

# INTER-SOCIETY COLOR COUNCIL

## NEWS LETTER No. 98

JANUARY, 1952

**News Letter Committee:**

Faber Birren  
I. H. Godlove  
Deane B. Judd  
Dorothy Nickerson

I. H. Godlove, Editor  
127 Spring Garden Street  
Easton, Pennsylvania

Dorothy Nickerson, Circulation Manager  
Box 155, Benjamin Franklin Station  
Washington 4, District of Columbia

For matters of business  
Address the Circulation Manager

Subscription price to non-members  
\$4.00 annually

**COLORISTS MEET.** The Colorists of Washington and Baltimore were scheduled to hold their second meeting of the 19th season on Monday, January 28, a dinner meeting at O'Donnell's Sea Grill, at 1221 "E" Street, N. W. No formal program was planned, but some members have agreed to report on current work.

**PHILADELPHIA-WILMINGTON COLOR GROUP** An informal dinner meeting of this group, at Alden Park Manor, Wissahickon Ave. and School House Lane, Germantown was planned for 7 p.m. on Thursday, January 10, with adjournment to hear the speaker of the evening at the Philadelphia Textile Institute, also on School House Lane. The speaker was Lt. Commander Dean Farnsworth, head of the Visual Engineering Section of the U. S. Naval Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn.; his subject: Color Vision Problems in the U. S. Submarine Navy. The prospectus of the meeting indicates that the talk will be broader than the specific title. It will include a discussion of interior color: the conditioning of submarines especially as related to color materials, the psychological and physiological considerations in their choice; the design of illumination and its relation to color and visual problems; the selection of signal lights, color codes and colors for air-sea rescue; dark adaption, and effects of ultraviolet on vision.

The speaker, Commander Farnsworth, is well known to all Color Council members as an enthusiastic investigator, writer and speaker on color lighting, vision and design, and as the creator of the Farnsworth-Munsell 100-Hue color-vision test. His reports from the Submarine Base have often been reviewed in the News Letter.

**CALIFORNIA COLOR SOCIETY** The California Color Society membership continues to grow, so they have asked for an increase of their News Letter subscriptions from the 70 copies they now receive to 85 copies for 1952. The officers for this year elected at their last meeting are: Chairman, Mr. William Manker, Color Stylist; Vice-chairman, Mr. Morris Marsh, of Jeffries Banknote Co. Miss Nancy Patterson was reelected Treasurer, and Miss Louisa King remains Secretary. Good luck to the California group. May you continue to prosper.



PHYSICAL SOCIETY  
COLOR GROUP

The 62nd Science Meeting of this Group was held on October 31, 1951, at the Lighting Service Bureau, 2 Savoy Hill, London W.C.2. The speaker of the day was Mr. P. Warburton of the Bury School of Arts and Crafts; his subject, The Appearance of Colours in Pattern Design. The effect of additive light on small interrelated areas of color was discussed, and demonstrations given of the way in which colors may be changed. The color-modification is related to the size of color area and to viewing distance, and may also change from a negative to a positive effect. There is a color change from an additive to a pigmentary effect with change in the distribution of very small color units. The application of the theory was extended to colored fibers and fabrics.

The 63rd Science Meeting of the Group was held on December 5, 1951, in the Lecture Room of the Victoria and Albert Museum, South Kensington, London S.W.7. A paper entitled "Great Painters' Techniques and Colour Reproduction" was read by Dr. H. Ruhemann, lately Lecturer-in-charge, Technology Dept., Courtauld Institute of Art; Consultant Restorer, National Gallery. The painter cannot hope, the speaker stated, to render the total visual effect of nature, but has to select and omit according to what interests him most. Similarly, processes of color reproduction are limited and cannot render everything there is in an oil painting. The color printer has to sacrifice even more than the painter; but he can try and capture all the important aspects of a given work. Color slides were shown to illustrate details of paintings by famous artists, and of paintings made by the author reconstructing the processes used by different masters. They reveal those factors which may be important in certain cases and afford an insight into the development of painting techniques.

The next meeting of the Group was scheduled for January 9, 1952, at the Institute of Ophthalmology, with the program including Light and Dark Adaptation and the Perception of Colour, by Mr. R. W. G. Hunt of Kodak Limited; and A Preliminary Report on Some Experiments on Tritanopia, by Dr. W. D. Wright of Imperial College. All these meetings were held on Wednesday afternoon at 3:30 p.m.

I.E.S. COOPERATES WITH THE C.I.E. The International Commission on Illumination (Commission Internationale de L'Éclairage) at the Stockholm Congress last June, was attended by some twenty I.E.S. members (plus numerous U.S. guests), who contributed to a rich program of information with papers and discussions. It is here most of the forthright nations join in developing international agreements on standards, terminology, testing, lighting practice, - and get acquainted! Did you know that there are sixteen or more national lighting organizations or societies in addition to the American I.E.S.? The international President is Dr. Ward Harrison (I.E.S. Past-President); the Secretary, Carl Atherton (New York); the head of the U.S. group, Arthur Brainerd (Philadelphia). - From I.E.S. News Letter No. 1, 1951-52.

I.E.S. LECTURE BY DR. JUDD The January 9 evening meeting of the Capital Section of the Illuminating Engineering Society was addressed by Dr. Deane B. Judd, in charge of Colorimetry at the National Bureau of Standards, on Highlights of the Meeting of the International Commission of Illumination. A dinner in honor of the speaker, who attended the Stockholm meeting, was held at the Neptune Room, Warner Theater Building.

EXECUTIVE COMMITTEE MEETING A meeting of the ISCC Executive Committee has been scheduled for February 6 at the Hotel Statler in New York City. It has been suggested that those attending who can do so, meet in the Cafe Rouge at 6 p.m. for dinner.



**TRAINING COURSE ON APPEARANCE MEASUREMENT** We have been informed that a training course on appearance measurement is to be conducted by Mr. Richard S. Hunter and staff of the Henry A. Gardner Laboratory Inc., Bethesda 14, Md. in the period February 11-15, 1952. It is an educational course designed to help technologists measure color, reflectance, gloss and other appearance attributes of materials. Emphasis is on the fundamental, optical and psychological factors which cause materials to appear as they do, and on the measurement of these factors. The course consists of lectures, laboratory work and individual discussions. Mr. Hunter is very well known to ISCC members as chairman of delegates from the American Ceramic Society, as very active on committees of the ASTM having to do with color, gloss and appearance generally, and for his design of instruments used for the measurement of these properties.

**G.E. 1951 COLOR MEASURING COURSE** From the December, 1951 issue of the General Electric Company "Spectrophotometry Digest," we learn that this course was conducted during July 16-27, 1951, with 26 students attending. Guest lecturers included Dr. E. I. Stearns of Calco Chemical; Dr. J. L. Saunderson of Dow Chemical Co.; G. W. Ingle of Monsanto Chemical Co.; H. F. Davidson of General Aniline & Film Corp.; Frank O'Neil of Pacific Mills; Roland Derby of Derby Co.; Professor A. C. Hardy of M.I.T.; and Dr. N. F. Barnes of General Electric Co.

**HAND-TYPE INTEGRATORS** From the same source we learned also that, due to the advent of the GAF Librascope automatic Tristimulus Integrator, General Electric, which handles its sale, will discontinue the production of the hand-type integrators. These will be offered at an attractive price to exhaust the present stock.

**COLOR VIGNETTE NO. 8** We are told that the great Greek painter, Zeuxis, who flourished at the end of the 5th century B.C., painted a boy carrying grapes and was praised because the birds came and pecked at the grapes. But praise for this perfection displeased Zeuxis who retorted that if he had painted the boy better, he would have scared off the birds.

I.H.G.

**PAGING COLOR-THERAPY EXPERIMENTS** Individual member Walter A. Woods, formerly with the Barmore School in New York, now at Fort Hays, Kansas State College, Hays, Kansas, writes that the color aptitude test he discussed with your secretary about a year ago is now available through the C. H. Stoelting Company. (As soon as complete information is received, the test will be described and reviewed for News Letter readers.) He is now working on the design of an experiment in color therapy in mental institutions, very possibly to be conducted in one or more institutions in the state of Kansas. He also asks that mention be made of this in the News Letter so that if there are others who are conducting experiments they might get in touch with him for the purpose of mutually aiding each other. Are any of our members conducting such experiments, or are they associated with those who are? If so, please write either to Mr. Woods directly or to your News Letter editor who will be glad to pass along the information.

**COLOR HARMONY MANUAL** The Directory of Owners of this color system, published by the Container Corporation of America, gives a useful list of organizations and individuals interested in



color, control problems, and is conveniently divided into the groups: (1) Advertising, Printing and Publishing; (2) Artists, Architects, Designers et al; (3) Industry; (4) Merchandising; (5) Paint Manufacturers and Dealers; (5) Contracting Painters and Decorators; (6) Paper and Ink; (7) Schools, Libraries and Museums; (8) Textiles, Wall and Floor Coverings; and (9) foreign owners in 28 countries. Our curiosity as to the number of owners was satisfied in a letter dated December 17, 1951. It was about 1900, including 500 dating from the time of the preceding list about 18 months earlier.

**TINTOMETER BOOKLETS** Early in November, 1951, we received three interesting booklets from Mr. F. J. Heath, Sales Manager of The Tintometer Ltd., The Colour Laboratory, Salisbury, England, who are the makers of the Lovibond Colour Scale, best known in the vegetable-oil industry where it has been in widespread use for many years. The first of these is a 34 page booklet, The C.I.E. International Colour System Explained, by C. J. Chamberlain. This is a very well written booklet designed to explain the C.I.E. (or I.C.I.) system for the specification of color to the non-technical reader. It is well illustrated with many figures, including four in full color. After an elementary discussion of color concepts and terms the C.I.E. system is simply explained, using a minimum of mathematics. The C.I.E. specifications of a few common materials are given in a table with parallel readings on the Lovibond-Schofield Tintometer. Appendices introduce the equilateral "color triangle" and give the mathematical background of the C.I.E. system and a glossary of six terms. The price is 5/-.

"Colour and the Visual Measurement, the Story of the Lovibond Colour Scale," by A. J. Fawcett is a slightly larger (52 pp) booklet also consisting of simple explanations for non-technical readers. This is illustrated with 27 figures. Besides elementary explanations, the booklet deals with many practical examples of color measurement and specification. Its price is 1/6. The third booklet is "Electric Eyes," also by Mr. Fawcett. This is a "concise and elementary description of the photo-electric cell, for the non-technical reader: its uses in industry, and its uses and short-comings in colorimetry." The quoted subtitle seems to describe accurately this 28-page booklet, which is well illustrated with a number of well-executed figures, and contains a glossary of over 40 terms. The price is 1/6.

**COLORS OF GEMSTONES** The following table has been compiled from a very interesting 75-page booklet issued by The Geological Museum of South Kensington, London, A Guide to the Collection of Gemstones in the Geological Museum. The first edition was published in 1912, a third in 1951. The tables from which the following table is taken contain considerable detailed information: specific gravity, hardness, refraction (whether single or double), refractive indices, and degree of dichroism, if any. The original report can be purchased at 3s, od. Net. It is published by H. M. Stationery Office, London.



Colorless Stones	Red and Pink Stones	Yellow and Brown Stones	Green Stones	Blue Stones	Purple and Violet Stones
Zircon	Zircon	Cassiterite	Zircon	Zircon	Almandine
Corundum	Almandine	Zircon	Corundum	Sapphire	Corundum
Synthetic spinel	Spessartine	Spessartine	Demontoid	Kyanite	Spinel
Topaz	Ruby	Corundum	Alexandrite	Benitoite	Kunzite
Diamond	Pyrope	Chrysoberyl	Epidote	Spinel	Fluorspar
Tourmaline	Spinel	Hessonite	Idocrase	Topaz	Amethyst
Danburite	Topaz	Topaz	Olivine	Apatite	
Phenakite	Kunzite	Diamond	Diopside	Tourmaline	
Berryllonite	Tourmaline	Epidote	Hiddenite	Aquamarine	
Beryl	Morganite	Sphene	Andalusite	Cordierite	
Rock-crystal	Scapolite	Idocrase	Fluorspar		
Hambergite	Fire Opal	Axinite	Tourmaline		
		Apatite	Euclase		
		Spodumene	Emerald		
		Andalusite	Aquamarine		
		Fluorspar			
		Tourmaline			
		Beryl			
		Scapolite			
		Quartz			
		Orthoclase			

#### YELLOW AND RED IN AIR-SEA RESCUE

We have received copy of the report, The Detectability of Yellows, Yellow-Reds and Reds, in Air-Sea Rescue, by Florence L. Malone, Mary S. Sexton & Dean Farnsworth,

Medical Research Laboratory (U.S. Naval Submarine Base, New London, Conn.) No. 182, pp. 177-185 from vol. 10 (Color Vision Report No. 25). In this work, the effectiveness of the yellow currently used for lifesaving equipment as compared with a graduated series of yellows, yellow-reds and reds (from 7.5YR 7/8 to 5R 7/8), was investigated. The experiment also investigated the use of a pair of chlorophyll detection goggles (1635½ Eastman Kodak Company) as a means of increasing the visibility of the colors in this range. Observations were made outdoors in sunlight at distances of fifty to 130 feet from the targets. The test colors were ¼" circles mounted on blue-gray boards representing the colors of the sea under three different weather conditions. The results indicate that the current yellow of the rubber of lifeboats (10YR) is a poor choice for lifesaving equipment, that orange-reds of the same brightness are more visible, and that the use of the 1635½ detection goggle does not increase the visibility of the colors tested.

#### COLOR VIGNETTE NO. 9

Antiquity used to chuckle over the rebuke of Alexander the Great by the famous Greek painter of his time, Apelles. The story goes that Alexander failed to praise enough his equestrian picture by Apelles; but the pictured horse of the Conqueror caused his real horse, Bucephalus, to prance and neigh. "King," then said Apelles, "your horse is a better judge of painting than you are." It was Apelles who, on another occasion when Alexander was speaking not too knowingly about painting told the king to keep still lest the boys grinding his pigments should laugh at him.

I.H.G.

#### BOOK ON COSTUME

Through a letter to our Secretary, from Paul Goward of the Davis Press, Inc., Printers Building, Worcester 8,



Mass., we have heard about the book by Rose Netzorg Kerr entitled "100 Years of Costumes in America." The Editor well remembers four fine portfolios of "Interpretive Costume Design" by Miss Kerr, published in 1925-26, because of her fine pen and brush drawings and the descriptions of the colors of the costumes. These dealt with Egypt, Greece and Rome; the Orient; the Age of Chivalry; and America in 1620-1860. The present book is described as a pageant of costumes passed in review for the past hundred years. It contains a compact set of facts about the materials used, the history of each period that affected the styles and the many quotations from the magazines of the day about the costumes.

PAPERS BY DR. WRIGHT We recently received reprints of two 1951 papers by Dr. W. D. Wright of Imperial College, London, noted color worker who is to be our foreign guest speaker at the coming ISCC annual meeting. Both are reprinted from volume LXIV of the Proceedings of the Physical Society. The first paper (pp. 289-97) is on The Role of Convergence in Stereoscopic Vision. Various theories stress in particular the relative importance of convergence and retinal disparity, the latter being at present generally held to make the main contribution. In this study an apparatus for testing stereoscopic acuity is used to judge the relative depth positions of two apertures under two conditions. From a comparison of the acuity for the two conditions for various angular separations, deductions were made as to the relative contributions to stereoscopic vision of convergence and retinal disparity. The results indicate that convergence is the predominant factor at 20° separation. For 14°, the acuity for one condition is due entirely to convergence, since the blind spot interferes with the retinal disparity. Small eye movements do not play any important part in depth perception. The presence of depth perception under conditions of gross diplopia was confirmed, indicating that fusion is not an essential item for three-dimensional vision.

The second reprint (pp. 537-49) is a report of the 17th Thomas Young Oration, delivered by Dr. Wright on the 23rd of February, 1951. The title is Modern Problems of Colorimetry, which well indicates the contents, is a brief statement which discusses the subject under the following heads: Introduction, Photometry, Standard Mixture Curves, the Dissemination of Colour Knowledge (starting with Guild in 1926), Instrumental Developments (including the fluorescence-error problem), Subjective Colour Measurements (starting with Holmes 1941 work on the colors of light signals). On p. 545 he quotes White and Vickerstaff on the preeminence of the Americans in colorimetry. One naturally wonders if this leadership has been maintained here in the seven years since White and Vickerstaff's remark.

1952 SPRING HOSIERY COLORS We are informed by Margaret Hayden Rorke, Managing Director, of the Textile Color Card Assoc. of the U.S., Inc., that the Confidential Advance Hosiery Card for 1952 has been issued by the Association. This features six light colors, called Blondine, Down-cloud, Jeunesse, Noisette, Sunbreeze and Benedictine, ranging from a pale blond to "warm sunblush" and "burnished" shades. These are portrayed on the card in 15-denier nylon. They differ noticeably from each other and are designed to harmonize with the color range of spring costumes and shoes.

ANCIENT PIGMENTS Two recent articles by Marie Farnsworth will be of much interest in connection with the history of the pigments used by the ancients. They are published in J. Chem. Education 28, 72 (1951) and Amer. J. Archaeology 55, 236 (1951). The colorants used by the ancients are in general pretty well known to us from findings of lumps of pigments in



excavations, wall paintings, architectural decorations and painted sculpturings, terra cotta decorations and literary sources. The second article supplies information on a gap in our knowledge, that on ancient rose madder. The first article deals with pigments found by Prof. Oscar Broneer in a well on a property which was either a factory for production of architectural terracottas, terracotta figurines, pottery or a supply shop. They were dumped in the well in the city of Corinth, probably when it was destroyed by Mummius in 146 B.C. One inscription on a vessel referred to cinnabar (vermillion  $\text{HgS}$ ). Other pigments were red, yellow and brown ochers; a mixture of reddish orange realgar and clay yielding a buff color, charcoal, gray and white dolomite ( $\text{MgCO}_3$ ) and gypsum; and red tetragonal litharge ( $\text{PbO}$ ). The Egyptian blue, which we have discussed in the News Letter, was used in Greece but not produced there. It was the universal blue for fresco painting in Rome in Imperial times, but disappeared from the artist's palette between the 2nd and 7th centuries, after originating in Dynasty II (2750 - 2650). Several lumps of this were sent from Corinth. Some were a pure blue; others, due to overheating, were greenish. A sample of rose madder (see review of the second article) was not as pure as the modern material. The Metropolitan Museum has a terracotta statuette with this coloring. A sample from the Agora of Athens was more purplish, due to admixture of blue frit.

The list of pigments used by the ancients, as given here, was: White: chalk, gypsum and white lead; black: charcoal, lampblack and boneblack, some pyrolusite; yellow: yellow ochre and orpiment; red: ochers, cinnabar, realgar, and (later) red lead; pink: madder or a mixture of white with red ochre; blue: azurite and Egyptian blue; brown: ochers; green: malachite, chrysocolla, green frit or usually a mixture of blue frit and yellow ochre, verdigris and terre verte.

The second article deals entirely with 2nd century B.C. rose madder from Corinth and Athens. Spectral reflectance curves for a Greek madder and for a modern English one are shown. Madder is a natural dye from the root of the herbaceous perennial, Ruba tinctorium, which is native to Greece. Its principal colorant is alizarin (modern turkey red) modified by the related purpurin. It is used on an aluminum "hydrate" base. The lumps examined were of a pink color tending toward violet. The ancient sample was not as pure as the modern one as indicated by a flatter curve. The article mentions some examples of early uses of madder rose (or "Hellenistic pink"); but none are as early as the Corinthian sample.

THE ART OF COLOR AND DESIGN By Maitland Graves; McGraw Hill Book Co., New York, 1951; 439 pp. 2nd Ed. Ten years have passed since the first edition of this work. More than five of them have passed since the present reviewer wrote a review of the first edition (see News Letter No. 66, Sept., 1946, pp. 7-8). The interval has apparently been profitably employed by the author. The present (second) edition has been greatly enlarged and enriched with over 200 illustrations and new exercises. This is consistent with the opening sentence of the author's "Conclusion" (p.418), which reads: "Although words about art may suggest the reality, complete comprehension comes only through practice." The whole organization of the book recalls that of the laboratory manuals in, say, courses in chemistry. It is filled with good exercises and good questions. Judged in this sense, the book is excellent. There are many suggestions for obtaining working art materials and the book is replete with suggestions of practical schemes for utilizing and applying the standard art principles, in the way one uses the principles of counterpoint and harmony in music.

Nevertheless, the reviewer is inclined to repeat two sentences from his 1946 review



with a slight favorable modification: "The initial impression of Graves' book is very favorable, but a sustained examination leads to disappointment. There is much that is good; but considerable that is not so good." It is perhaps unfair for a reviewer with scientific background to expect precise statement and clear logic in a work on art. But it is in this direction, apart from a lack of anything fundamentally new, original or personal in the author's approach, that the reviewer felt the greatest lack before; and his reaction now is only slightly improved. For Graves' own thesis centers around the utilization of the improved understanding which comes from logical analysis and the precision which comes from practice, as opposed to sheer expression of emotion.

An illustration may help to understand our objections. The book makes unity practically synonymous with the principle of emphasis or dominance and subordination (see pp. 352 and 389). This is Graves' all-important principle. One need only remember this principle (and eliminate cases of very poor balance) to score 95% or more on the author's art-aptitude test. "Unity requires that one kind of line, shape, direction, texture, value and hue be dominant. Dominance or emphasis is produced by making one of the competing units larger, stronger in value contrast, and/or stronger in chroma....." (p. 157). We are warned (p. 100) that a combination of harmonious units does not necessarily produce unity. This seems illogical. For if harmony is similarity, as Graves' states, and we remember that there is a high degree of unity in similarity, then harmony must in this case lead to unity, as most writers on esthetics believe. Also, one may consider dominance solely on its own merits. Surely anyone will admit the value of the dominance principle. But it is difficult to accept it as the all-conquering, almost the sole, art principle. Let us consider a concrete case. The reviewer's colleague, Hugh Davidson, has been preparing some charts of wool dyeings all at constant (low) chroma. These charts are beautiful in spite of monotony. More importantly, they are harmonious, and there is present the maximum of unity (it is hard to imagine more unity). But there is absolutely no dominance of any recognizable sort.

One other lack is felt only after careful study of the book. Its last third gives numerous plans for selection of value and color schemes. There are "D Color Chords," "W Color Chords," "D Value Plans," and "D Chroma Plans," and so on. D and W refer to dark-on-light or light-on-dark schemes. Tables of these schemes and their explanations make up a considerable portion of the book. But the plans all refer apparently to four colors, which yield six intervals or contrasts. The implication is that there are no good color schemes containing only two or three colors, or with five colors; or at least, if there are, Graves does not help one to find them. One ventures to say it is easy to find many very good color schemes which cannot be fitted into any of the book's plans. Admittedly this is not a damning objection. For if the main function is to help an art student to strengthen his art-expression muscles through exercise, then this increased potency can come from exercises limited to four-color combinations for the sake of convenience. But at least the author should explain that four-color schemes, while good, are not uniquely valuable.

In his 1946 review the reviewer stated some other similar objections; but little would be gained by repeating them. He wishes to repeat, however, that there is much that is good in the work. The book is beautifully illustrated, some of the figures in full color; and it is well organized. Part One deals with the elements of design line, direction, shape, size, texture, value and color - (why not hue, chroma, transparency, etc?); Part Two with the principles of design (harmony, gradation, contrast, dominance, unity, balance, etc.); and Part Three with an



analysis of the design elements (a chapter to each); finally, after the Conclusion, is a Glossary. A commendable element is the use of a well organized color system (the Munsell system) as a framework of reference in the tables of color combinations. The illustrations are numerous and excellent and the text lucid. All in all, the author and the publishers are to be congratulated on a notable achievement.

I.H.G.

- BIBLIOGRAPHY E. B. Knott; J. Org. Chem., 1024 (April, 1951); The colour of organic compounds. Part I. A general colour rule. Part II. Colour phenomena of bis-2-(3:5-diphenylpyrrole) methins.
- S. J. Koch & R. E. Rutherford (to Allen B. duMont Laboratories, Inc.); U. S. Patent 2,544,690 (1951); Color television
- M. Koomen, R. Scolnik & R. Tousey; J. Opt. Soc. Amer., 41, 80, (Feb., 1951); Study of night myopia
- H. Kubota; J. Opt. Soc. Amer., 40, 621, (Sept. 1950); On sensitive color
- H. Kubota & T. Ara; J. Opt. Soc. Amer., 41, 16, (Jan., 1951); Further study of the interference color
- H. Kubota, T. Ara & H. Saito; J. Opt. Soc. Amer., 41, 537 (Aug., 1951); On the sensitive color of chromatic polarization
- E. Lafitte; Compt. rend. 232, 812-4 (Feb. 26, 1951); Luminescence of dyestuffs in solid solution in plexiglass
- E. H. Land; Photographic J., 90B, 98 (July-Aug., 1950); Colour translating microscope
- H. C. Lane; Photographic J., 90B, 2 (Jan.-Feb., 1950); Binocular vision and stereoscopic reconstitution
- J. L. Lauer & E. J. Rosenbaum; J. Opt. Soc. Amer., 41, 450 (July, 1951); Photoelectric measurement of fluorescence spectra of highly colored liquids
- J. L. Lauer; J. Opt. Soc. Amer., 41, 482 (July, 1951); Correction for light absorption in fluorescence and light scattering measurements
- L. G. Lawrie; Chapman and Hall (1949); Bibliography of dyeing and textile printing
- S. E. Lee; New Philosophy, 1949, 362-68; Notes on the philosophy of color
- H. W. Leverenz; John Wiley & Sons (1950) An introduction to luminescence of solids
- A. Linksz; "Optics", Grune & Stratton, New York, 1950. Pp. 334 + xii. Figs. 137. Price \$7.50, review by S. S. Ballard, J. Opt. Soc. Amer., 41, 860 (Nov., 1951)
- G. E. Long; J. Opt. Soc. Amer., 41, 743 (Nov., 1951); Effect of duration of onset and cessation of light flash on the intensity-time relation in the peripheral retina
- E. M. Lowry; J. of the Soc. of Motion Picture and Television Engineers, 57, 187-196 (Sept., 1951); The luminance discrimination of the human eye



- R. K. Luneburg; J. Opt. Soc. Amer., 40, 627 (Oct., 1950); Metric of binocular visual space
- S. J. Luscian; Am. Dyestuff Repr., 40, 761-764 (Nov. 26, 1951); Modern use of vat dyes in the textile industry
- D. L. MacAdam; Standardization 22, 176-8; A guide for measurement of color (New ASA standards)
- D. L. MacAdam; Rayon and Synthetic Textiles, XXXII, 64 (June, 1951); Measurement of color
- D. L. MacAdam; J. Opt. Soc. Amer., 41, 615 (Sept., 1951); Influence of visual adaptation on loci of constant hue and saturation
- D. L. MacAdam; J. Soc. of Motion Picture and Television Engineers, 57, 197-205 (Sept., 1951); Influence of color of surround on hue and saturation
- F. H. McIntosh & A. F. Inglis; J. Soc. Mot. Pictures and Television Engineers, 55, 343 (Oct., 1950); Color television
- C. R. Marsh & C. B. Pickle (to United States of America as represented by the United States Atomic Energy Commission); U. S. Patent 2,551,542 (1951); Fluorophotometer
- M. G. Mellon, Editor, "Analytical Absorption Spectroscopy", John Wiley & Sons, Inc., New York, 1950. Pp. 618 + vii. Price \$9.00
- E. P. Mersereau & L. W. Rainard; Textile Research J. XXI, 239 (April, 1951); Color changes in wool during processing
- C. E. Metheny, L. R. Alexander & S. Turner; U. S. Patent 2,539,457 (1951); Method and apparatus for coloring oleomargarine
- P. L. Meunier; Amer. Dyestuff Repr., 40, P51 (Jan. 22, 1951); Dyeing of new synthetic fibers
- W. Michels; Phot. J., 90A, 185 (June, 1950); The aesthetics of colour
- W. E. K. Middleton & Eleanor G. Mayo; J. Opt. Soc. Amer., 41, 513 (Aug., 1951); Variation in the horizontal distribution of light from candlepower standards
- W. E. K. Middleton & C. L. Sanders; J. Opt. Soc. Amer., 41, 419 (June, 1951); Absolute spectral diffuse reflectance of magnesium oxide
- H. E. Millson & L. H. Turl; Textile Research J., 21, 685-702 (Oct., 1951); Microscopical dyeing phenomena; studies with the microdyeoscope
- E. H. Mohr; U. S. Patent 2,551,622 (1951); Illuminated plastic advertising medium
- J. Noar; Photographic J., 91B, 99-101 (Sept.-Oct., 1951); A monogram for photographic spectrophotometry
- P. Moon & D. E. Spencer; J. Opt. Soc. Amer., 41, 98, (Feb., 1951); Slide rule for lighting calculations



- P. Moon & D. E. Spencer; J. Franklin Inst., 251, 453-66 (April, 1951); Modelling with light (for optimum tridimensional effect)
- G. A. Morton (to Radio Corp. of America); U. S. Patent 2,536,305 (1951); Art of examining the eye with infrared rays
- F. A. Mote & A. J. Riopelle; J. Opt. Soc. Amer., 41, 120 (Feb., 1951); Effect of varying the light-dark ratio of intermittent pre-exposure upon subsequent dark
- K. Motokawa, M. Ebe, Y. Arakawa & T. Oikawa; J. Opt. Soc. Amer., 41, 478 (July 1951); Studies of rod-process by polarization method
- C. G. Mueller; J. Opt. Soc. Amer., 41, 278 (April, 1951); review of "Les Theories Photochimiques Classiques et Quantiques de la Vision et l'Inhibition Nerveuse en Vision Liminaire (Photochemical Theories, Classical and Quantal of Vision and Neutral Inhibition in Threshold Vision)" by Ernest Baumgardt, Revue d'Optique theorique et instrumentale, Paris, 1950. Pp. 60. Price 300 francs
- A. Murray (to Eastman Kodak Co.); U. S. Patent 2,566,290 (1951); Multicolor printing device
- G. Murray (to Dufay-Vhromex Ltd.); U. S. Patent 2,567,492 (1951); Plural film color camera, including hinged film gate
- H. E. J. Neugebauer; Phys. Bl. No. 1, 20-30 (1951); A model of the events occurring in the retina as derived from the facts of color vision
- J. P. Niederhauser; Teintex 15, 109-23 (1950); Copper salts decrease fastness to light of vat dyes (a few improved)
- D. Norwood; J. Soc. Motion Pictures & Television Engineers, 54, 585 (May, 1950); Light measurement for exposure control
- K. N. Ogle; "Researches in Binocular Vision", W. B. Saunders Co., Philadelphia, 1950. Pp. 345 + IX, Figs. 182. Price \$7.50
- K. N. Ogle; J. Opt. Soc. Amer., 41, 517, (Aug., 1951); On the resolving power of the human eye
- Max S. Oldham; J. Opt. Soc. Amer., 41, 673 (Oct., 1951); Infrared reflectometer
- D. M. Packer & C. Lock; J. Opt. Soc. Amer., 41, 473 (July, 1951); Brightness and polarization of the daylight sky at altitudes of 18,000 to 38,000 feet above sea level
- R. H. Leckham; J. Opt. Soc. Amer., 41, 23 (Jan. 1951); Visual acuity through various types and grades of sun glasses
- C. E. Peterson & H. L. Gibson; Med. Radiography & Photog. 27, p. 14-7 (1951); Photographing fluorescent objects in color
- M. H. Pirenne; Research, 4, 508-15 (Nov., 1951); Limits of the visible spectrum
- E. L. Pirkey et al; Radiology 57, 81-2 (July, 1951); Color as a teaching aid for diagnostic roentgenology
- A. Polack; Compt. rend. 231, 1257-9 (1950); Color vision and its anomalies
- P. Raibourn; U. S. Patent 2,567,401 (1951); Process of producing colored photographs



INDEX OF SPECIAL ARTICLES Previous indices may be found in News Letters No. 34 (March 1941, for Nos. 1 to 34, October 1933 to 1941); No. 44, (November 1942); No. 50 (November 1943), No. 58 (March 1945), No. 63 (January 1946), No. 68 (January 1947), and No. 79 (November 1948)

## No. 80 (January 1949)

The Old Dingy Sweater (Verse; Gibson)  
 Egyptian Blue (Godlove)  
 Harris' Early Color Circle (Blake)  
 Sequence of Fashions (J. Photography)  
 Note on Scarlet (H. Belloc)  
 GAF-Librascope Tristimulus Integrator (Godlove)  
 Bibliography (2 pp.)

## No. 81 (March 1949)

Will Color Photography Copy Colors Exactly (Evans)  
 Martin-Senour Color Coordinator  
 "Duo Color Guide" (Graphic Publ. Co.)  
 Purple Cows (Burgess & C. Wells)  
 "How Light Affects Color"; criticism (Birren)  
 Color in Early Civilizations (Reviews of Welker and of Zacharias; Godlove)  
 Color Conditioning (Birren)  
 I.C.I. National Committees

## No. 82 (May 1949)

Decorating With Color (Gladys Miller)  
 Villalobos Color Atlas  
 Color Harmony Manual, 3rd Ed.  
 Adaptation and Neutral Point (Helson & Michels)  
 "The Color Of Life" by Abbott (Judd)  
 Acquired Color Blindness (letter Farnsworth)  
 Color-blindness Bibliography (Judd)

## No. 83 (July 1949)

Letter from C. Villalobos-Dominguez  
 "Language of Drawing and Painting" by Pope (Evans)  
 "The Limitation of Color" by Wright (Stearns)  
 "Basic Color" by Jacobson (Birren; Godlove)  
 Plochere-Munsell Conversion (Middleton)  
 Ancient Dyeing (Godlove)

## No. 84 (September 1949)

Churchill and Bright Colors  
 Bibliography (7 pp.)

## No. 85 (November 1949)

Operation Rainbow  
 Ridgway Conversion to Munsell (Hamly)  
 Replies to Foss Review  
 Bibliography (2 pp.)

## No. 86 (January 1950)

Light Reflections (Godlove)  
 Faraday (verse; Adams)  
 On the Redness of Red (Reply to Doner by Godlove)  
 Colorimetry of Titanium Pigments (Judd)  
 Christmas Colors (Godlove)  
 Bibliography (3 pp.)

## No. 87 (March 1950)

Color Code for Gears  
 Operation Rainbow again  
 Too Much Too Late (verse; Godlove)  
 Glaze and Glass Color (Godlove)  
 Colors for Urea Plastics (NBS)  
 Physiological Optics II; Light and Color (Middleton)  
 Objective and Subjective (Munsell)  
 Colored Threads of Revolt (a story; Godlove)  
 Tribute Colors (Godlove)  
 Bibliography ( $\frac{1}{2}$  p.)



## No. 88 (May 1950)

"Fading of American, British and German Light-fastness Standards" by Godlove (Nickerson)  
 Cotton Colorimeter (Nickerson, Hunter & Powell)  
 Judgment of Appearance (letter, Hunter)  
 Spectrophotometry bulletin (Gibson)  
 Tests for Color Perception (Freeman)  
 No Blues in Color Preferences (Stuart)  
 Letters from an Artist (Scott Williams)  
 F.B.I. Appearance Form, etc. (Duncan)  
 Vision Review (Bartlett)  
 Anomaloscope (Louise Sloan)  
 Bibliography (2 pp.)

## No. 89 (July 1950)

New Color Technique at Rochester (Evans)  
 Color Charts (NBS; Judd)  
 Colorimetry (NBS; Judd)  
 Fading of Colored Materials (Taylor & Pracejus)  
 ISCC-NBS Color Names (their success) (Godlove)  
 Measurement of Dye Strengths (Stearns)  
 Color of Pigment Mixtures (Duncan)  
 "Analytical Absorption Spectroscopy" by Mellon et al (Godlove)  
 "Color Psychology" by Birren (Godlove)  
 Bibliography (3 pp.)

## No. 90 (September 1950)

Color Mixtures (Villalobos-Dominguez) (and note by Judd)  
 BCC "Dictionary of Colours" (Conquergood)  
 Nickerson-Gardner Colorimeter  
 ISCC-NBS Color Names (Godlove)  
 Scythian and Asiatic Art and Color (Godlove)  
 Bibliography (2 pp.)

## No. 91 (November 1950)

Red and Green with Van Gogh (Granville)  
 Color Television (Nickerson 2 items)  
 Color Harmony Manual (Cox; Harris)  
 Canadaink (Conquergood)  
 Saffron and Amber (Godlove)  
 Color in Design (Balinkin)  
 ISCC-NBS Color Names (Godlove)  
 On the Grayness of Grey (Godlove)  
 Bibliography (1½ pp.)

## No. 92 (January 1951)

New Photometric Units (NBS)  
 Color Television (Nickerson)  
 Color Note for A & P Stores (from Bakun; Godlove)  
 Descriptive Color Names Dictionary (Taylor, Knoche & Granville)  
 Color In Men's Clothes (Twyeffort)  
 Seven Colors of Ecbatana (Godlove)  
 Color-vision Tests (Elsie Murray)  
 Colors of Parchment and Vellum (Godlove)  
 Royal Inst. Christmas Lectures (Hartridge)  
 Colors of the Mosaic of the Phoenix (Godlove)  
 Color and Hopalong  
 ISCC-NBS Color Names (Godlove)  
 Permanency of Paints (Duncan)  
 Bibliography (1½ pp.)

## No. 93 (March 1951)

Gray Finishes (ASA)  
 Kodak Color Handbook  
 Color Becomes a Science (Evelyn Julesgaard)  
 Your Dad and My Dog (a story: Godlove)  
 Metameric Colors (Simon)  
 Color for Profit (Cheskin)  
 Colour (collected reprints by British ICI; Godlove)  
 Small-Difference Color Formulas (Nickerson)  
 Color-Difference Formulas (Godlove)  
 Brightness Limitation of Textile Colors (Davidson)  
 Bibliography (1½ pp.)



No. 94 (May 1951)

SMFE Report and Bibliography  
 Blond and Brown, Greek vs. Greek  
 (Godlove)  
 A.S.A. Standards for Color  
 Mass-Market Color Names (Byerly;  
 Nickerson)  
 Munsell Notations in Medicine  
 (Bernard Appel)  
 "Reproduction of Color" by Hardy &  
 Wurzburg (Godlove)  
 Bibliography (5 pp.)

No. 95 (July 1951)

Color Television (Nickerson)  
 Color Vignettes No. 1 & 2  
 (Balinkin)  
 Color in Design (Javits)  
 Color Problems in Plastics (Clark)  
 The First Painter (Ajjul painter)  
 (Godlove)  
 Color at the Bar and Smoke Chart  
 (Duncan)  
 Classical Greek Color Terms  
 (Godlove)  
 Nu-Hue Color Harmony  
 Bibliography (4 pp.)

No. 96 (September 1951)

Color Vignettes No. 3 & No. 4  
 (Balinkin)  
 Color Helm for Interior Decorators  
 (Gangler)  
 Color Harmony Manual Coordinated  
 with Martin-Senour Paints  
 (Nickerson)  
 Color Foretells the Weather  
 (Conquergood)  
 What's New in Spectrophotometry  
 (Stearns)  
 Royal Purple and White (Godlove)  
 Bibliography (3 pp.)

No. 97 (November 1951)

Color Vignettes Nos. 5, 6 & 7  
 (Flynn; Balinkin & Godlove)  
 Balinkin's Thinkin' ("M.A.J.")  
 Color in Business, Science and  
 Industry (Judd)  
 Pink Cake and Blue Potatoes  
 (Margaret Balcom)  
 Planning Product Colors (Ketchum)  
 Dimmick's Seven Unique Colors  
 (Boring; Judd)  
 Color Science and the Artist  
 Triangle of Color Relations  
 (Godlove)  
 Papers on Vision (Chapanis,  
 Sloan, Dimmick et al; Godlove)  
 A Suntile Kitchen (Charlotte  
 Conway)  
 Artists and Color (quotations)  
 Bibliography (5 pp.)