INTER-SOCIETY COLOR COUNCIL

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THE MAXWELL CENTENARY On May 17, 1861, James Clerk Maxwell presented his celebrated lecture, "On the Theory of Three Primary Colours," at the Royal Institution. On May 16, 17, 18, 1961, the centenary of this lecture was commemorated jointly by the Colo(u)r Group of Great Britain and the Inter-Society Color Council. Although the main sessions were held at the Imperial College of Science and Technology, London, the Centenary was fortunate in being able to arrange a lecture at the Royal Institution, where Maxwell presented his lecture 100 years earlier.

This Centenary Discourse was presented by Dr. D. A. Spencer, Kodak Ltd., Harrow. The topic was "A Hundred Years of Colo(u)r Photography." The audience in 1961 was spellbound as that audience 100 years before must have been. The procedures and customs of the Royal Institution Lecture set the clock back for the audience. They sat well above the speaker in a circular lecture hall of relatively small proportions. Dr. Spencer, a man of remarkable appearance, reviewed the hundred years which followed Maxwell's demonstration of three-color additive photography. As the lecture unfolded, Dr. Spencer unveiled one magnificent demonstration of color photography after another. Three-projector and mosaic additive color were followed by examples of early two- and three-color movies. The most dramatic demonstration was the live demonstration of subtractive color photography using color-forming development. The development, color-formation and combination to produce the color photograph were all done with giant size glass plates and a transparency illuminator over which Dr. Spencer placed the developed images to illustrate the combination of cyan, magenta, and yellow images to form a full color photograph.

A very interesting part of Dr. Spencer's presentation was a report on technique used by the technician who carried out the color separation and projection for Maxwell. Color workers have long wondered how Maxwell was able to demonstrate trichromatic vision with a photographic system which was sensitive only to blue light. Ralph Evans, Kodak, Rochester, performed some astute detective work and proposed an explanation. This sleuthing was reported by Mr. Evans at the Annual Meeting of the Inter-Society Color Council, and Dr. Spencer read a condensed account as part of the Centenary Discourse.

By referring to the records of the experiments, Mr. Evans was able to reconstruct most of the circumstances surrounding these early methods. By making spectrophotometric curves of the solutions used for filters, and by determining the spectral sensitivity of the photo-sensitive materials used by Maxwell, Mr. Evans was able to establish that it was impossible that a record of the red part

of the spectrum could have been obtained. He observed that there was a slight sensitivity in the region where the green filter solution, when made dilute enough, transmitted. He found that most of the red dyes used in that period reflected ultraviolet well and that the red filter solution transmitted ultraviolet. These facts combined with the observation that the emulsions were sensitive to ultraviolet led Mr. Evans to conclude that the "red" record had been made entirely by ultraviolet. In this way, Maxwell was able to demonstrate trichromatic vision by means of photography twenty years before photographic materials sensitive to red and green were available. Dr. Spencer concluded this part of his lecture by projecting three-color photographs made from positives of Maxwell's first color separation negatives. For many of us Americans, this was an interesting and moving experience.

With this issue of the Newsletter, you will receive a copy of the extended summaries of the Maxwell Centenary Lectures. It is unfortunate that the discussions could not be printed also. In some instances these were the most informative and lively parts of the program.

ISCC-NBS CENTROID PAPERS AVAILABLE THROUGH THE MUNSELL COLOR COMPANY

Through agreement with the Board of Directors of the Inter-Society Color Council, distribution of the eight sets remaining of the ORIGINAL centroid papers will be handled by the Munsell Color Company.

The prices established for these sets by the ISCC are as follows:

Quarter	Sheets (3" x 6")	$ 30.00 per Set
Half	Sheets (6" x 6")	55.00 per Set
Whole	Sheets (6" x 12")	500.00 per Set *

Smaller sizes, or individual papers, will not be distributed.

* This is the original price established by the ISCC for sets of whole sheets of the original colors. Money received by the ISCC through the generosity of a number of well-known industrial firms, for previous orders of these sets has helped to defray the expense of the production and is considered as a contribution to the ISCC for research and development of materials that may be required under the aims and purposes of the Council. It is agreed that the Munsell Color Company will share with the ISCC any gross profit, over and above the cost of these sets (to the Munsell Color Company), that may be derived from sales of the sets handled through them.

The individual papers in these sets will be marked with the number of the ISCC-NBS Color Name Block they represent. While the coating on the papers of these sets does not, in all instances, exactly match the ISCC-NBS centroid specification for the block, the majority were accepted by NBS as being within a very close tolerance to the specified notation. Some of the light-weak and vivid colors were accepted as being the best that could be produced with currently available materials.

Orders for these sets should be submitted to:

Munsell Color Company, Inc.
2441 N. Calvert Street
Baltimore 18, Maryland

NOTE: The ISCC-NBS Centroid Papers were produced by Davidson & Hemmendinger through a joint endeavor of ISCC subcommittees on Problems 2 and 23 to serve as standards for producing secondary papers for display on a color chart supplement to NBS Circular 553, "The ISCC-NBS Method of Designating Colors and a Dictionary of Color Names," and for use of the subcommittee on Problem 23 in the study of methods for "Expression of Historical Color Usage." The color chart supplement to NBS Circular is in production. Announcement as to date of availability will be made in a future Newsletter.

A FIVE-ATTRIBUTE SYSTEM OF DESCRIBING VISUAL APPEARANCE

(The following is a summary of a 15-page report under this title. It is ASTM Special Publication No. 297 (1961). Price $1.00, available from ASTM, 1916 Race Street, Philadelphia 3, Pennsylvania. Although illustrations are not included in this summary, references are made to illustrations in the text. A list of captions is included at the end of the item, and those who are interested in seeing the illustrations are urged to obtain a copy of the ASTM Manual. Ed.)

The visual appearance of a uniform self-luminous area may be described except for its shape in terms of hue, brightness, and saturation; such an area visually possesses only color and shape. The non-shape visual appearance of objects not emitting light comprises not only color, in this case describable in terms of hue, lightness, and saturation, but also transparency and glossiness. The visual appearance of a volume (like a valleyful of air) is defined by its hue, lightness, saturation, and transparency; but to describe the non-shape appearance of a surface requires in addition to these four attributes, a fifth, glossiness.

The National Bureau of Standards has calibrated and issued standards of color, opacity, and gloss for the past several decades; and in 1934 for the guidance of specialists applying such standards, the above system, one of the several self-consistent systems that might be devised for this purpose, was worked out and distributed in mimeographed form. Recently the American Society for Testing Materials, through its Committee E-12 on Appearance, requested an up-dated description of this method, the number of specialists in visual appearance having increased far beyond the few score who received mimeographed descriptions of the method in the thirties.

This method is the start of systematization of a problem dealt with by artists at least since the time of Leonardo, and it provides a precise terminology for discussion of various aspects of the problem. It recognizes that a pattern made up of patches of various colors may be perceived in at least two ways: simply as the pattern of patches of color as such or as a picture of something. It also recognizes that the particular way the pattern is seen is just as important as the physical description of the pattern. For example, Fig. 1 shows a photograph of two white, two black, and two gray patches, one light, one dark, arranged in

a pattern. This photograph can be seen as six juxtaposed perfectly opaque patches of these colors. But this photograph is more usually seen as representing two opaque patches side by side, one black, one white, the central part of both being behind a transparent gray layer. Seen as separate opaque patches the grays differ in lightness; seen as a picture, the appearance is of a single, gray, somewhat transparent layer.

Color perceptions in the self-luminous mode of appearance, like those in the object mode, are characterized by hue and saturation; but they have one unique attribute, brightness. The third attribute of color perceptions in the object is lightness. This distinction is made clear by a discussion of the color perception solids for the two modes. Fig. 2 shows two cross-sections (yellow through achromatic to blue, and green through achromatic to red) of the solid within which each color perception in the self-luminous mode is represented by a point. The shape may be approximately described as an elongated double cone. Fig. 3 shows the two corresponding cross-sections of the object-color perception solid. Its shape is that of a rounded rhomboid. Note that the vertical dimension of the former is brightness extending from very dim to very bright, while that of the latter is lightness extending from black to white.

The relation of transparency to color perceptions in the volume mode of appearance is indicated diagrammatically by Fig. 4 for achromatic colors in which transparency is plotted along the horizontal axis, and lightness along the vertical. Any possible appearance of a volume perceived as achromatic (zero saturation, no hue) is represented by a point within the triangular boundary. The opaque grays, ranging from black to white, are represented by points on the vertical axis (transparency equal to zero). Common names in the diagram indicate the positions of the points representing the corresponding appearances. Fig. 5 shows the corresponding figure for achromatic appearances in the opaque surface mode, the boundaries being quadrilateral rather than triangular.

As examples of the use of the proposed terminology we may give a precise description of the appearances which in common parlance would be called gold and glossy yellow:

The appearance of polished gold (or brass) is moderately saturated yellow of medium lightness, zero transparency, and nearly perfect glossiness.

The appearance of pencil yellow (representative of glossy paints) is double; it consists of a light, saturated, mat, opaque, yellow surface behind a glossy, moderately light, transparent, gray surface.

This classification of appearance has been found useful by specialists in their development of standards of appearance qualities, and it permits distinctions to be clearly and unambiguously drawn that are not possible in common speech. To the non-specialist, who does not have to draw these distinctions, the terminology is refined to the point of being distressing. He does not need, for example, the term, achromatic which means simply of zero saturation and no hue; but would use the term appropriate to the context (black, white, gray, colorless, and so on). The viewpoint of the non-specialist is well expressed by the following verses written by Dr. Kasson S. Gibson who also aided in working out the method.

When I was young and life was bright
I used to say the sun was white;
But now I'm told in terms emphatic,
The sun is really achromatic.

It used to be correct to say
The autumn skies were bleak and gray;
But now I've learned -- Oh! thought ecstatic,
Gray skies are really achromatic.

And when it rained and made a mess
The drops to me were colorless;
But now in scenes so hydrostatic
Those drops are simply achromatic.

And thus it was, and thus it is,
I think by gosh and then gee whiz,
My mind is warped and quite erratic;
I'm sure my thoughts are achromatic.

Deane B. Judd

Captions

Fig. 1, - Ambiguous grays. This illustration may be seen in two ways: 1. As six areas, two white, two black, and two different grays, all opaque. 2. As three areas: one opaque white and one opaque black behind a uniform transparent gray layer.

Fig. 2, - Vertical sections of the color perception solid for the self-luminous mode.

Fig. 3, - Vertical sections of the color perception solid for the opaque surface mode.

Fig. 4, - Diagram of achromatic appearance in the volume mode.

Fig. 5, - Diagram of achromatic appearance in the surface mode.

DEANE B. JUDD -- 1961
IES GOLD MEDALIST

Deane Judd was selected by the Illuminating Engineering Society to receive the 1961 IES Gold Medal Award for his work in color, photometry and vision. The medal was presented at the National Technical Conference in St. Louis September 25th. According to Lighting News the presentation of the medal to Dr. Judd symbolizes the importance of color in illumination. Lighting News cited his contributions to scientific knowledge in the broad areas of standard observer for colorimetry and photometry, light scattering properties of materials, color blindness, indices of whiteness, uniform color scales, color names, color differences, color tolerances, chromatic adaptation, and color reproduction in television.

The IES made a good choice in selecting Dr. Judd to receive this honor. The ISCC similarly honored him with the first Godlove Award (1957). Other citations include: SMPTE Journal Award, 1936; and the OSA Frederick Ives Medal, 1958.

VISUAL ENVIRONMENTS OF LIVING LIGHT — Gerald B. Ewing, IDI, wrote an article by this title for the April issue of Interior Design Magazine.

In the article he states, "If lighting design in architecture is to improve, we must eliminate the misunderstanding and fallacy of illuminating engineering in its present state. The whole approach to lighting design must change. We must sweep away all the misconceptions and begin anew, approaching lighting as a visual art instead of an engineering problem."

His premise that light design is a visual art, contradicts the present methods of illumination engineering and calls for designers who will "Throw away their light meters and slide rules and then, by examining nature with the human eye and using their innate powers of imagination, create visual environments of living light."

An example to illustrate his thesis is the Motor House Cafeteria in Williamsburg, Virginia. Mr. Ewing was the lighting consultant.

MECHANISMS OF COLOUR DISCRIMINATION — (Reprinted from Contemporary Psychology, May 1961, pp. 181, 182.) Proceedings of an International Symposium on the Fundamental Mechanisms of the Chromatic Discrimination in Animals and Man, sponsored by the International Council of Scientific Unions, Paris, 25-29, July 1958. New York: Pergamon Press, 1960. Pp. viii + 296. $9.50.

This symposium was really Henri Piéron's party. He was chairman of the conference and to his remarks everyone attended. He is Professor at the Collège de France, and Director of the Laboratory of General Neurophysiology of the Collège de France and of the Research Group on the Physiology of Sensations. He has long been known for his many researches in vision and other sensory fields. The editor, Yves Galifret, was executive secretary of the symposium, and is an enthusiastic worker in Piéron's laboratory. Asked for further description of himself, he says, smilingly, that he is a Piéroniste. The reviewer, Elsie Murray, with a PhD under Titchener in 1907, after teaching at Vassar, Wilson, Sweet Briar, and Wells Colleges and the University of Illinois, presently settled down at Cornell in 1929, first as a teacher, then after 1935 as Research Associate, and now as director of the ONR and NIH project in color vision. Her interest in color vision dates from her discovery of a unique case of color deficiency in a girl student in 1928. She has been working on color sensitivity and deviation and testing ever since and has become one of the best informed experts in this field.

The following is a review by Elsie Murray:

In line with the growing vogue for panels, conferences, colloquia, and workshops, where research workers of different but related interests may exchange views, discuss findings, and argue methods, color vision experts have not been laggard. A dozen or more years ago (in 1947) a conference gathered at Cambridge, England,

to share and discuss accumulating enigmas in the visual field. It was followed in the United States by a modest Symposium on Visual Science at the annual meeting of the American Psychological Association in 1948. A second British session was arranged in 1957 at the National Physical Laboratory at Teddington, announced as a Symposium on the Visual Problems of Colour and attended by 150 biophysicists, bio-chemists, psychologists and others of 12 different nationalities--for in recent decades military exigencies have pointed up the survival value of many neglected aspects of color perception as well as of night vision.

The opening session of the 1957 gathering was dedicated to the memory of Selig Hecht, who had played a prominent role in the 1947 meeting. The memorial lecture was assigned to George Wald, a former pupil of Hecht's, now associated with Harvard University; his topic was Cone Pigments of the Human Fovea in Colour Blind and Normal. The remainder of the three-day program was devoted to 39 papers, many of them by research scientists who had recently devised new techniques or published extensively. W. D. Wright of the University of London, W. S. Stiles and B. H. Crawford of the National Physical Laboratory, Yves Le Grand of the Muséum National d'Histoire Naturelle, Paris, W. A. R. Rushton of the Institute of Ophthalmology, London, D. B. Judd, H. G. Sperling, L. M. Hurvich, Dean Farnsworth, D. L. MacAdam and others of the United States were among the contributors.

The 50 papers were published in London in 1958 in two volumes running to 749 pages with an abundance of plates and diagrams, with much of the discussions held at the close of each section, and with portraits and biographical notes of the chief speakers. The principal topics were Retinal Pigments and Chemistry, Brightness and Colour Measurements, Electro-physical Aspects of Colour Vision, and Colour Theories. In the International Symposium at Paris the next year many of the speakers listed above were again participants, and many disputed points left hanging at the 1957 conference came up again for discussion, along with various other problems raised since the meeting of the Commission Internationale d'Éclairage in 1951.

The Paris gathering at the Collège de France lasted five days under the chairmanship of Henri Piéron, famous psychologist, who acted as moderator. Judging by the well-designed printed volume of 300 pages edited by Yves Galifret, the one now in hand, it would appear the affair measured up well to the distinguished traditions of the old Collège de France where it was held. To be sure, not all the enigmas of color vision were resolved, but this failure was greeted with open satisfaction by a number of members of the congress, who look on the riddle shifted from the shoulders of physicists back in 1801 by good old Dr. Thomas Young (decipherer of the Rosetta Stone) onto those of the biologists and neurologists of the future as a perpetual game of chess to challenge their wits. So Dr. Rushton (who at the English meeting in 1957 had demonstrated his technique of studying the pigments of the intact human retina by directing on it a bleaching ray of light, then measuring with a photo cell the light reflected back as indicative of the absorption of the bleached pigment) now put on a three-act playlet, as it were, with the red and green rods of the frog's retina, referring in turn to the findings of Hecht, Granit, Dartnall, Stiles, Wald, Svaetichin, and Gruesser--the latter on fish that run true to Hering postulates--but finding himself in the end foiled though hopeful. All this was a tour de force that charmed the chair and aroused discussion on polarization and 'on-and-off' effects in experiments with electrodes.

A novelty of the Paris program was the opening section with emphasis on zoology (Inventaire Zoologique), though the British conference had under the title, The Multiplicity of Visual Pigments, presented a paper by two Liverpool biochemists, Morton and Pitt, listing 18 pigments with absorption maxima running from 430 to 620 m_u and found in the retinas of the frog, trout, squirrel, pig, cat, and other species. (Excellent abstracts of the 1957 papers relevant to the 1958 Symposium may be found in Judd's six-page summary in the Inter-Society Color Council Newsletter, No. 134, March 1958, and in the Hurvich and Jameson section on Color Vision in the Annual Review of Psychology for 1960.)

A Munich zoologist discussed the color vision of bees, older methods, and improved modern ones, and the shift of the spectrum into the ultraviolet, with red-blindness--a finding of special interest to students of Wald--and the Hurvich-Jameson explanation in Hering terms of protanopic defect as a shift of photopigment sensitivity along the spectral wavelength abscissa. Viaud of Strasbourg, represented by Medioni, covered sketchily the color vision of the rest of the animal kingdom, providing a sketch of the genealogical tree with the branches believed to possess chromatic vision marked. The cat, the stronghold of Granit's researches with electric stimuli and the dominator-modulator hypothesis, remains in dispute as possibly entirely without chromatic vision, whereas the suggestion was made that Greeff's dogs may have been unrepresentative 'color-blind' members of their species. In the final session Chairman Piéron was to enter a plea that a thoroughgoing survey of the animal kingdom's vision be made, by neurological, chemical, electrical, and behavioral methods, to obtain light on the evolution of the color sense in man, the photoreceptors, photopigments, the functioning of the neural layers of the retina, the pathways to the cortex. The eagerness with which at least thirty discussants (apart from the major eight to whom papers were assigned on the program) broke into the arena with their novel findings and perplexities indicates that, where thirty years ago PhD apprentices were running rats through mazes, the current crop may heed Piéron's admonition and exercise their ingenuity on the problems of color vision.

In the last session, designed to bring laboratory research and theory together and titled Psychophysical Problems, the trichromatic scheme (too often laid at the door of Young instead of Helmholtz) was assigned to Stiles, and the tetrachromatic (Hering's) to Hurvich (whose recent quantification of it had obviously enlisted Chairman Piéron's approval). Hurvich's paper, while on the British program, was unfortunately read then by title only. This reviewer feels that, with the Opponent-Pairs scheme before the members, a number of the puzzles reported throughout the session might have been resolved. For instance, at this point in the session a clinician, Dubois-Poulsen, called on to contribute what light pathology might throw on chromatic theory, raised instead a lament that no case could be clearly classified by trichromatic(or tetrachromatic) theory (by color mixture or neutral-point determination). Thereupon the Chairman called on Hurvich's partner, Dorothea Jameson, who presented tetrachromatic curves elucidating protanopia (the bugbear of all theorists) as a probable shift of one of Wald's (or Darnall's or Rushton's) opsins along the wavelength scale.

Piéron's final plea was for a commission to work on the standardization of methods, and the adoption of standard apparatus--along with 'factorial analysis' and correlation to determine the true chromatic primaries. The general sentiment was, however, that the time was not yet ripe--perhaps because of linguistic difficulties. The Pergamon edition of the Symposium is printed, under the

efficient editing of Galifret, in three languages--French, English, or German--but all of Piéron's introductory and final remarks, along with his running commentary, are in French. The report deserves reading not only by colorists, for news of the latest discoveries, techniques, and pitfalls, but as an example of ingenious experimental handling of problems and a sparring of wits. If alongside of it the reader has the British Visual Problems of Colour with its excellent portraits of the main speakers, and brief biographies, the entire session of the Symposium comes alive.

FALL CONFERENCE OF THE BUILDING RESEARCH INSTITUTE

ISCC members are invited to attend the Building Research Institute fall conference to be held in Washington, D. C., November 28, 29, 30, 1961. The title of one of the sessions at the conference is "Identification of Colors for Building." Several ISCC members are scheduled to discuss this subject at the conference.

There are many indications that the building industry is becoming vitally interested in this important problem. ISCC Problem Subcommittee #17, Color in the Building Industry, has shown increasing interest in the subject over the past two years. Those of you who are interested (and who can go) will find this an interesting and stimulating conference. Information may be obtained from Milton C. Coon, Jr., Executive Director, Building Research Institute--Division of Engineering and Industrial Research, National Academy of Sciences--National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D. C.

OPTICS AND SPECTROSCOPY

The translation journal, Optika i Spektroskopiya, has been distributed free to OSA members. Beginning with the 1962 issue, this journal will be available on subscription only. Although OiS has turned out to be more spectroscopy than optics, readers who want to cover this field find it a must. Subscriptions are $11.00 a year to ISCC members. Place your order now so that you will receive Optika i Spektroskopiya without interruption.

BOOK LIST

At the request of Col. Doane Eaton, Skohegan, Maine, Dorothy Nickerson took on the task of assembling a book list on the topic of color. Dorothy wrote to about 15 of her friends in many fields of color asking them to recommend titles for the list. The Newsletter obtained permission to reprint the list from Miss Nickerson and Col. Eaton.

The first 22 books are divided into three groups. The first five books were mentioned by practically everyone who responded to Dorothy's request. Six through 13 were mentioned by several people, and 14 through 22 were mentioned by at least two respondents. The rest of the list contains books mentioned by only one person, or books which only contained chapters or sections on color.

1) 1948 Evans, R. M. AN INTRODUCTION TO COLOR. (New York, John Wiley & Sons, Inc.; London, Chapman & Hall, Ltd. 1948.) 340 pp., 21 chs., bibl., index, 15 color plates. $6.00.

From the preface:

> Almost no knowledge of any part of the subject has been assumed. The aim has been to write in such a way that some grasp of the fundamentals may be obtained by any

careful reader. It is for this reason, rather than to simplify the writing, that so many pictures and graphs have been used throughout.

The subjects range from color and light, color vision, color perception, color specification, differences and names, effects of illuminants, to paints and pigments, and color in art, design and abstraction.

2) 1952 Judd, D. B. COLOR IN BUSINESS, SCIENCE, AND INDUSTRY. New York, John Wiley & Sons, Inc.; London, Chapman & Hall, Ltd. 152. 401 pp., 106 black and white figures, references, index. L. C. Catal. No. 52-5853. $8.50.

In three parts, basic facts, tools and techniques, physics and psychophysics of colorant layers.

3) 1905 1947 Munsell, A. H. A COLOR NOTATION, an illustrated system defining all colors and their relations measured by scales of hue, value, and chroma. First published in 1905, 10th edition, edited and rearranged, 1947, Munsell Color Company, Inc., 2441 N. Calvert Street, Baltimore 18, Md. 67 pp. $3.00.

4) 1953 Optical Society of America, Committee on Colorimetry. THE SCIENCE OF COLOR. Thos. Y. Crowell Co. 1953. 385 pp., 9 chs., references, index, 25 color plates, 102 black and white figures. L. C. Catal. Card No. 52-7039.

Except for the first chapter, which is a general introduction "from the art of coloring to the science of color," this book provides an authoritative presentation that ranges from a discussion of the concept of color to chapters that discuss and provide the quantitative data and methods necessary for colorimetry.

5) 1944 1958 Wright, W. D. THE MEASUREMENT OF COLOUR. London, Hilger & Watts, Ltd.; New York, The MacMillan Company, New York. (1st edition, 1944) 2nd edition, 1958. 263 pp., 8 chs., index, 8 plates (six with color), 83 figs. $10.75.

This book describes the principles, methods, and applications of the trichromatic system of color measurement, the heart of the book being concerned with the principles of photometry and colorimetry and the 1931 CIE system. The most spectacular recent application of principles of colorimetry are in the field of color television, and this is covered in a separate chapter on three-color reproduction. It contains an excellent exposition of the historical basis for the CIE adopted values. This book provides an excellent text for use in teaching the CIE method.

Mentioned by everyone.

6) 1946 Bouma, P. J. PHYSICAL ASPECTS OF COLOUR, An Introduction to the Scientific Study of Colour Sensations. Published by Philips

Industries, Eindhoven, Netherlands, distributed in U. S. by Elsevier Publishing Co., 250 - 5th Ave., New York 1, N. Y. Dutch edition 1946, English translation 1947. 312 pp., 14 chs., 113 figs. (black and white), one color insert, lit. index.

7) 1953 Evans, R. M., Hanson, Jr. W. T., Brewer, W. Lyle. PRINCIPLES OF COLOR PHOTOGRAPHY. New York, John Wiley & Sons, Inc.; London, Chapman & Hall, Ltd. 1953.) 709 pp., 18 chs., black and white figures only, bibl., index. (Also sold by Kodak dealers.) L. C. Catal. No. 53-6722. $13.50.

Contains excellent chapters on response of eye to light, systems of specification and measurement, visual process. The title fails to indicate the importance of this book to technical colorists who may have little interest in color photography itself.

8) 1936 Hardy, A. C. (Edited by) HANDBOOK OF COLORIMETRY. Technology Press, MIT, 1936, 1948.

Technical data, including tables and diagrams, regarding use of C. I. E. data in colorimetry (much of data included in THE SCIENCE OF COLOR, by Opt. Soc. Am's. Committee on Colorimetry.)

9) 1957 Hunt, R. W. G. THE REPRODUCTION OF COLOR. Fountain Press, 1957. MacMillan Co. $12.75.

10) 1955 Kelly, K. L. and Judd, D. B. THE ISCC-NBS METHOD OF DESIGNATING COLORS AND A DICTIONARY OF COLOR NAMES. NBS Circular 553. Supt. of Documents, Washington 25, D. C. 1955. 158 pp., 15 sections, color name charts 20 pp., color names and synonyms 48 pp., dictionary of names 74 pp. $2.00.

11) 1957 LeGrand, Y. LIGHT, COLOUR AND VISION. Authorized English translation by R. W. G. Hunt, J. W. T. Walsh, and F. R. W. Hunt (1957). John Wiley & Sons, Inc. 1957. $11.00.

12) 1954 Minnaert, M. (Translated by H. M. Kremer-Priest, revised by K. E. Brian Jay.) THE NATURE OF LIGHT AND COLOUR IN THE OPEN AIR. Dover Publications, Inc., New York. 362 pp., 43 chs. Clothbound, $3.95, paperbound, $1.95. An unabridged republication (1954) of the first English translation published by G. Bell & Sons, Ltd. under title "Light and Colour in the Open Air." This edition available through an agreement with Bell.

13) 1947 Wright, W. D. RESEARCHES ON NORMAL AND DEFECTIVE COLOUR VISION. Mosby, 1947.

An outstanding book by one of the foremost authorities in this field.

14) 1959 Evans, R. M. THE EYE, FILM, AND CAMERA IN COLOR PHOTOGRAPHY. New York, John Wiley & Sons, Inc.; London, Chapman & Hall, Ltd. 1959. 410 pp., 10 chs., 16 color plates, bibl. index. L. C. Catal. No. 59-13031. $8.95.

mentioned by at last two

How we see things, how the camera sees things, are chapters that contain much information for those interested in color and form--depth, size, shape, idealization--as well as color.

Although written for the photographers rather than for the technical color man, nevertheless there is much in this book that is a useful extension of Mr. Evans' two previous books on color, and color photography.

15) 1957 Godlove, I. H. (Collected by) ISCC-GODLOVE BIBLIOGRAPHY ON COLOR. Inter-Society Color Council, Inc. (359 pp., processed), 1957. ($3.75 prepaid, c/o Braden-Sutphin Ink Co., 3650 East 93rd St., Cleveland 5, Ohio, attention Mr. G. L. Erikson.)

Bibliography collected from the ISCC Newsletter 1936-1954, while edited by I. H. Godlove, alphabetized according to author's name, under a subject index checked by ISCC experts in several of the subject fields. A cooperative project of the ISCC.

16) 1951 Graves, Maitland. THE ART OF COLOR AND DESIGN, 2nd ed., 1951. McGraw-Hill Book Co., Inc. 439 pp., illus.

17) 1952 Graves, Maitland. COLOR FUNDAMENTALS. McGraw-Hill Book Co.

Includes 100 color schemes. The author is with the art school of Pratt Institute.

18) 1948 Jacobson, Egbert. BASIC COLOR, An Interpretation of the Ostwald System. Paul Theobold, Chicago, 1948. 208 pp.

19) 1911 1940 Katz, David. THE WORLD OF COLOR. London, Kegan Paul; France, Trubner & Co. 1935. 300 pp., 9 chs., 11 figs. (black and white) (no color). Translated from the German by R. B. MacLeod and C. W. Fox. 1st edition in 1911, and in 1940, considerably abridged in translation.

Discusses modes of appearances of color, and phenomenology of illumination, film colors, surface colors, transparent and translucent colors, color constancy and contrast, theories of color constancy.

20) 1950 Mellon, M. G. (Edited by) ANALYTICAL ABSORPTION SPECTROSCOPY. John Wiley & Sons, Inc., New York. 1950.

An excellent book on color, each chapter prepared by an authority in the field--Gibson on spectrophotometry, Judd on colorimetry, Stearns on spectrophotometers, etc.

21) 1960 National Paint, Varnish, & Lacquer Association (Washington, D. C.) COLOR AND HOW TO USE IT. 64 pp., illus. 1960. (For use as part of Sales Training Program.) $3.00.

While it probably contains more information and specific suggestions for use of color in the home than any other single publication, it might be wished that such a useful handbook would help to clarify differences between color and colorants. Thus it could help to clear up the confusion that still exists regarding a color wheel based on the red-yellow-blue of the colorant system (useful when one mixes paints to obtain his colors), and one based on pairs of psychological primaries (as red-green, yellow-blue), or on the light primaries (red-green-blue), or on the principal hues of an appearance system (such as the five of the Munsell).

22) 1952 Richter, Manfred. INTERNATIONAL BIBLKOGRAPHIE DER FARBENLEHRE UND IHRER GRENZGEBILTE, Nr 1 - (1940-1949). Musterschmidt Wessenschaftlicker Verlag Gottingen, 1952. 244 pp., alphabetized by author, over 1,668 entries.

List of additional books on color, or books containing chapters on color:

1960 Ball, Victoria. THE ART OF INTERIOR DESIGN. The MacMillan Co., New York. 343 pp., illus.

1960 Bergmans, J. SEEING COLOURS. Translated from Dutch by T. Hohnes, Eindhoven (Philips Technical Library). The MacMillan Co., New York. 92 pp., 23 illus., 2 color plates.

1955 Birren, Faber. NEW HORIZONS IN COLOR. Reinhold Publ. Corp., New York. 200 pp., illus., bibl. of 119 items.

1937 Birren, Faber. FUNCTIONAL COLOR. Crimson Press, New York.

1941 Birren, Faber. THE STORY OF COLOR. The Crimson Press, Westport, Conn.

Reviews many aspects of the subject.

1954 Bond, Fred. COLOR--HOW TO SEE AND USE IT. Camera Craft Publ. Co., San Francisco, Calif.

1942 Boring, Edwin G. SENSATION AND PERCEPTION IN THE HISTORY OF EXPERIMENTAL PSYCHOLOGY. G. Appleton-Century Co. 644 pp., 16 chs., index.

A readable summary which brings this history up to about 1930. The book is a sequel to "A History of Experimental Psychology." It contains six chapters on vision, three on audition, one each on smell and taste, organic sensibility, and the perception of time and movement.

1947 Burris-Meyer, Elizabeth. DECORATING LIVABLE HOMES, 2nd ed., 1947. Prentice-Hall, Inc., Englewood Cliffs, N. J. 468 pp., illus., 3 chapters on color and light.

1938 Burris-Meyer, Elizabeth. HISTORICAL COLOR GUIDE. Wm. Helbrun, Inc., New York. 30 pp., illus. (30 plates).

Contains 30 pages of color schemes for interior decoration from traditional sources, with mounted color swatches.

____ Burris-Meyer, Elizabeth. COLOR AND DESIGN IN THE DECORATIVE ARTS.

1947 Bustanoby. PRINCIPLES OF COLOR AND COLOR MIXING. McGraw-Hill Book Co., Inc., New York.

____ Chambers, Bernice G. COLOR AND DESIGN IN APPAREL.

1955 Commery, E. W. and Stephenson, C. E. HOW TO DECORATE AND LIGHT YOUR HOME. Coward-McCann, Inc., New York. L. C. Catal. Card No. 55-10429.

1960 Faulkner, Roy and Sarah (at Stamford Univ.) INSIDE TODAY'S HOME. 583 pp. $11.00 (Revised edition.)

1943 Fink, Donald G. TELEVISION STANDARDS AND PRACTICE. McGraw-Hill Book Co., Inc., New York.

____ Fink, Donald G. COLOR TELEVISION STANDARDS.

1940 Goldstein, Harriet and Vetta. ART IN EVERYDAY LIFE, 3rd ed., 1940. The MacMillan Co., New York. 497 pp., illus. (12 printing 1948)

1945 Harrison, V. G. W. GLOSS, Its Definition and Measurement. A survey of published literature. 145 pp. + vi. Chemical Publishing Co., Brooklyn, New York, 1949.

____ Harvey, E. Newton. LIVING LIGHT.

1959 I. E. S. LIGHTING HANDBOOK, 3rd ed., Illuminating Engineering Society, 1860 Broadway, New York 23, N. Y. 1142 pp., 25 chs.

Chapters on physics of light, light and vision standards and nomenclature, measurement of radiant energy, color, light sources, lighting calculations, and applications under many specialized headings.

1957 Jarvis, Wm. Don (Edited by). PAINTING AND DECORATING ENCYCLOPEDIA. Goodheart-Willcox Co., Chicago, Ill.

1958 Ketcham, Howard. COLOR PLANNING FOR BUSINESS AND INDUSTRY. Harper & Bros. $5.95.

1950 Kodak-Color Data Book. COLOR AS SEEN AND PHOTOGRAPHED. Eastman Kodak Co. 68 pp., fully illustrated in color and black and white. $1.00.

An excellent inexpensive brief handbook on color. Many of the illustrations and much of the discussion comes from Evans' Introduction to Color.

1954 McGown, Pearl K. COLOR IN HOOKED RUGS. McGown, West Boylston, Mass. 304 pp. 1st printing, July 1954. L. C. Catal. No. 54-10910.

____ Middleton, W. E. Knowles. VISION THROUGH THE ATMOSPHERE.

1952 Murray, H. D. COLOUR. Chapman.

1946 Nickerson, D. COLOR MEASUREMENT AND ITS APPLICATION TO THE GRADING OF AGRICULTURAL PRODUCTS. U. S. Dept. Agr. Misc. Pub. 580, 67 pp. (1946, reprinted 1958)

____ Pahlman. BOOK OF INTERIOR DESIGN. Studio Crown.

Discusses color from an individual and decorator's point of view.

1951 Pickford, R. W. ~~INDUSTRIAL~~ INDIVIDUAL DIFFERENCES IN COLOUR VISION. Routledge.

1949 Pope, Arthur. THE LANGUAGE OF DRAWING AND PAINTING. Harvard Univ. Press, 1949. 162 pp., 9 chs., bibl., 71 plates (4 in color).

This book by Professor Pope, written while he was director of the Fogg Art Museum School, is a revision and rearrangement of two earlier books - "The Painters' Terms" and "The Painter's Modes of Expression." Part I discusses terms of drawing and painting; Part 2 discusses modes of representation.

1940 Richter, M. FARBENLEHRE. Steinkopff, 1940.

____ Rutt, Anna Hong. HOME FURNISHINGS. John Wiley & Sons, Inc., New York.

Highly recommended by one decorator member as best book in print on color she knew.

1948 Spencer, D. A. COLOUR PHOTOGRAPHY IN PRACTICE. Pitman Publ. Co., New York. $8.50.

1950 Vickerstaff, et al. COLOUR. ICI Dyestuff Dir., 1950. (Excellent, but no longer available.)

DICTIONNAIRE RAISONNÉ DE L'ARCHITECTURE
VIOLLET-LE-DUC VO 7 - UNDER "PEINTURE"

In a letter to the editor Waldron Faulkner said, "I have just done a little original research on my own on a talk that I am preparing on 'Color in Church Architecture.' This was a translation from the famous French work published in 1867."

"The further we go back into ancient times, the more we realize that there existed an intimate alliance between architecture and painting. All the buildings of India, those of Asia Minor, those of Egypt, those of Greece, were covered with paint both inside and out. The architecture of the Dorians, those of Attica, those of Greece and of Etruria were painted. The Romans seem to be the first who erected, under the Empire, monuments of white marble or of stone without any colorants whatever; their stucco buildings were painted both indoors and out. The barbarians of eastern and western Europe painted their wooden houses and temples and the Scandinavians lavished brilliant colors and gilding on their habitations.

We shall state facts that are well known to archeologists today and shall concern ourselves only with painting applied to architecture in France during the Middle Ages. There, as in antiquity, painting was never separated from architecture. The two arts lent each other mutual support, and what we call the "picture" did not exist, or had only very secondary importance.

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This custom of painting buildings continued during the entire Carlovingian period, and Frodoard tells us that Bishop Hinemar, in rebuilding the cathedral at Reims, "ornamented the vaults with paintings, lighted the church with glazed windows, and paved it with marble."

Researches made in Romanesque architecture show that painting was considered necessary for all civil and religious buildings, and it was applied to sculptured ornament, to statues and to moldings to bring out their value. As soon as this architecture took on an individual character, when it freed itself from Gallo-Roman traditions, toward the end of the Eleventh Century, painting was applied according to a particular method in order better to sense forms and proportions. We do not know exactly according to what principle painting was applied to Carlovingian monuments in the West, and we have little to guide us in our research, except a few churches in Italy, like San Vitale in Ravenna, for example, and a few mosaics which still exist in basilicas in Rome or in Venice; and in these remains the color obtained by means of millions of little cubes of glass or of hard stone, is not always in harmony with the architectural forms. Moreover this method of coloring gives walls and vaults a metallic aspect which harmonizes neither with the marble nor with the stone, nor with the stucco of the columns, piers, etc. Byzantine mosaics always have something barbaric about them. One is surprised by these colors of extraordinary intensity, these strange reflections which modify the forms, destroy the lines, cannot appeal to people for whom architecture is an art of proportion and a combination of lines. It is certain that although the Greeks considered color as necessary to architecture, they were too fond of form to use mosaics, as did the Byzantines, on their monuments. They knew paint only as a unified, fine, matte covering which left lines their purity, even accentuating them, expressing the most delicate details.

Paint applied to architecture can act in only two ways: either it is subordinate to lines, to forms, to the design of the structure; or it pays no attention to them and spreads itself independently on walls, vaults, piers and moldings.

In the first case, it forms essentially part of the architecture; in the second, it becomes a mobile decoration, if one can use the term, which has its own laws and often destroys the architectural effect in order to substitute an effect belonging only to the art of the painter. Although painters consider the latter type of pictorial decoration as the only goal, this should not surprise us, but whether art gains by this, is a question that merits discussion. Painting was separated from architecture only in a very recent period, that is to say at the time of the Renaissance. From the day that the picture, the easel painting produced in the painter's studio, was substituted for the painting applied to the wall which should preserve it, painted architectural decoration was lost. The architect and the painter have since worked separately, each day deepening the abyss that separates them, and, if by chance they tried to meet on a common ground, they found that they no longer understood each other, and although they might wish to work together, there no longer existed a bond to unite them. The painter accused the architect of not providing him with suitable spaces, and the architect believed himself right in saying that the painter paid no attention to architectural considerations. This separation of two formerly brotherly arts is noticeable if one glances at the attempts that have been made in our day to bring them together. It is clear that in these attempts the architect has not imagined the effect that paint would produce when applied to the surfaces he was preparing, and that the painter considered these surfaces only as a stretched canvas in a studio less convenient than his own, caring only about what would be around his picture. Decorative painting was not understood in this way during the Middle Ages, not even during the Renaissance, and Michelangelo, in painting the vault of the Sistine Chapel, did not isolate himself; he was well aware of the surroundings, of the place where he was working, and of the total effect he wished to produce. When one paints on a wall instead of painting on canvas, it does not mean that the result will be monumental painting, and nearly all mural paintings produced in our time, in spite of differences in medium, are only pictures. We see that these pictures need framing, that they group themselves according to scenes each having its own point-of-view, a separate perspective, or that they follow each other in procession between two horizontal lines. It was not in this way that the ancient master mosaicists proceeded, nor the western painters of the Middle Ages. In the painting or ornament, chance, instinct and imitation serve as guides today, and nine times out of ten it is difficult to tell why any ornament takes one form rather than another, why it is red and not blue. We have what we call "taste," and this suffices, we believe, to decorate the interior of a ship with colors or else we assemble everywhere bits of painting and apply them indifferently, one which was on a column, a plane surface, another we say on a tympanum, or on a base. The public, bewildered by these gaudy color schemes, does not find these attractive, but we tell them that the decorators of the Middle Ages have been scrupulously consulted, and the same public comes to the conclusion that the medieval decorators were barbarians, with which we agree very willingly.

In the decoration of architecture, it must be agreed that the painting is perhaps the most difficult part, and the one which requires the greatest consideration and experience. When we painted all the interiors of buildings, the

richest as well as the poorest, we had necessarily rules and regulations which followed tradition; thus the most ordinary artist could not be misled. But today these traditions are absolutely lost, each looks for an unknown law; we must then not be astonished if most of the attempts produce only unsatisfactory results.

The Twelfth Century reached the apogee of architectural painting during the Middle Ages in France; the stained-glass windows, the illuminated manuscripts and the fragments of murals of this epoch show a knowing, very advanced art, a singular understanding of the harmony of colors, the coincidence of his harmony with architectural forms. There is no doubt that this art was developed in the cloister and proceeded from Greek-Byzantine art. Then the most beautiful textiles, colored furniture and utensils, even a great number of manuscripts, brought from the Orient, were stored in monastic treasuries and libraries, and served as models to monks who devoted themselves to works of art. Later, toward the end of the Twelfth Century, when architecture left the monastery and was practiced by the laity, there was a revolution in the art of painting, which, without being as radical as the one in architecture, modified profoundly however, the principles laid down by the monastic school.

Without speaking at length about a few fragments of hardly-visible paintings, or shapeless outlines which appear on certain monuments before the Eleventh Century, we shall say only that since the Gallo-Roman period, that is to say from the Fourth Century, all monuments appear to have been painted both inside and out. This paint was applied, either on the stone itself, or on plaster covering masonry walls, and consisted, for areas above grade, of a sort of whitewash, either white or yellowish, on which were traced fine drawings in black or reddish-ochre. Near the ground appeared strong colors, red-browns, or even black, relieved by a few yellow, greenish or white lines. The sculpture itself was covered with thin whitewash, the ornaments stood out on red backgrounds, often relieved by black lines and yellow touches.

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Page 107

The processes employed by painters for decorating interiors was already well perfected in the Eighth Century, as one can judge in examining the ancient paintings in the Sainte Chapelle and of certain retables of the same epoch.

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Page 108

Decorative painting was applied not only to interior walls; it played an important part on the exterior of buildings. The facade of Notre-Dame in Paris shows numerous traces of painting and gilding, not only on the walls, but also on the moldings, the columns, the ornamental sculpture and on the statues. One can make the same observation as to the porches of the cathedral at Amiens; and the ornaments on the gables of the transept of the cathedral in Paris, which date from 1257, being gilded with a dark red and black background.

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We have become so timid in regard to the painting of monuments, that we hardly understand this form of art expression.

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Why does the so-called Classical School pretend that coldness and monotony are the inseparable companions of beauty, while the Greeks, which we present as the artists par excellence, always colored their buildings, both inside and out, not timidly, but with the aid of extremely vivid colors?

Dating from the Sixteenth Century we have renounced the exterior painting of architecture, and a little at a time coloring has disappeared. Again at the beginning of the Seventeenth Century color effects were sought by means of mixtures of brick and stone, sometimes even by the application of glazed terra-cotta.

Translation by
Waldron Faulkner

COLOR BOOK ILLUSTRATED IN COLOR

(A letter to the editor from Kenneth Kelly.)

In the mail today I received a very interesting book from Dr. Andreas Kornerup, an engineer in Copenhagen, Denmark, which I thought would be of interest to the readers of the Newsletter.

Quoting from Dr. Kornerup's letter of January 28, 1961, "I am very pleased to see that you are interested in the book on color names which I am preparing together with Mr. J. H. Wanscher,* the Royal Veterinary and Agricultural College, Copenhagen. The editors, Politikens Forlag, Copenhagen, are going to publish the book in Danish (March 1961), and then there will be additions in the other Scandinavian countries and in U. S. A. too. The editors have some trouble to get the book translated. Do you possibly know a translater who could eventually translate from Danish to the American language? If so, I would be very thankful to get your proposal." Is there a Dane in the house?

The book 5 to 7 inches, is entitled Farver i Farver (Color in Color) and is divided into three parts: Farvelaere, Farveatlas and Farveleksikon. The first we translate (from our poor Danish) to mean the science of color. It comprises 41 pages illustrated with a number of diagrams and charts and discusses the need for color description, the color system used in the formulation of the color atlas (see part 2), the physics of color, color vision, and color blindness. It ends with a discussion of color harmony and an index of the first part.

The second part comprises the color atlas and consists of 30 double-page charts with 48 colored areas (2 1/2 by 1 1/2 centimeters) "made in letterpress screen-printing with 30 chromatic inks and over-printed with a series of transparent gray inks."

*Author of A Simple Way of Describing Flower Colours, and A Flower Colour Chart, Bulletin from the Horticultural Dept., Royal Veterinary and Agricultural College, Copenhagen, Denmark, 1953.

Each chart contains only one chromatic ink let down by half-tone screen printing into eight steps from the original ink to the neutral inclusive (8, 7, 6, 5, 4, 3, 2, 1). Six of these saturation scales are overprinted each with one of six transparent, achromatic inks (white to dark grey, A, B, C, D, E, F - no half-tone screen). This gives closer vertical color spacing in the righthand or dark side of the chart than in the lefthand or light side. As might be expected, the first horizontal step toward black appears to be larger whenever the original chromatic ink is light in color than the horizontal steps at the dark end of the chart. The steppings in the neutral samples appear to be based on a logarithmic scale. The hue steppings between charts are fairly even except for a large one from blue to turquoise. There are a total of 1266 colored samples in the 30 charts.

The third part, Farveleksikon, begins with a description of the types of color names used, a bibliography, and then the color-names dictionary comprising 51 pages and 614 names. "An alphabetical list of the color names tells the story about each name, its origin, how old it is, its relations internationally, its relation to pigments, flowers, etc., its etymological background etc. and indicates the corresponding color." It also lists synonyms and the English translation.

The dictionary is followed by a description of the 30 chromatic inks, showing them in a circular diagram with a breakdown into hue names, and with a table of their chromaticity coordinates, daylight reflectance and dominant wavelengths in millimicrons.

The last part, and by no means the least, comprises 30 color-name charts, one for each of the 30 chromatic inks. Each chart is broken into blocks according to the modifier used with the original hue name. With each chart there is appended a list of special color names with a lightness-saturation key to the color-name chart and, for added convenience, a star is placed on the color-name chart where the corresponding color names plot.

I want to compliment the authors and the editors of this very attractive and useful book for the excellence of the organization of the material, for the printing, and for the reproduction of the colors. When I have the opportunity to read an English translation and find out all that is included in this small book, I am sure that I will recommend it as a worthy addition to anyone's color library.

(Mr. Kelly has just received a letter from Dr. Kornerup which says, "The Reinhold Publishing Corporation, New York, has made this translation and is arranging for publishing an American edition of the book next year. As far as I know, it will be called 'Color Atlas' and comprises the atlas, a little more concentrated part on color theory and finally the alphabetic list of color names and the corresponding 30 color name charts as shown in the Danish edition.")

THE PHYSICS OF EVERYDAY COLOR

Good information is timeless. This point is demonstrated well by an article by this title which appeared in the magazine, Photo Methods for Industry. (May 1961, pp. 46-53) This very interesting article is actually chapter 8 of Introduction to Color by Ralph M. Evans, John Wiley & Sons, 1948. The casual reader, however,

would not be aware of this if the magazine did not call it to his attention. The information is important knowledge for every worker in color, and it is still material which is often neglected when the novice begins to learn about color.

Ed.

The following was printed in the magazine as an introduction to the article:

"Color is neither physics nor psychology; it is both. Physics cannot predict the appearance of a given energy distribution nor can psychology predict the color of a subtractive mixture. Both together should be able to do both; this and similar aims should be the goal of the science of color. Rather than attempt an academic summary of the facts we shall consider color as it is encountered in everyday life. Much of the so-called mystery of color comes from the fact that people do not look at color critically. We tend merely to assume that colors are what we think they are and do not verify our assumptions. It is hoped that what follows may lead some people to look carefully at colors."

Ralph M. Evans

THE FIRST BOOK OF COLOR

The First Book of Color, by Herbert P. Paschel, Franklin Watts, Inc., 575 Lexington Avenue, New York 22, New York. 7 x 8 1/2 inches, 45 pages (1959).

This book is obviously written for children, but is so well done that it should prove interesting and informative to anyone, young or old, who, lacking prior knowledge, seeks information on color. There are colored illustrations on nearly every page to help with the understanding of the text material. The first few pages deal with light, what it is and where it comes from. The author also tells how to make a rainbow with the garden hose. Other pages deal with how we see objects and what makes different colors. A page is included on how surface texture affects color and another describes and illustrates how color changes as daylight changes. Toward the middle of the book the author takes up color qualities and color mixing and then goes on to describe the mechanics of color printing. The last few pages deal with psychophysics, color preferences, color and legibility, influence of surroundings, color of after-image, and finally false color impressions. On page 39, the subject of color combinations and visibility is discussed. The short paragraph is illustrated with a visibility scale in color, showing the letter A in one color and the background in another. The combinations are numbered from 1 to 10. Black on yellow is rated No. 1, while yellow on black is 7; black on white as 6 and white on black as 10. In a book of this type no references are given; so there is no indication of how the author may have arrived at this conclusion. It seems regrettable too that the book should end on the subject of "false color impressions." I would have preferred to have it end on a "summary of basic color truths." Notwithstanding, the book will be welcomed by all colorists who receive requests for a source of basic information on color; a book of this type should be included in every school library.

Harry K. Hammond III

FRANK J. RIZZO WINS AWARD

Frank J. Rizzo, chief of textile dyeing laboratory at Quartermaster Research and Engineering Command, Natick, Massachusetts, won the first annual Army Research and Development Achievement Award. He was honored for guiding development of a fully

automated instrument which measures and records color differences numerically with a degree of accuracy never before met.

Mr. Rizzo, a supporter of ISCC for many years, was active in the Philadelphia-Wilmington Color Group.

WANTED: A COLORFUL CAREER

A Cambridge M. A. (Modern Languages), having worked as a designer and practical man in a specialized field of color sensibility (stained glass) for eleven years, now wants to enter the field of color planning and consultation and to employ this combination of experience in a more analytical connection, with more relevance to modern developments in the use of color. High learning capacity to assimilate necessary groundwork; much travelled in Europe, with fluent French and German, some Spanish and Italian. At present working in San Francisco area, but would move to Southern California, the EasternStates, or Europe with equal alacrity. Resume on request.

Donald V. Drury
1080 Moffett Circle
Palo Alto, California

A QUESTION OF PRIMARY COLORS

The following is a letter received by the Newsletter September 5, 1961. The writer is the Television Manager of the Eastman Kodak Company, Rochester, New York.

Dear Editor:

This may be an unusual piece of correspondence but I think you will agree that the matter to which it refers has relevance in terms of the interests of the Inter-Society Color Council Newsletter.

My work today concerns itself with the programing of television entertainment for advertising purposes although my education was in physics and mathematics.

Readers of your Newsletter may perhaps find some amusement in a conflict in which this dual loyalty has ensnared me. My own conscience and our corporate conscience compel me to set down (some three weeks prior to the act) a warning that on the evening of September 24, 1961 on the new Sunday evening television program, "Walt Disney's Wonderful World of Color," a new Disney character named "Professor Ludwig Von Drake" will quack on our partial behalf over 190 NBC-TV stations across the country, a ditty in which red, yellow and blue are called the primary colors.

Professor Ludwig Von Drake, incidentally, is a sophisticated television character. His creation results as the legitimate issue from the union of artist and scientist. His dominant genes derive from the pallette and drawing board even though his life-existence and survival depend upon the maternal nurture of the electronic-optical side of his family.

Strongly influenced therefore by this "artist" forebears, Professor Ludwig Von Drake sings in his first appearance on network television about the "primaries" of color. We realize that some may feel we are subverting science in allowing

Von Drake's use of the term "primary" colors for red, yellow and blue. In answer we make three points:

1. Von Drake does not qualify the term primaries, and we assume (as real physicists will) that he is using the broad vulgate terms for magenta, yellow and cyan as "subtractive" primaries.

2. When we first heard his scientific pronouncements in the color field, we had a decision to make. We knew, however, that if Professor Von Drake were to quack "green" instead of "yellow" anguished protests from people who remember their grade-school art instruction would far outcome the letters likely to come instead from students of the O. S. A. text, The Science of Color. We suspect, moreover, that the latter will prove more tolerant.

3. This was an occasion when, despite discussion, debate and attempted re-education, Disney's creative draftsmen held onto their artistic license and resisted a scientific sponsor's interference. In their mind, they were striking one blow in defense of art over science!

We know, however, that the logic of science will finally triumph.

E. P. Genock
Television Manager

ISCC ANNUAL MEETING Mark your calendar for March 12, 13, 1962 for the Annual Meeting at the Statler Hotel, New York City. Isay Balinkin, who can teach color and entertain at the same time, will be the banquet speaker. The symposium on color will be conducted by Cash Crouch. Symposium speakers will be Dorothy Nickerson, Walter Granville, Ronald Allison. More details will be available in the next Newsletter.

MISCELLANY Colored Hydrants to Aid Firemen. Independence, Kansas (AP)

In Independence city workers have repainted all 235 fire plugs different colors. The fire chief explains the bright colors will tell firemen at a glance how many gallons of water per minute the plug will provide in an emergency. Black indicates less than 250 gallons per minute; red, 250 gallons to 400 gallons; yellow, 400 to 750; and green, more than 750.

East or west, it would seem that firemen are using more and more color. The Mountainside, N. J. fire department has made motoring through their fair city a colorful experience. Polka dots are all about with red circles along the length of Rt. 22; bright yellow ones slit with arrows on nearly every borough street and; soon to come, kidney-shaped designs in white. Why the color craze? The red and yellow emblems mark the location of hydrants; the white ones will identify backyard swimming pools. The idea was conceived, after a record snowfall last year, as an aid in locating hydrants hidden by snow. The pools will prove useful should the water supply run low.

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Red Gulls Color Test. Boston (AP)

Massachusetts gull painters are getting discouraged. It all seemed so simple when the Massachusetts Audubon Society began spraying sea gulls with harmless colors to trace their nesting habits. The ultimate idea was to find means to make it unattractive to gulls to nest in areas which would make them a menace to planes at the big Logan International Airport.

So many reports of red gulls came in that it became obvious somebody else had been painting sea gulls red. By an amazing coincidence, it turned out that the U. S. Navy Hydrographic Office had been using the same dye as the bird painters. The Navy was using the red dye in a study of tides off Portsmouth, N. H. The birds swam in the water and came out red.

Bill Kiernan, who contributed this item, thinks this is a gullible story!!

* * * * * *

Blue-Walled Tires.

Colored tires to match auto upholstery and finish are on the way. Goodyear Tire and Rubber will soon introduce a premium line with special sidewalls containing fade-proof dye (initially, in blue and red). What's next??? Maybe colored air for tires???

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Slot Machines to Sell British Coal in Colors. London (AP)

The British housewife soon will be able to buy colored coal to match her living room curtains.

Coal comes into most British living rooms to be burned in those cheerful fireplaces and black becomes so monotonous. National Coal Board technicians have perfected a process to dye artistically shaped lumps of coal gold, silver, red, purple, and green.

"What's more, this Easter-egg coal will be sold by slot machines in 14 and 28 pound bags, just like buying chewing gum in America," said R. W. Parker, chairman of the board's Scottish region.

* * * * * *

Color in a White World by Margaret M. Balcom.

The only color appearing on ski slopes is not in the fashionable attire of skiers. Waxes to be applied to the under surface of skis are impregnated with pigment to enable rapid and easy identification for use in different snow conditions: silver for wet snow above 28°F., red for drier snow above 28°F., blue for new snow or powder snow between 18°F. and 36°F., and green for dry snow below 23°F.

A Catskill ski resort acquired artificial snow-making machines and during the first year experimented by putting down red snow on St. Valentine's Day and, later, green snow on St. Patrick's Day. They were forced to abandon the colorful practice, however, because skiers will fall, and the pigmented snow left ugly stains on expensive ski pants.

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LIST OF ARTICLES ON COLOR RECEIVED BY NEWSLETTER

"Assuring a Perfect Match in Today's Production Painting," Warren Beach, Metal Prod. Manuf., 17, No. 12, pp. 45, 49 (1960).

"The C. I. E. System of Color Measurement," Paul J. Secrest, Off. Digest, 33, No. 436, pp. 583-596 (May 1961).

"The Color of Raw Tomato Juice," E. A. Asselbergs, G. W. Wyszecki, and W. P. Mohr, Food Technology, XV, No. 3, pp. 156-159 (1961).

"Color Rendition with Fluorescent Sources of Illumination," H. Helson, Illum. Engr., pp. 329-346 (April 1956).

"Color Shading Automation for Ceramic Tile," Anon., Ceramic News, 7, No. 8, pp. 16-17 (1958).

"Color Standards in Commerce and Industry," W. D. Wright, J. Opt. Soc. Amer., 49, No. 4, pp. 384-388 (April 1959).

"Color Theory," C. H. Graham, Psychology: A Study of a Science, Vol. I, S. Koch (Ed.), McGraw-Hill, New York, pp. 145-287 (1959).

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