

Inter-Society Color Council *Newsletter*

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May - June 1968

HARRY HELSON ON GODLOVE, JUDD, AND COLOR

Ed. note -- This delightful and informative item is, according to Dr. Helson, his first contribution to the *N. L.* We hope it is only the first of many, for he must have more that are equally interesting. Next year Dr. Helson will be at the University of Massachusetts, Amherst, Mass.

Readers of the *News Letter* who knew and admired the late I. H. Godlove may be interested to learn how he happened to become interested in light and color during the last year of his work for the doctorate in chemistry at the University of Illinois. Perhaps I should have said "how he became diverted from a career as a chemist unrelated to visual science", for that is what actually happened. During the academic year 1925-26 I was Instructor in Psychology at the University of Illinois, having previously obtained my doctorate at Harvard, where one of my Professors was the late L. T. Troland. By chance, I. H. and his first wife, Esther Godlove, and I had our dinners in Champaign at a boarding house which catered to University of Illinois students and young faculty. Occasionally we sat at the same table, and one evening late in October, I. H. related how he was trying to fatten a chicken for Thanksgiving dinner without any luck. He kept it in the basement of the apartment house where he lived. In spite of the fact that it stood "ankle" deep in corn, it did not eat. Instead of getting bigger, the fowl was losing weight and would probably not survive until Thanksgiving. I asked him what the lighting conditions were in the cellar, and he confessed they were very poor -- in fact there was hardly any light at all. I explained to I. H. that birds and fowl possessed only cone vision for the most part and that fowl would not peck unless they had enough light to see to aim. My advice was to install an electric light and all would be well.

The bird reacted as it was supposed to do according to my diagnosis and I. H. was delighted. Thereafter we began talking about the eye, light, color, and form perception, and I gave him one of my prized copies of the first colorimetry report, written largely by Troland, who was chairman of the committee. I do not remember how I came into possession of two copies of that classic report. I believe I purchased one from

O. S. A., which issued it, and the second was given me by someone who knew of my interests in vision. It may have been given me by D. B. Judd during the preceding year when I was instructor and he a graduate student in physics at Cornell University. We collaborated then on our first study, which was later published in the *Journal of Experimental Psychology*, with others to follow in other journals. To return to my association with Godlove, he was completely won over to visual science before the end of the academic year, and within a few years he and I were on the coast within a short distance of each other and Judd. I have been impressed during the years by the importance of geographical propinquity in furthering scientific contacts. Both I. H. and I received most of our education in basic approaches to color problems from Judd, who never spared himself to anyone interested in the manifold ramifications of this subject.

With the passing of F. L. Dimmick most recently, and earlier Mike Zigler, Dean Farnsworth, and Elsie Murray, I am with Sidney Newhall probably the oldest and last psychologist dating his association with ISCC since the thirties. Although psychologists are now less numerous in the offices and power structure of ISCC its future lies largely in the hands of individuals having what for want of a better term we may call "psychological" interests, for ultimately we are dealing with perception, judgment, and evaluation of color when we analyze, measure, or otherwise deal with it. Regardless of formal training, there will always be individuals, who, like I. H. Godlove, though trained as physicists, chemists, architects, or what not, nevertheless see the importance of the psychological aspects of color. Indeed, I believe I am not exaggerating the importance of the psychological aspects in asserting that such problems may be what attract and challenge scientists like Godlove and others to bring their specialities to bear on their solution.

PRESIDENT BILLMEYER TO BE 1968 MATTIELLO LECTURER

The Federation of Societies for Paint Technology has announced that Dr. Fred W. Billmeyer, Jr., Professor of Analytical Chemistry at Rensselaer Polytechnic Institute and current ISCC President, will present the Joseph J. Mattiello Memorial Lecture at the Annual Meeting of the Federation to be held in New York, October 23-25, 1968. The subject of his lecture will be "Molecular Structure and Polymer Properties".

While ISCC members are well aware of Dr. Billmeyer's activities and publications in the field of color, some may not know that he is also an expert in the field of polymer chemistry. At Cornell, his doctoral thesis research on the determination of molecular weight and particle size by light scattering dealt with the properties of synthetic rubbers and was his first exploration of the relationship between molecular structure and polymer properties. During his 19 years with the Plastics Department of E.I. du Pont, he pursued this study, applying to the problem many different experimental techniques. It was at du Pont that Dr. Billmeyer developed his interest in color, as a result of assuming responsibility for research activities on the coloring of plastics. In his present position at Rensselaer, he continues to divide his time between the fields of polymer chemistry and the science of color measurement, being responsible for the Polymer Characterization Laboratory at the same time that he directs the Rensselaer Color Measurement Laboratory.

RALPH PIKE APPOINTED MANAGER OF MARSHALL DEVELOPMENT LABORATORY

ISCC members will be pleased to learn of the promotion of Ralph E. Pike to the position of Manager, Marshall Development Laboratory, E.I. du Pont de Nemours & Co., Inc. Mr. Pike, formerly the assistant manager at the Marshall laboratory, is well-known to the Council as a former President, Director, and Chairman of the Problems Committee.

OBITUARY -- CASPER L. COTTRELL

Casper L. Cottrell, professor emeritus in electrical engineering at Cornell University, and an individual member of the ISCC, died February 26 in Ithaca, N.Y., at the age of 72.

Dr. Cottrell's researches in the fields of optics, color, and vision have been widely hailed as major contributions to progress in illuminating engineering. His work in the measurement of visibility led to his development of the famous Cottrell Visibility Meter for measuring contrast-brightness threshold.

Dr. Cottrell began his career in research in 1915 as a laboratory assistant with the National Bureau of Standards Photometric Laboratory. His first work in color was also with the NBS, in their Color Laboratory, and for two summers he studied steps of the Value scale with the Munsell Color Co.

Dr. Cottrell first went to Cornell in 1920 as an instructor in physics. He was awarded his PhD there in 1928, and after serving in various posts at other colleges and universities, returned to Cornell in 1937. In addition to his courses in illumination, his work there included numerous researches in vision and optics. Among these were studies in muscle tension as an index to visual

effort, flicker frequency as an index to fatigue, and the work on visibility measurement.

A very active member of the Illuminating Engineering Society, he was elected a Fellow of the Society in 1955 in recognition of his outstanding technical contributions to illuminating engineering. Dr. Cottrell was also a Fellow of AAAS, and a member of the Institute of Electrical and Electronics Engineering, the OSA, the American Society of Engineering Educ., Sigma Xi, Eta Kappa Nu, and Tau Beta Pi.

ADDITIONAL ANNUAL REPORT FROM THE SOCIETY OF PLASTICS ENGINEERS DELEGATES, MELVIN M. GERSON, CHAIRMAN

Color activities within the Society of Plastics Engineers are co-ordinated by the COLORING AND FINISHING OF PLASTICS PROFESSIONAL ACTIVITIES GROUP under the chairmanship of Mr. Robert Charvat.

An extensive program on color problems in plastics manufacture was incorporated into the SPE Annual Technical Conference in Detroit, May 15 to May 18, 1967. A special feature was a panel discussion on the problems of co-ordinating color matches in various types of plastic materials. This panel consisted of engineers from the automobile companies whose daily function it is to rationalize these problems.

COFIN PAG has prepared a series of programs on color subjects for presentation at local SPE sections. These are available to the various local program chairmen for scheduling at their convenience.

In addition, an extensive color program at the 1968 Annual Technical Conference in New York (May 6-10) has again been planned. A Regional Technical Conference on the subject of COLOR IN PLASTICS is being planned in co-operation with the Cleveland Section of SPE for presentation January 21, 1969.

The following articles on color and color problems appeared in 1967 in the "SPE Journal", the official publication of the Society:-

- a) Coloring and Finishing of Plastics, An Annual Review of Technology by R.H. Zabel, June, p. 37
- b) Measurements of Color and Other Appearance Attributes in the Plastics Industry by R.S. Hunter, February, p. 51

ACS SYMPOSIUM ON INDUSTRIAL COLOR TECHNOLOGY

There will be a day's symposium on Industrial Color Technology at the National Meeting of the American Chemical Society on September 10, 1968 at Atlantic City, N.J. Most of the scheduled speakers at the Symposium are ISCC members. The morning session will be devoted to basic principles of color science and

measurement. Speakers include Fred W. Billmeyer, Jr., Robert S. Foster, Ruth M. Johnston, David L. MacAdam, and Max Saltzman. Ralph M. Evans will be the luncheon speaker. The afternoon session will be devoted to the application of colorant formulations to specific industries. Speakers include Eugene Allen, Roger P. Best, Roland E. Derby, Sam J. Huey, and Fred T. Simon. Ruth M. Johnston is chairman of the Symposium and Max Saltzman is co-chairman.

FSPT MEETING AND PAINT INDUSTRIES SHOW

The 46th Annual Meeting of the Federation of Societies for Paint Technology will be held concurrently with the 33rd Paint Industries' Show at the Coliseum in New York on October 23-26. Among the features of the program will be a panel discussion on "Fundamentals and Problems of Color".

INTERNATIONAL CONFERENCE ON VISUAL SCIENCE

The American Optometric Association and Indiana University sponsored an International Conference on Visual Science at the University in Bloomington, Indiana, on April 2-4, 1968. The ISCC was well represented among the speakers by APA delegates John Lott Brown and Clarence H. Graham, OSA delegate Glenn A. Fry, and individual members Elwin Marg and W.D. Wright.

CONVERSAZIONE 1968 BY N.E. SECTION OF OSA

"Color Technology Today" was the subject of the annual "Conversazione" meeting of the New England Section of the Optical Society in Boston on May 23. The featured speaker at the dinner session was Isay Balinkin, who did his usual outstanding job on "The Nature of Color". The program was almost exclusively an ISCC show: Gunter Wyszecki was the moderator; Jo Ann S. Kinney spoke on "The Mechanism of Color Vision"; Fred W. Billmeyer, Jr., presented "The Mathematical or Analogue Models of Color Perception"; George P. Bentley discussed "Instrumentation for Laboratory Analysis"; Henry Hemmendinger dealt with "Color Formulation"; and Ruth M. Johnston reported on "Industrial Application of Color Technology".

COLOR PHOTOGRAPHY AT SPSE CONFERENCE

In Boston on June 11, at its 1968 Conference on Photographic Science and Engineering, the Society of Photographic Scientists and Engineers presented a tutorial seminar on "Color Photography". Lloyd E. Varden served as chairman of the seminar and presented a "General Survey and Classification of Color Recording Methods". Other speakers, and their topics, were: C.J. Bartleson, "Modern Concepts of Color"; A. Theodore Sampson, "Color Negative Films"; and J.R. Thirtle, "Chemistry of Color Photographic Processes".

THE COLOUR COUNCIL OF CANADA

The subject of the April meeting was "Colour in Landscaping". Karl Frank, a landscape architect, used some sixty slides to illustrate the importance and place of landscaping with respect to both the small home and giant civic projects.

For May, the subject was Technamation, which was defined in the Council's Colour Comments as "a revolutionary new development of providing motion to any still photographic 35 mm transparency." The process is said to "create motion at any speed and in any direction", making "gases appear to explode and liquids begin to flow." William L. Koyle, president of Professional Audio-Visual, Ltd., was the scheduled speaker.

THE COLOUR GROUP (GREAT BRITAIN)

The fifty-first science meeting was held on 3 April 1968 on the subject: "Colour Vision". Dr. R. A. Weale was scheduled to speak on "Some Photo-chemical Correlates With Colour Vision" and Dr. C. M. H. Pedler on "The Organisation of the Outer Plexiform Layer -- An Electron Microscopic Study".

"Systems of Colour Classification" was the subject of the May science meeting. Scheduled speakers were: R. G. Horner, "The 1957 Report on Colour Systems". G. J. Chamberlin, "J. W. Lovibond and His Colour Scale". D. A. Pavey, "Working with the Methuen Handbook of Colour -- the Kornerup and Wanscher System". M. Richter, "Some Notes on Colour Systems in General, and on DIN in Particular" (by proxy). W. N. Hale, "New Developments in the Munsell System". B. H. Crawford, "The Choice of a Standard Colour Atlas". R. W. Brocklebank, "A Concise Atlas of Colour -- The ISCC-NBS Centroid Color Charts". H. Hard, "Development of a New Perceptual Colour System on Hering-Johansson-Hesselgren Lines".

ISCC members will be interested to learn that the Colour Group now has 392 Ordinary Members and 20 Patron Members, up from 151 and 5, respectively, in 1962.

Scottish Section:

As announced in N. L. #192, the Scottish Section has organized the Second Scottish Symposium on Colour to be held in September. Further details of this meeting are now available, as indicated in the following article.

SECOND SCOTTISH SYMPOSIUM ON COLOUR

Organized by the Scottish Section of the Colour Group (Great Britain) and the Visual Laboratory of the Department of Psychology, Edinburgh University, the second Scottish Symposium on Colour will be held on the 5th and 6th September 1968 in Edinburgh. The following list of speakers and topics indicates the variety of interesting subject matter.

- R. W. Pickford, "Colour Vision Research in Scotland in the First Part of the 20th Century".
- A. E. H. Emery, "Colour Vision and Genetic Linkage".
- B. K. A. Battersby, "Colour Prediction in Textiles and Fashion -- British Influence Today in the International Field".
- R. Lakowski, "The Pickford-Nicolson Anomaloscope - Calibration, Validation and Population Norms".
- K. H. Ruddock & S. B. Novick, "Some Recent Experiments on Anomalous Trichromacy".
- R. S. Sinclair, "Interim Report of the Scottish Section Working Party".
- T. K. Overton, "Camouflage Colours".
- P. R. Kinnear, "Quantification of Colour Vision Results".
- C. A. Padgham, "Helmholtz - Kohlrausch Effect".
- E. R. Inman, "The Search for New Organic Pigments".
- W. Carr, "Some Aspects of Pigment Physics".
- R. S. Williams, "Analytical Appraisalment in Dyestuffs Manufacture".
- C. H. Giles, "Recent Studies In The Light Fastness Colouring Materials".
- Stephen Young, "Colour Response and the Daphnia 'Skin Light Sense'".
- P. E. King-Smith, "Colour Vision in Pigeons".
- R. Lakowski, W. M. Haining, & P. Aspinall, "Colour Vision Losses in Suspected Cases of Retinal Degeneration".
- W. S. Foulds, I. A. Chisholm, & Bronte-Stewart, "100-Hue Test as a Measure of Response to Therapy".
- J. R. Bell, "Colour Tolerance in Terms of Instrumental Readings".
- F. J. J. Clarke & P. R. Samways, "Ceramic Colour Standards for Checking the Performance of Industrial Instruments".
- D. Thirkell, "The Carotenoids of *Sarcina Flava* - Their Nature and Possible Mode of Existence 'in Vivo'".
- R. H. Thomson, "Nature and Distribution of Spinochrome Pigments in Echinoderms".
- R. Lakowski & P. R. Kinnear, "Colour Vision in Diabetics".
- L. Duncan & B. Clarke, "Diabetic Retinopathy and Colour Vision".
- Colin Thomson, "The Untrained Response to Colour in Paintings and Colour Reproductions".
- B. Sproule, "Colour Shift in Memory for Colours".
- S. Lang, "Colour Preferences in Choosing Towels".
- D. Kelling, "Ranking of White 'Panels' in Adolescent Population".
- P. Mann, "Personality Variables in Colour Aptitude Test".
- James Gill, "Consumers Colour Preference for Woollen Garments".
- P. J. Cannon, "Ethanol Dependence of Brightness Discrimination".
- J. R. Burns, "Stiles-Crawford Effect and The Yellow-Blue Equation".
- S. R. Cobb, "A Possible Effect of the Chromatic Aberration of the Human Eye on Colour Perception".
- P. Aspinall, "Simulated Macular Changes and Their Effect on 100-Hue Performance".
- R. Lakowski and M. Davenport, "The Effect of Chloroquine on 100-Hue Scores".
- R. Lakowski and G. W. G. Montgomery, "Colour Discrimination in Profoundly Deaf Children".
- R. W. G. Hunt, "International Colour Association".
- S. T. Henderson, "Closing Remarks".

The Conference fee is £ 5, and a limited number of single rooms is available at 26/- per night in one of the recently-built halls of the University. The charge for the Symposium Dinner will be 35/-. Applications, with checks payable to "The Colour Group (G. B.)-- Scottish Section", should be sent to:

A. R. Morris, A. I. I. P., A. R. P. S.
 Honorary Treasurer, Scottish Section of The Colour Group
 Glasgow College of Printing
 North Frederick Street
 Glasgow, C. 1.

INTERFARBE '68 ABSTRACTS AVAILABLE

Abstracts (in German) of papers presented at Interfarbe '68 in Dresden in May (see N. L. #191) can be made available by Fred W. Billmeyer, Jr. President Billmeyer has noted that most of the papers originated behind the iron curtain and that some idea of what is

happening in that world of color can be obtained from these abstracts.

Following are the translated titles of the papers scheduled for presentation at the meeting. Before his death, F. L. Dimmick had planned to present the one on "Application of the psychometric system of color designation to Munsell's color atlas and to problems of metamerism". Manfred Richter, individual ISCC member from Berlin, prepared the paper on "Developmental tendencies of modern colorimetry".

"Aims and results of Goethe's studies of color."

"On problems of the interactions between the visual process and the color environment and their formulation."

"Problems of complex psycho-physiological and physical analysis under the conditions of color perception."

"Physiological principles of color sensation."

"Dependence of the electroretinogram on the wavelength of the stimulating light in man."

"Color perception in retinal detachment."

"Observations of the color sense on the basis of the Ishihara tables."

"Theoretical principles of a modern, basic color system capable of being expanded."

"The significance of metamerism for producer and consumer."

"Organization of a central color reception point."

"Rationalization by colorimetry in the varnish industry."

"Measurement-engineering problems in colorimetry."

"The formula for determining the degree of whiteness of printing paper on the basis of the colorimetric values x , y , X and of the light-scattering coefficient SX ."

"Systematic modulation of illumination and color for the place of work."

"Investigation of color harmony by means of colorimetric analysis."

"Application of technological-scientific design methods in color dynamics."

"Problems in color dynamics."

"Color in pharmaceutical and photographic plants of Siberia."

"Hygienic requirements for consideration of color in production halls."

"Application of the results of color-preference investigations in the practice of color planning of spaces."

"Experimental color-planning system and its application in light-industry plants."

"Time-dependent color changes in the environment of places of work."

"Color systems in the service of color design."

"Demonstration of new work-clothing colors -- test results and experimental data."

"Statistical studies of preference and repugnance in color."

"Influence of color on living."

"Results of color planning in a silk mill."

"Problems and tendencies of contemporary color planning in the creative, architectural and applied arts."

"Student work in the course on 'Light and Color' at the Warsaw Art Academy."

"Color preference of children of different ages in the light of children's drawings."

"Teaching aids for the psycho-physiological principles of the science of color in the grade schools and at the Art Academy."

"Conception of chromatics for grade schools."

"Child and color" (lecture with film presentation).

"Measurement techniques for light and color."

"Light-engineering viewpoints in testing colors of structural materials in the case of ceremonial and spot-lighting."

"Gauge for determining illumination data, color coordinates and spectral characteristics of light."

"Calculation of daylight quotients with the electronic computer ODRA 3."

"Effect of interior colors on the natural lighting."

"Effect on efficiency of vari-colored keyboards and the application of color in the electrical-machine industry."

"Organizational problems in projection."

"Color design of machines."

"Automobile colors and traffic safety."

"Greater attention to color in highways."

"Thoughts on methods of arranging space in urbane installations by means of color planning."

"Colors in the urbane panorama -- past and present."

"Function of color in the urbane panorama of tomorrow."

"Basic TGL-Grundsystem of color-pigment production, the usefulness of its relationships in the color design of enclosed spaces."

"True-color perception and one's profession."

"Color and external construction." (exterior of a chemical plant)

"Design of places of work -- industrial interiors."

"Color standardization in Poland."

"Instrument for measuring the spatial separation of color patterns deviating from each other."

"Method of complementary colors and visual interpretation of the results."

"On the production of reflected colors for the standard color chart DIN 6164."

"Computer program for determining color data."

"Comparison of the inner structure of color systems according to Munsell, DIN 6164 and TGL 21 579 (draft 1967)."

"Interaction between colors in the visual process."

"Evaluation of the usefulness of the TGL color system for cartography."

"Range of application and suitability of the Ga. Riedel formula for determining the color density of textiles."

"Chemical-physical principles of daylight illumination pigments and colors and their measurement and application."

PROCEEDINGS OF 1967 TECHNICAL SESSION OF THE INTERNATIONAL COMMISSION ON ILLUMINATION NOW AVAILABLE

Published Proceedings have now been completed, covering all of the technical meetings of the Session of the CIE (International Commission on Illuminating) held in Washington, D. C. June 19-28, 1967.

Since the quantity is limited, purchase orders will be filled in the order of the date of receipt until the supply is exhausted. This valuable record includes all of the papers and discussions presented in Washington, covering a wide range of subjects. The Proceedings, totalling 656 pages, have been prepared in two volumes that cannot be purchased separately.

Each volume, in international format A-4 (21 x 29.7 cm), is printed on surfaced paper of good quality, sewn, with yellow covers. The two volumes are supplied in a stiff cardboard case that will protect them and enable them to be shelved together.

The price of the set of two volumes is \$20.00, postage paid. The volumes are not sold separately.

Orders, preferably accompanied by payment for the number of sets ordered, should be sent to:

Mr. Harry K. Hammond, Secretary
 U.S. National Committee of CIE
 National Bureau of Standards
 Washington, D. C. 20234

SVENSKT FÄRGCENTRUM REPORT

In 1966 an international colloquium on "Attributes of Colour Perception" was held in Stockholm. Under a grant from the Swedish Council for Applied Research, invitations were sent by the Royal Swedish Academy of Engineering Sciences to a small group of scientists who had dealt with color perception from different viewpoints and methods of approach. An intensive three-day discussion has been summarized in a report entitled "Attributes of Colour Perception", which can be obtained from the Swedish Colour Centre, Box 45020, Stockholm 45, Sweden, at a cost of 12 Swedish crowns plus postage.

This report should provide informative reading for all ISCC members. It delineates areas of controversy, as well as those of concord, and provides an instructive summary of the "state of the art". The following table of contents suggests the range of the discussion.

Preface, by Anders Hård, Swedish Colour Centre Foundation

- I. CONFERENCE DATA
 - Participants and inviters
 - Daily program
- II. MODERATORS' SUMMARIES
 - Conclusionary summary, by G. Wyszecki, Canada
 - NCS as basis for aspects on different colour systems, by E. Ingelstam, Sweden
 - Variables and relations in colour perception, by L. F. C. Friele, The Netherlands
 - Definition of colour variables, by W. D. Wright, Great Britain
 - Quantitative and qualitative approaches, by

L. Hurvich, USA
Scaling methods, by R. W. G. Hunt, Great Britain

III. DISCUSSION REPORT

"Attribute of colour perception", by K. Frid, Sweden

IV. SUPPLEMENTS

1. Introduction to the discussion, by A. Hård, Sweden
2. Question and answer around factor analysis and phenomenological analysis, by S. Hesselgren, Sweden, and L. M. Hurvich, USA
3. Some reflexions on colour systems, by M. Richter, Western Germany
4. The character of perceptive coordinates of the Hesselgren-Atlas, proved by the CIE-measurement, by M. Adam, Eastern Germany
5. Colour definitions of the vocabulary, by K. Miescher, Switzerland
6. Summary of contribution to discussion about references in the colour hue-circle, by R. Brocklebank, Great Britain
7. Contribution on quantitative colour scaling models, by L. F. C. Friele, The Netherlands
8. Summary about the HBS-system, by D. Jameson-Hurvich, USA
9. Contribution to discussion about scaling of hue, by R. Brocklebank, Great Britain

V. VISUAL DOCUMENTATION

ABSTRACTS SERVICE: COLOUR

The Abstracts Service: Colour, edited by Prof. Dr. Manfred Richter, is already well known to many specialists in the field of colour. Up to the present, the abstracts were bound to the review DIE FARBE, but now they appear separately and may be ordered directly from the publisher.

This Service comprises abstracts, in German, from articles on all aspects of colour as an optical phenomenon. The full bibliographic description is given, with Universal Decimal Classification. In this way, a reliable documentation of the total literature on colour is presented.

The abstracts are printed separately on cards of international size A 6 (6" x 4" approx.). They are available in three different editions:

- (i) Standard edition on cardboard (150 g/m²)
- (ii) Thin paper edition (60 g/m²)
- (iii) Transparent paper edition

The abstracts will be delivered in consignments of 120, at a total price of 6,- DM (\$1.50) for edition (i) or (ii) and 8,40 DM (\$2.10) for edition (iii), excluding forwarding expenses. These consignments will appear in arbitrary succession. For technical reasons no single

copies, nor groups on a particular topic, can be submitted.

For subscription, write to: The German Federal Board of Testing Materials (BAM), Division 5.4: Colour Metrics, Unter den Eichen 87, D-1000 Berlin 45.

KOLLMORGEN ANNOUNCES NEW COLOR SYSTEMS DIVISION

Kollmorgen Corporation has announced formation of the Kollmorgen Color Systems Division, effective April 1, 1968. The new division will have four operating units: Instrument Development Laboratories, Davidson and Hemmendinger Electronics, Kollmorgen Color Systems Marketing, and Davidson and Hemmendinger Color Center.

As in the past, IDL will continue to design and manufacture color measuring instruments and systems, and D&H Electronics will design and manufacture special purpose digital and analog computers for use in color specification and control. The new marketing group will be responsible for the sale of all products which in the past have been manufactured and sold by IDL and D&H Electronics. The D&H Color Center will provide education in color technology, manufacture of color standards for industry and color measurement and consulting services.

Hugh R. Davidson will serve as President and Edward T. Connor as Executive Vice-President of the Kollmorgen Color Systems Division. Henry Hemmendinger will be Vice-President and Director of the D&H Color Center, and the Marketing Group will be headed by Chester Harris as Vice-President and Marketing Manager and Ralph Stanziola as Sales Manager. Davidson and Connor will also continue in their present positions as chief executive officers of D&H Electronics and IDL respectively.

LOVIBOND FLEXIBLE OPTIC TINTOMETER

Tintometer Limited has announced the first visual colorimeter to be produced with a flexible, movable viewing head. The instrument makes use of glass fiber optical components to allow the viewing head to be maneuvered into any required position. Two leads are used--one for transmitting controlled illumination to the sample, the other for observation. The standard viewing head is supplied with fiber optics of 15 inches in length, but non-standard heads and lengths of optics can be supplied.

Some of the uses to which the prototype instruments have been put are as follows:

Color of Solids -- outer surfaces, inner surfaces, irregular shapes, viewed through a microscope, viewed at a distance, self-illuminous samples, skin and hair, dental, medical.

Color of Liquids -- in cells or cuvettes, in flow-through cells, in flow-lines, in temperature controlled cabinets or flow-lines with temperatures between -20° C. and +300° C.

Color of Pastes -- either in bulk or after application.

Color of Powders -- either in bulk or after application.

REPUBLIC COLOR AWARDS

Republic Color, Inc., of New Rochelle, N.Y., created these awards last year as "A Salute to the Color Explosion". The awards honor the professional photographers for the finest in color in industry, news, and sports, and the individuals or companies who have contributed the most to the advancement of color photography as a whole.

While the competition for color in industry, news, and sports is open only to professional photographers, the Achievement Award is open to any individual, company, or organization in the photographic, graphic arts, advertising, or related fields, who has contributed most to the color industry as a whole. The 1967 winner of the Achievement Award was Life Magazine.

ADDITIONAL REVIEWS OF LIGHT AND VISION

Light and Vision, by Conrad G. Mueller, Mae Rudolph, and the Editors of Life (Time, Inc., N.Y., 1966, 200 pp., \$3.95) was reviewed in N. L., #189 by C. J. Bartleson. Two additional reviews follow.

Review by Win Ann Winkler:

This is an excellent 'general information' book for background material as well as detail. The writing style is slanted to both the professional and layman.

The illustrations, from technical diagrams to optical illusions and painting are of high calibre, from the points of view of selection and reproduction.

Inasmuch as the book covers such seemingly diversified areas as the structure of the eye and color printing, ing, it would be helpful to specialists in a particular field in relating to other fields of color, light, and vision.

The interdependence of color and light is presented in a concise, straightforward manner, and it is in this area that the choice of illustrations excels in coordination with the text.

It would seem to me that this book should be regarded as a basic for anyone involved in the teaching of any aspect of color.

Review by Don F. Hill:

No doubt this colorful book was created to sell on the basis of its appearance. It would seem that LIFE editors presume there are two types of people who buy books and have aimed this one at the type who likes to look at pictures rather than read, for LIGHT AND VISION is a colorfully illustrated book that is bound to appeal to the uninformed reader attracted by books which make no demand on him. He can dabble and enjoy himself.

On the other hand, this 200-page book conceals the fact that it is two books in one. Only half is devoted to pictures; the other half has eight chapters of well-written text. The written text is supposedly for the reader who wants to pursue the subject matter in greater depth after he has looked through the pictures, but the editors probably believe he won't and merely include a text to impress him with something that looks authoritative, (and it really is). Yet a picture-seeker will want more than what is offered.

This book will prove less interesting to the reader who sets out seriously to read it from cover to cover, mainly because the 8 chapters of text alternate with the 8 sections of 'picture essays' and each is sufficiently complete and isolated that one might believe they were separately prepared with no connection of one to the other. The reader will find that, outside of the diagrams in the margins, he is not referred to any illustrations and, for him, it is not the illustrated book it seems. He would have to know his subject to seek out the appropriate illustrations, yet we have presumed he is non-informed.

To be specific, the text on page 35 of Chapter 2, for example, mentions colors seen on soap-bubble films and the rings Newton saw in thin films of air sandwiched between glass disks, describing these abstractly as if there were no illustrations. Yet, buried on page 109 following Chapter 5 instead of in those following Chapter 2, are the unmentioned illustrations which would clarify what has been written if it were truly written for the uninformed reader who has never seen Newton's rings for himself. Worse still, the picture doesn't even label these as Newton's rings.

For those of us who are interested in what the book has to say about color, we find two of its eight chapters are devoted specifically to color and perception of color, but it may suffice to say that the same non-relation of text to illustrations occurs. Furthermore, since the book is aimed at the non-informed, it offers little that one cannot find elsewhere and, in fact, may prove exasperating to those who know much.

However, in my opinion ISCC members who appreciate a source of color illustrations may still find this book attractive, particularly the greatly magnified color photographs of actual cross-sections of the eye and of the retina showing the actual rods, cones, nerves, and

so on. Many other books only show diagrams or black-and-white photos; therefore, this book may have some value even though it may not be one you will want to read. On the other hand, if one is highly critical of LIFE's color inks, printing and reproduction, which are adequate but lack brightness, purity, and perfection, it might be hoped that one could find similar color photos in a better book. Still, since it is a relatively inexpensive volume, some members may want to add it to their collection anyway.

BOOK REVIEW

The Reproduction of Colour, by R.W.G. Hunt, John Wiley & Sons, New York, 1967.

It is with pleasure that we note the publication of the 2nd edition in ten years of Dr. Hunt's "The Reproduction of Colour."

While we admit that, formally, this has to be called a second edition, since it has the same title, publisher, etc., we rather feel that it should have been called the second generation. Superficially it deals with much the same material; some chapter headings are much the same; etc.

Basically, however, this is a brand new book, a book by an older writer, a writer more alert to the position of color television, of color in the graphic arts, of color in the world.

It is futile to list chapter headings, to indicate number of added pages, to speak of new illustrations and the like. It is, perhaps, better to look at the book as a whole in the light of other existing literature.

For the person who is interested in familiarizing himself with the theory and a good deal of the practice behind the so-called three-color methods of color reproduction, there is no finer book in print today in the English language.

Perhaps I may be permitted to personalize that statement.

Many years ago Drs. Hanson, Brewer and I wrote the first modern theoretical treatment of color photography under the title "Principles of Color Photography." The treatment was strictly theoretical, although based on practice.

This book has now for a good many years been out of print and unobtainable except by expensive copying techniques. Henceforth I personally, at least, will unreservedly recommend Hunt's 2nd generation in its place.

Ralph M. Evans

COLOR AT THE OLYMPIC GAMES

According to John Canaday (New York Times, Dec. 31,

1967), you won't have to know Spanish (or any other language) to get around in Mexico City at the Olympic Games, provided you are not "color blind". Visitors are to be supplied with a map showing the location of competition sites, with the recommended route to each site in a different color. The colors are characterized as "good Mexican colors like magenta, orange, lemon, emerald, violet, azure, and pink". The pavements of the streets are to be painted correspondingly, and balloons, thirty feet in diameter, with identifying symbols in color, are to float over the sites.

MORE ON COLOR UNDER WATER

N. L. #190 reported briefly on underwater color research by Dr. J.N. Lythgoe. The Submarine Medical Research Laboratory at Groton, Connecticut, is engaged in related studies, and Jo Ann Kinney was kind enough to provide the following interesting report on this activity.

"The increasing penetration of man into the sea has raised acute problems of visibility underwater. In some cases, the turbidity of the water is so severe that no visual signal can be used to assure the diver's return to his base of operations. At the other extreme, there are reported instances of divers seeing clearly for 200 feet in all directions. Between these two extremes lies the wide range of waters in which divers and small submersibles work and for which aids to visibility are possible.

"The use of colored paints on objects is an obvious means of changing their visibility either by enhancing their contrast with the surroundings or by camouflaging them to merge with their background. The problem of determining which colors will be most and least visible underwater is, however, much more complicated than it is in air. Transmission of light through air does not appreciably change its spectral composition, but transmission through water can alter the distribution beyond recognition.

"Studies performed at the Submarine Medical Research Laboratory have shown that the most visible colors change dramatically from reds and oranges in turbid water to blues and greens in clear water. They have also shown which colors are easily confused underwater. The work, originally done with natural lighting, is now being extended to artificial light sources.

STILL MORE ON "MODERN ART"

The articles on "modern art" that appeared in issues 190 and 192 of the N. L. were timely (with respect to the annual meeting) representations of opposing viewpoints about op art, pop art, abstract expressionism, etc. These articles, plus the program at the meeting, elicited additional comments on the subject. Following are passages from letters by Frank C. Wright and Don F. Hill, expressing personal views about some con-

temporary trends. These passages are quoted with the permission of the correspondents.

Comments by Frank C. Wright:

"Differences between the vertical specialist and those whose interests are general are as old as history. As knowledge deepens and becomes more narrowly specialized, it seems to become less and less related to life and to the adjacent compartments of knowledge. Specialized scientists are properly appalled at the frequent superficiality of those who endeavor to relate, evaluate and place in any general picture just where the special compartment fits into the design.

"The 'generalists', those with a horizontal perspective, are likewise appalled at the overall superficiality of some of the more narrowly specialized scientists whose view is necessarily 'vertical'.

"But one thing seems crystal clear. The fabric of knowledge must have both horizontal and vertical strands if it is to be strong. There must be a weft as well as a warp if the fabric is to have any tear strength.

"In my view this is a prime problem of our time. Here the ISCC can make some important and valuable clarifications.

"All members can profit from such an exchange of views, -- and the editorial function assumes a vital role as 'referee', 'evaluator', and 'peacemaker'.

"My own philosophy is a difficult one to live with. It is a paraphrase of Alfred North Whitehead: 'I would rather be clearly wrong than vaguely right.' This takes courage and a selfless lack of vanity about one's views. If I am clearly right I am 'in a fishbowl', - where all can throw harpoons. They will not hurt if I am right, -- but if I am wrong, I am clearly wrong and I find out quite painfully at times.

"But here, and here alone is where growth occurs. And life is too short to wait around. If I am vaguely right or wrong I might never find out which I am. I want to know.

"If an artist or a writer has a real drive for clarification, it shows clearly in his art, his writing, his speech and his life.

"If he is an 'obfuscator', he lives by the philosophy, 'If you can't convince, confuse'. This type of character makes his own obscurities - and like the octopus, moves in a cloud of inky camouflage.

"My admiration for the ISCC is immense. It is the one organization in the vast field of 'color', which cross-fertilizes the ivory towers of specialized knowledge.

"It seems to me that this issue could well evoke some

useful debate. It could, on the other hand, develop some harmful friction.

"The measure of our strength is in our knowledge, our skills, and in the degree of our goodwill.""

"I believe publication of these opposing views, even if heated up a bit, will, if honest, generate light and give meaning to the purposes of the ISCC.

"We have no quarrel with those who wish to escape from reality. Many have a reality that they cannot abide. Some like liquor, the beatniks like LSD trips. It's a free country. I think that Fine art should be related to truth, to life, to nature, and to reality.

"Eighty percent of what we know is acquired visually, and ninety percent of our actions are guided visually. In the light of these new figures, how can the visual arts be divorced from experience?""

"Novelties and new technical or mechanical developments are frequently used to substitute for originality or creative invention in the arts." ..."

Comments by Don F. Hill:

"Art, because it is closely associated with color is, I think, of great interest to most ISCC members. Furthermore, most people, I believe, find that this reprint (in N. L. #190) expressed feelings they entertain themselves. Most of us find very little opportunity to side in or say anything against modern art since few feel qualified or dare to do so.

"Artists today have the public believing much like the people in the story, who were gullible enough to believe the wily tailors of the Hans Andersen tale, 'The Emperor's New Clothes', that one is incompetent if he cannot see invisible colors and designs in that which is really non-existent. If you are not an artist, you are told you are incompetent to judge art, for this junk has qualities that you cannot see.

"... Anyone can paint today and get away with it. Since there are no rules anymore, pseudo-artists abound by the thousands. All of them defend this senselessness because most of them wouldn't be able to follow the profession if difficult standards of excellence and disciplines weeded out all but the best. An art is supposed to require what very few possess or can do, an inborn sense which cannot be taught so much as developed in the few who possess it. Yet one can recognize it as easily as one recognizes a high-wire artist with that special sense of balance. One can recognize an artist in almost any field. There are ice-skaters, but few of them are artists; there are ballet-dancers, but only a great one now and then. ...

"When one can paint a distorted monstrosity and do anything he likes, no one can say an error was committed since the artist may say that he intended it that

way. Therefore, if there are no rules, no disciplines, how is one to measure a painting and say that one painting is better than another?

"Ask these pseudo-artists to say what makes their junk really great. Most of them will come out with the typical jargon of the artist, but if you try to pin them down, their ultimate argument is that it is something they can't explain; it has to be felt. This, of course, removes the matter to an esoteric realm where no criticism can broach it. The fact is that if a work of art is really great, there are standards which make it great, and one can list them. Modern art will not stand this test.

"... Values based on the ephemeral standards of popularity and selling price of the moment are neither artistic nor permanent. Such statistics are no better than those of 1634 when tulips soared in price and popularity till a single root of *Semper Augustus* brought 5500 florins, or 12 acres of building lots were traded for a single bulb. When the bubble of speculation collapsed, people were ruined financially, so that some of them even tried eating the bulbs. I want to see someone trying to eat one of those Picasso paintings when the public finally wakes up and the present bubble bursts."

MISCELLANY

On the Eiffel Tower

Even in the midst of their recent troubles, the French have apparently not lost their perspective on couleur. According to an AP dispatch from Paris in the Newark Sunday News of May 19, a poll indicated that nearly 26 per cent of Parisians prefer to see their Eiffel Tower painted gray, while less than 10 per cent favor the present "chestnut pastel". Other preferences: over 16 per cent suggest tricolor (blue, white, and red) in either horizontal or vertical stripes; 12 per cent want blue. No information is available on the preferences of the other 36 per cent.

A Christmas Gift Suggestion for the Color Enthusiast

An ad in the New Yorker Magazine of December 2, 1967, described a ring which should appeal to ISCC members, for the large center stone was alexandrite (a variety of chrysoberyl), a stone that is green by daylight but changes to "a rich columbine red" by incandescent or candlelight. This ad was noted too late to be reported in the N. L. in time for Christmas '67, but there is ample time before Christmas '68. The gem advertised weighed 12.25 carats and was mounted in platinum with brilliant and tapered baguette diamonds, adding even more to the color interest. Possibly that particular ring has been sold, but an inquiry could be directed to C. D. Peacock in Chicago to determine its availability or the possibility of obtaining a similar one. The price was \$17,600. Nothing was stated about shipping charges.

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