier measurements had revealed the wavebands of interest. Full spectral scans were also made at each tempera-

ture to determine the shape of the function. Monochromatic irradiation was now possible and this did not affect the sample temperature. Tiles were pre-warmed or pre-cooled within the water circulating system.

The changes in reflectance shown by this second method could only be caused by thermochromism. Comparison with the results from the earlier measurements gave good agreement and no evidence of photochromism was found for any time in the wavelength range 300 nm to 900 nm.

Results for the 12 colour standards show spectral band effects in the Maroon, Pink, Brown, Yellow, Dark Green, Greenish Blue and Dark Blue tiles. The largest changes found were at 600 nm on the Pink tile (-0.12%), at 510 nm on the Yellow tile (-0.12%) and at 760 nm on the Dark Green tile (-0.25%), for an increase of 1°C .

Calculations in the CIE L^* , a^* , b^* system for Illuminant D65 and for a 10°C change of temperature (typical for an instrument using prolonged polychromatic irradiation), gave ΔE values barely visually significant in half the colours and insignificant in the rest.

Tables of spectral differences for a 10°C temperature change are now supplied with sets of NPL calibrated standards.

Investigation and Correction of Integrating Sphere Errors by F. J. J. Clarke and J. Anne Compton

This work was carried out to improve the accuracy of NPL calibrated diffuse reflectance standards. Integrating sphere reflectometers, even those with adequately large gloss traps and provided with screens between sample ports and detector or source, suffer from several types of systematic errors, three of which are described here.

1. *General integration errors* are due mainly to non-Lambertian and non-uniform coatings and various portholes and screens all of which upset the ideal integration of the sphere.

Two contrasting designs of sphere, both considered equally valid were used for this investigation. Measurements of reflectance of the Ceramic Colour Standards and other NPL reference standards were made on the Cary 4 inch diameter MgO coated sphere. They were also measured on a Hardy 8 inch diameter sphere, coated with Eastman BaSO₄ paint and adapted at NPL to fit the Cary optics. Comparison of results showed agreement of typically $\pm 0.1\%$ in reflectance. This is indicative but does not prove the size of the errors in either design.

2. *Small-angle scatter* (part of the dark error) is found in all integrating sphere instruments and is probably rather similar in magnitude. It is caused by small angle scatter in the optics, producing a weak halo surrounding the sample. This in effect mixes a small proportion of the white sphere wall with the sample reflectance and produces too high a result.

This error was determined in a darkened room by comparison of the blocked sample beam reading with that obtained by placing at the sample position, a black cavity consisting of a hollow polished black glass wedge. For everyday measurements a more practical device is a black velvet-lined cavity with an oblique polished black glass insert, which has been checked

against the black glass wedge.

The error found in the Cary 14 sphere varied from 0.3% at 300 nm to 0.2% around 500 nm and 0.17% at 800 nm.

3. *Regular component screening error* arises only when total diffuse reflectance is measured. It occurs because the screening and collection efficiency of the sphere for the regularly reflected component patch are different from those for the sample. Like nearly all such commercial instruments, the Cary 14 sphere has no screen between the specular patch and detector (or course), although it is adequately internally screened in most other respects.

It was tested by finding the errors involved in using it to measure two absolutely calibrated mirrors of about 90% and 50% reflectance. For the $8^\circ/\text{total}$ geometry (monochromatic irradiation) the error reached $+12\%$ of the reflectance value at 350 nm falling to $+7\frac{1}{2}\%$ by 800 nm, but it was much smaller in magnitude, $\pm 2\%$ of the value, for the $\text{total}/8^\circ$ geometry (polychromatic irradiation).

The regular reflectance component of the Ceramic Colour Standards and Russian opal plaques was determined in order to apply a %-of-the-value correction to this component. The corrections applied to Cary 14 diffuse reflectance calibrations are in the form of polynomials fitted to the measured values. For $\text{total}/8^\circ$ the correction is very small $\pm 0.1\%$, while the $8^\circ/\text{total}$ correction varies from -0.55% at 300 nm to -0.33% for the region 500 nm to 800 nm. For the Cary 14 this happens to be the largest correction needed. Other instrument designs with geometries which include the regular reflectance component will require individual corrections.

The results of these investigations are incorporated in the diffuse reflectance calibrations at NPL.

Reprinted from the newsletter of The Colour Group (Great Britain).

COLOR AWARD WINNER

George E. Chaplin is the First Winner of Faber Birren Award for Distinguished and Creative Expression with Color

A unique exhibition with the theme of color has been held at the gallery headquarters of the Stamford Art Association in Stamford, Connecticut, during November 7 through 30, 1981. This has been a juried show, the judge being Mr. Patterson Sims, Associate Curator of the Permanent Collection, Whitney Museum of American Art.

Some 70 works have been displayed, including paintings in various mediums, graphics, photographs, textiles, illumination, for a wide variety of visual effects. The winner of the first annual award has been George E. Chaplin, currently Professor of Fine Arts at Trinity College in Hartford, Connecticut. His subject was a large and dramatic abstract pastel in shades of violet and maroon, with a vivid red accent. Included with the award is an honorarium of \$500, plus a graphic certificate of congratulations.

To extend further recognition of merit, eight special Citations were chosen by Mr. Sims and granted to Chris Calle, James Carter, Harriet Kline, Thomas McDonald, Robert E.

Moran, Janet Sorkin, Jo Ann Taylor and Barbara J. Zavada.

The Faber Birren Award for Color, named after the well known writer and authority on color, has been liberally endowed and will be bestowed each year in an autumn juried exhibition. For further details regarding the future write to Stamford Art Association, 39 Franklin Street, Stamford, Connecticut 06905.

ROCHESTER INSTITUTE OF TECHNOLOGY

The following seminars will be presented during the second three months of 1982 by the Technical and Education (T&E) Center for the Graphic Arts on the campus of Rochester Institute of Technology. For further information, write to Mr. Val Johnson, T&E Center Seminar Coordinator, Rochester Institute of Technology, One Lomb Memorial Drive, P.O. Box 9887, Rochester, NY 14623; or call (716)475-2758.

- APRIL:** 13-16 Color Seminar for Press Operators
14-16 Printing for Graphic Designers
26-30 Orientation for the Graphic Arts
27-30 Basic Quality Control for Graphic Arts
- MAY:** 12-14 Conference on the Designer and the Technology Explosion
17-19 Commercial Web Offset Workshop
18-20 Understanding Bindery Operations
24-27 Technology & Practices in the Printing Industry
24-27 Color Control for Cost & Quality
25-28 Color Stripping
- JUNE:** 02-04 Inks for Screen Printing
07-11 Orientation for the Graphic Arts
07-11 Quality Control for Photographic Processing
22-25 Color Stripping

1. Any person interested in color and desirous of participating in the activities of the Council for the furtherance of its aims and purposes . . . 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 re-affirms its community of interest and cooperation with the Munsell Color Foundation, an independent private foundation devoted solely to the advancement of color knowledge in science, art, and industry. It serves as Foundation Associate of the Inter-Society Color Council. The Council recommends and encourages contributions for the advancement of these purposes of the Munsell Color Foundation. For information, write to S. L. Davidson, NL Industries, P.O. Box 700, Hightstown, N.J. 08520.
3. The Council promotes color education by its association with the Cooper-Hewitt Museum. It recommends that intended gifts of historical significance, past or present, related to the artistic or scientific usage of color be brought to the attention of Christian Rohlfing, Cooper-Hewitt Museum, 9 East 90th Street, New York, New York 10028.

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:
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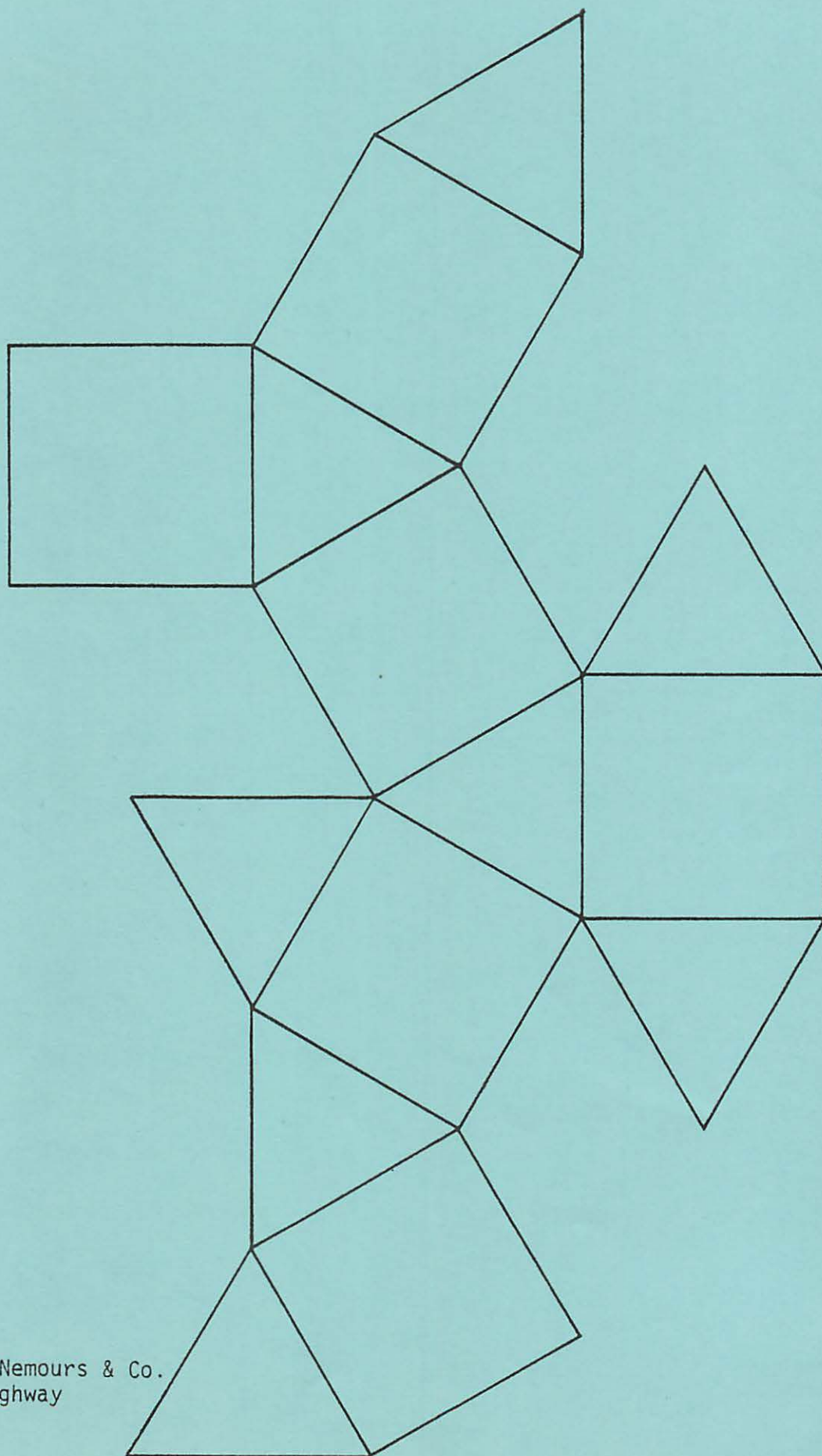
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CUBOCTAHEDRON MODEL OF THE OSA UNIFORM COLOR SCALES SPACE



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