

INTERSOCIETY COLOR COUNCIL

NEWS LETTER No. 101

JULY, 1952

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NEW INDIVIDUAL MEMBERS

The Executive Committee met on June 24th at the Hotel Statler in New York City. The following people were elected to individual membership:

WILFORD S. CONROW, Hotel Irving, 26 Gramercy Park So., New York 3, N.Y. Long active in the American Artists Professional League. Particular interest: The assurance of color permanence in works of art and the study of the various systems for expressing color harmony. Member of American Artists Professional League.

MARIE FARNSWORTH, 276 West 11th St., New York 14, N. Y. Now with Metal and Thermit Corp., who manufacture opacifiers. Particular interest: Artists' pigments and ceramic colors. Member of American Society for Testing Materials and OSA. (For review of her articles, see News Letter No. 98, pp. 6-7).

W. P. FULLER & CO., A. P. Pahl, Technical Director, P. O. Box 111, South San Francisco, California. Particular interest: Color standards and use of color in finishes of all kinds. Member of American Oil Chemists' Society, American Society for Testing Materials, Federation of Paint and Varnish Production Clubs.

PAUL J. GRAYSON, 500 East 51 Street, Brooklyn 3, New York. Particular interest: Effective presentation of educational material on color to High School students, organizations, and clubs; color selection for industrial plants, offices, and retail establishments; color selection for living areas. Member of Illuminating Engineering Society.

GEORGE J. HARLES, 72 West Adams Street, Chicago 90, Illinois. Particular interest: Color treatment in residential and office areas, and environmental effect of color with regard to work production.

HENRY HEMMENDINGER, R. D., Belvidere, New Jersey. Particular interest: Development of improved methods of color specification, especially for fluorescent systems; extending the use of tri-dimensional color specifications in textile-coloring problems now treated by more primitive descriptions of color. Member OSA, American Physical Society, and Astronomical Society of America.

CONSTANCE VIRGINIA LINGENFELTER, 29 State Street, Seneca Falls, New York. Particular interest: Color standardization of TV industries and calibration and correlation of color-texting equipment.

GORDON L. MONSEN, 22 East Illinois St., Chicago 11, Illinois. Particular interest: Color light, color filters, and color printing. Member of Litho Technical Association.

HELEN SISSON REDEFER (Mrs.), 32 King St., New York 14, N. Y. Particular interest: A more scientific approach to color in fashion merchandise and greater standardization in color nomenclature. Member of Textile Color Card Association of The United States, Inc.

CATHERINE F. YOUNGQUIST (Mrs.), Sylvania Electric Products, Inc., 254 Rano St., Buffalo 7, N. Y. Particular interest: Color tolerances in production, selling with color, measurement of color, and psychological effect of color.

1953 MEETING At the June 24th Executive Committee Meeting it was decided that the date for the next ISCC meeting will be Wednesday, March 18, 1953, at the Hotel Statler in New York City. This will be on the day preceding the annual meeting of the Optical Society.

CALIFORNIA COLOR SOCIETY On June 18th, this society held a meeting at Art Center School Auditorium, 5353 W. Third Street, Los Angeles, and were regaled with a lecture and practical demonstration on Custom Fabric Printing, by Eric Erickson and Tony Sharrer of Eric Hand Prints, Los Angeles, two men in this field who have received numerous awards for their work.

From Mrs. Louisa E. King, Secretary, who with her husband is very well known to many ISCC members, we received reports of the May 14 and June 18 meetings of the California Color Society, which we had previously noted were scheduled for these dates. On the earlier date the society held one of its most successful meetings when Ralph Evans presented his lecture on the "Expressiveness of Color" to a very enthusiastic and appreciative capacity-audience in the Art Center School Auditorium. Miss Elizabeth Franklin, Past C.C.S. chairman, held a cocktail and buffet party in Mr. Evans' honor, which was attended by many of his old and new friends, who thought they saw too little of him during his brief stay on the coast. For the color people on the West Coast, Mr. Evans' visit was, as usual, a great stimulus and inspiration, and Mrs. King expressed the hope that the West Coast's contact with East Coast friends will be more frequent in the future.

We have previously mentioned the nature of the lecture and demonstration by Mr. Eric Erickson and Mr. Tony Sharrer on June 18. Mrs. King adds that they gave some excellent pointers on technique with screen printing by actually printing several yards of drapery material during their demonstration. Many of their stock designs for drapery are printed to the color specifications of their customers; and Mr. Erickson found it difficult to detect any very emphatic color trends in their sales except perhaps one toward "subtle earth colors" and one towards the practically complete exclusion of blues.

NEW YORK COLORISTS Through the courtesy of ISCC Secretary Evans and Chairman Stearns, we received a 5-page copy of the first draft of the constitution and by-laws of the New York Colorists. Our readers will remember that there was an informally organized color group previously

meeting in New York. The new constitution indicates that the present group may adopt a more formal organization. We also received copy of a letter, dated June 22, to Treasurer Macbeth, indicating that there is to be an organizational meeting of the New York Colorists on June 30 at the New York Advertising Club. We wish to extend to the new group our best wishes for all possible success.

PHYSICAL SOCIETY
COLOUR GROUP

The 67th Science Meeting of this Group was held on 14th May, 1952, at Imperial College, Imperial Institute Road, London S.W.7. The meeting took the form of a discussion on Visual Problems in Colour Television.

COLOR INFORMATION
CENTER

From the meeting notice of the Physical Society Colour Group we note that a Color Information Center has been formed in Paris by AFNOR (Association Française de Normalisation). It has been set up to give information to all persons interested in the problems of color in its widest aspect, who write to the Center to obtain data which they lack on any subject or documentation which they require in any particular color field. The Center will play a coordinating role by the establishment of a central index, kept up to date as it receives advice of new work announced, new research undertaken and, above all, new results obtained and progress achieved in the increasing knowledge of color. The Physical Society Colour Group has received detailed information about the Center.

ASPEN CONFERENCE
ON DESIGN AS A FUNCTION
OF MANAGEMENT

Again we call attention to this attractive conference, scheduled for September, at Aspen, Colorado, which was mentioned in News Letter No. 100.

BIRREN AND THE
U. S. NAVY

Faber Birren, color consultant long an ISCC member, and on the News Letter Committee, is again under contract with the U. S. Navy. He will revise a report prepared in 1948, "The Application of Color to Shore Establishment." This covers technical specifications in the use of color for all shore units, equipment, machinery, and safety, and will be extended to include new developments in functional color practice. Birren's contract with the Coast Guard has likewise been increased in scope, and the two assignments will keep his research staff busy for some time.

CARPET AND
RUG COLOR CARD

From the June 1 issue of Carpet Trends, a public-relations service published by Carpet Institute, Inc., 350 Fifth Avenue, New York 1, N. Y., we learn that a 1952 Carpet and Rug-Color Card has been issued by the Textile Color Card Association in cooperation with the Style and Color Committee of the Carpet Institute. The card presents 21 colors taken from current best-sellers; portrayed in 3 x 5 samples, designed for showroom display, as well as for the practical purpose of matching and identifying colors. Information about the card, which costs \$12.50, may be obtained from the Textile Color Card Association of the U. S. Inc., 200 Madison Ave., New York 16.

From the same issue of Carpet Trends we learn that a Carpet Retailers' Service, not connected with the Carpet Institute, was scheduled to be operated by Amos Parrish & Co., 500 Fifth Avenue, New York. In "Fashion Trends", published by the Style and Color Committee of Carpet Institute, Inc. we find that expected best sellers are green, beige, gray and all spice tones, with gold continuing to gain; while other colors to watch for are avocado to moss greens, cool slate grays, aqua blues, all the "natural earth tones," champagne, plum and red.

SEEING LIGHT
AND COLOR

The International Lighting Review, Vol. 1951/52, No. 2, contains a copy of Ralph Evans' paper "Seeing, Light and Color" which was given before the 1951 C.I.E. conference in Stockholm. We call it to your attention because there are 9 illustrations in full color in addition to 8 in black and white. The color plates are most beautifully reproduced.

ROAD MAP FOR
APPEARANCE STUDIES

At the recent Gordon Research Conference (June 1952) our Chairman, Dr. E. I. Stearns, gave a talk on colorimetric relationships in studies of appearance of pigmented films. For that talk he prepared a sort of road map to indicate the way, back and forth, between various stopping places in the fields of visual examination, of instruments, of numerical specifications or of name, and of physical standards. A bibliography was prepared to go with the chart, numbered to accord with the number of each "stopping-place" on the map.

At the E-12 meeting of ASTM (June 23) this chart was referred to by several who had seen it. It caused so much interest, and provides so much information that we note it here, suggesting that readers who wish to have a copy write directly to Dr. Stearns (Calco Chemical Division, American Cyanamid Company, Bound Brook, N. J.).

D. N.

"COLOR"

Through a recent letter from the Verlag für angewandte Wissenschaften G.m.b.H., Rheinstrasse 79, Wiesbaden, Germany, to Dr. D. B. Judd at the National Bureau of Standards, we have learned of the launching of a new German journal whose title is the brief one "Color." Its subtitle is "Journal for All Branches of Color Science and Its Applications." The following quotations are from the letter to Dr. Judd.

"The encouragement of every field of work that deals with color as an optical appearance shall be its task. So it will handle above all questions of color photography, colored light, color vision and its testing, color sensations, and naturally not last color measurement and color standardization.

"The editor is Dr. Ing. habil. Manfred Richter, Berlin, Director of the Color Research Laboratory of the Material Testing Board, Berlin-Dahlem, and Chairman of the Fachnormenausschusses Farbe (Color Standards Subcommittee). Associate editors are Dr. Ing. H. Arnold, Oberhausen, Dr. K. v. Beckerath, Krefeld, Prof. Dr. E. Buchwald, Jena, Prof. Dr. J. Eggert, Zürich, Prof. Dr. E. Engelking, Heidelberg, Dr. Ing. H. G. Frühling, Berlin, Prof. Dr. A. Kohlrausch, Tübingen, Prof. Dr. R. Matthaei, Erlangen, Prof. Dr. S. Rösch, Wetzlar, and Prof. K. Wehlte, Stuttgart.

"The Journal appears in occasional numbers in the format DIN A 5 with at least 32 pages. The price per number is 7.80 German marks. Six numbers make a volume. Each year there will appear three, or at most, four numbers. We hope in addition that the Fachnormenausschuss (German Standards Committee) will eventually choose the new journal as its official organ.

"Please give us your order promptly so that we can determine how many of the first number to print."

Dr. Judd writes that he is not only ordering the new journal but requesting the NBS library to do so also. The following remarks by Dr. Judd, from his letter transmitting the information to the N. L. editors, should make it clear why he apparently believes that the journal is a "must" for workers in the color field.

"The Board of Editors is indeed distinguished. Engelking has done important work in color blindness and heterochromatic photometry; I remember him especially for his discovery of tritanomaly. Kohlrausch prepared chapters on electrical appearances in the eye and on adaptation, daylight vision and twilight vision, in the immensely valuable Handbuch der normalen und pathologischen Physiologie (Berlin, Springer, 1931). Rösch was an authority on color measurement and specification as early as 1929, and will be remembered for his masterful monograph on colorimetry in mineralogy of that year. Eggert is known for his work in photographic sensitometry. Richter is perhaps the foremost authority on color measurement in Germany. His book, Grundriss der Farbenlehre der Gegenwart, 1940, shows thorough grasp of American as well as European work in color."

INTERNATIONAL BIBLIOGRAPHY

Also coming from Germany and associated with the name of Dr. Ing. habil. Manfred Richter as Editor is news about an international bibliography which is again transmitted by Dr. Judd with annotations. The title is: Internationale Bibliographie der Farbenlehre und ihrer Grenzgebiete, Nr. 1: Berichtszeit 1940-1949; "Musterschmidt" Wissenschaftlicher Verlag, "Göttingen, 1952 (International Bibliography of color science and related fields, No. 1, covering 1940-1949). Authorized by the Color Standards Subcommittee (Fachnormenausschusses Farbe, FNF) of the German Standards Committee; compiled by Dr. Ing. habil. Manfred Richter, Director of the Color Research Laboratory, Material Testing Foundation, Berlin-Dahlem; Privat dozent, Technical University, Berlin-Charlottenburg. (Musterschmidt, Göttingen, 1952).

Contents: Part A. Titles of the publications arranged alphabetically according to names of authors. Each title is identified by serial number (1 to 1668), the complete literature reference is given, and for some a brief summary of the paper is given (in German). (For example, under Herman Zeishold, Philosophy of the Ostwald color system, this summary is given: "The author gives a review of the essential points of the Ostwald system based on personal enthusiasm for it. The word 'philosophy' is not used in the sense of the German word, but means about the same as 'scientific basis.'")

Part B. Subject index. The serial numbers of each title are given under about 800 subjects. Examples of subject: Absorption, absorption curves, brightness - additivity theorem, Agfacolor method, action-stream of the retina, anomaloscope, layer technics (see also hiding power, light fastness, pigments, white).

Appendix. Remarks on the nomenclature used here (2 pages).

GENERAL ANILINE RESEARCH

Many inquiries have been received concerning the fifth research curtailment, budget slash and personnel reduction in the General Aniline and Film Corporation. The cut in research staff was felt particularly at the Central Research Laboratory in Easton, where nearly 30 additional dismissals and resignations occurred, out of an original total of over 400 persons. This may be of particular interest to color workers because of the numerous GAF papers of the last two or three years in that field, especially from the pens of H. R. Davidson and I. H. Godlove. Color measurement at Easton was particularly hard hit; for out of nine or ten persons working on color, only the Editor and his assistant, Mrs. H. C. Williams, associated together for eight years, are left.

The reasons for the curtailment of research activity were stated by the management to be an unusually high ratio of research budget to sales dollar volume, which of

course varies from company to company not only with general policy but with the method of bookkeeping; in addition, the present recession in the textile industry was a factor. The fifth wave of resignations and dismissals was unique in that it started at the top with a vice-president, the Director of Research, a Sales Manager and three Associate Directors, etc. In color work, Henry Hemmendinger and Hugh R. Davidson, two top-notch research physicists, are gone, but not out of the field; for the color-consulting firm of Davidson and Hemmendinger has started off with some excellent clients and many friends in the color field. Both these men are experts in adapting electronic and optical apparatus to dyestuff and textile problems.

Though curtailment of research and publication must inevitably follow the drastic budget and personnel slash, no fundamental changes in research policy have been expected. Both the new Director of the Easton Laboratory and the ranking division head there are outstanding men of broad experience, and ardent friends of the spectrophotometer and modern colorimetry.

TCCA We regret we are forced by the exigencies of space to condense
ACTIVITIES some 14 pages of information, about this growing association, into a few paragraphs. First we may mention the 37th annual meeting, at which the following officers were elected for 1952-3: President: Roy E. Tilles, Sr. - President, Gotham Hosiery Co., Inc.; 1st Vice Pres.: Armand Schwab - President, Armand Schwab & Co. Inc.; 2nd Vice Pres.: John F. Warner - Executive, Cluett, Peabody & Co. Inc.; Treasurer: Henry C. Van Brederode - Vice-Pres., Celanese Corp. of America; and Secretary and Managing Director: Margaret Hayden Rorke. The first four and J. Diephuis, W. J. Fullerton, H. A. Hafner, C. F. H. Johnson, Jr., W. R. MacIntyre and R. A. Ramsdell were elected directors. Mrs. Rorke announced that during the fiscal 1951 year 129 new members were gained; of them 53 were in foreign countries. The year was marked by increasing cooperation with the Army, Air Force, Navy and Marine Corps in supplying official colors for the armed services. The new Carpet and Rug Color Card has already been mentioned elsewhere. For use with the Standard Color Card, a mask with 12 windows, each with a shutter, one side black and one gray, has been devised for use in picking out color combinations.

Next may be mentioned the U. S. Army Color Card of Standard Shades for Sewing Threads, which contains 16 colors; and the U. S. Army Color Card of Standard Shades for Slide Fastener Tapes, which contains 17 official colors, both revised 1952, 6th Ed. The advance confidential and regular 1952 Fall Hosiery Cards were released during June. The six new colors include Honey Sun, Ultrabeige, Tropic Gleam, Cocoshell, Townhaze and Blush Brown. With the nylon exemplars of these colors were issued useful coordination notes. The new 1952 Fall Colors for Women's Gloves include Dutch Copper, Tuscan Olive, Platinum Blue, Cloudgrège, Lacquer Gold, Jewel Purple, Kingfisher, Garnet Red, Dusky Gray, Glamour Turquoise and Wine Pink, adopted from other TCCA collections. The colors Champagne Sec, Boulevard Gray, Exciting Red, Irish Green, Maple and Admiral Blue were repeated from other seasons. Antique Emerald, Teak Brown, black, white and chamois completed the collection. The 1952 Fall Millinery colors included the new shades Flaming Rose, Fire Red, Garnet Red, Teal Blue, Royal Lustre, French Blue, Platinum Blue, Dutch Copper, Burnished Topaz, Lacquer Gold, Tuscan Olive, Sugarpine, Antique White, Dusky Gray and Jewel Purple; while the repeated colors embraced Bénédicte, Ivory Frost, Greysmoke, Continental Green, Wild Plum, Pink Frost, Light Coffee, Geranium, black, brown and navy.

The 1952 Fall color cards for wool and for man-made fibers and silk exhibit the colors in three different weights of wool and three different media, respectively. Eight heavy wool samples suggest coatings, eight more in medium weight suggest suitings and eight pairs of "tone-on-tones" are shown in light weight dress material. Beige to brown range colors are stressed, along with the "animated spicy gamme," blues, new reds, greens and colors of the violine range. Somewhat the same ranges are shown on the second card, portraying the colors in eight single shades on acetate fabric, eight sets of "tone-on-tones" on rayon and acetate, and eight single colors on pure silk.

The 1953 Spring Colors for wool and for man-made fibers and silk have also been released. The woolen group includes eight pastels: White Ginger, Yellow Orchid, Blush Camellia, Green Blossom, Mauve Lotus, Pink Carnation, Blue Lily, Golden Jasmine; and the brilliant Suntail shades, suggesting the picturesque Southwest: Indian Turquoise, Golden Sunset, Rancho Lime, Canyon Orange, Cactus Yellow, Scenic Blue, Sparkle Red and Siesta Purple. "Tone-on-tones," presented in light-weight dress crepe, include Pastry Beige, Burnt Toast, Brown Caramel, Parisian Beige, Blue Starlight, Ensign Blue, Azure Haze, Glaze Blue, Beach Aqua, Seasurf and other blues and violets. In the pink to red range are Gumdrops Pink, Red Beauty, Grotto Coral, Tomato Rose. Yellowish greens include Green Citron and Moss Jade; and bluer greens, Lyric Green and Glamour Green. Other colors of the group are Canary Gold, Corn Yellow, Tender Mauve, Candied Violet, Ocean Pearl and Polished Silver, making 40 colors in all.

The 1953 collection for Man-made Fibers and Silk includes six "Lilactime" colors, described as "lilac pastels": White Lilac, Pink Lilac, Azure Lilac, Lilac Leaf, Violet Lilac and Golden Lilac. Deeper colors are the Skyway Colors, shown on pure-silk shantung: Norway Blue, Spanish Citron, Monaco Turquoise, Lisbon Orange, Swiss Pink, Paris Sapphire, London Red and Roman Emerald. The "tone-on-tones" embrace Mint Aspic, Bronzite Green, Glacé Pistache, Avocado Green, Precious Pink, Ardent Red, Baroque Coral and Spice Clove. The "neutrals" make up the group Ecru Beige, French Putty, Chrome Gray and Cobweb Gray. Other colors in the group include: Salted Almond, Taffy Tan, Wild Lemon, Gold Nugget, Blue Dream, Blue Glass, Aqua Gem, Seaside Blue, Charm Mauve, Crushed Lavender, Orient Amethyst and Magenta Mauve, making up 38 colors in all.

WARM OR COOL EYE "Do You Have a Warm or a Cool Eye?" is the title of an article in the April Cosmopolitan by John Kobler which describes the interesting work of Paul Hartley, a former advertising executive, by avocation an artist who is now associated with Cunningham and Walsh. The article is accompanied by a printed human eye, below which is a series of seven colored bands looking like spectrum regions seen through a thin yellow glass, and above which is a corresponding series resembling spectrum bands seen through a thin blue glass. It is suggested that the reader choose which group he favors; and the choice will tell him whether he is "warm-eyed" or "cool-eyed." The implication is that the psychological and emotional bias has a physiological basis. Trouble arises when a warm-eyed wife and a cool-eyed husband, or the converse, both contribute to the decoration of their home; or even when one of them buys a new object in the cool range when most of the objects of art and decoration are in the warm range, being selected by a warm-eyed person.

To prevent such untoward events, Mr. Hartley has produced a gadget comprising plastic strips, colored with a "warm" range on one side and a "cool" range on the other and fanning out conveniently to exhibit the several hue ranges of the

spectrum series. The Editor, invited to view Mr. Hartley's work by the Public Relations department of his employers, had little difficulty agreeing with Mr. Hartley, that a given colored object or painting went more harmoniously with the "warm" or the "cold" group as the case might be. But he was unable to see that the color fan, either side, gave him much help over and above that furnished by his unaided but well trained perceptions. Nor do his extremely brown eyes prevent him from enjoying some of Sargent's cool color schemes as well as Rembrandt's warm ones. According to Hartley, Rembrandt, Velasquez, Raphael and Van Gogh were "warm-eyed" masters, while El Greco, Gainsborough, Renoir and Sargent were "cool-eyed." The preference, say Hartley and Kobler, is "inate, changeless, and no more controllable than fingerprints."

The Editor was a little distressed by the fact that Mr. Hartley was apparently unaware that all colors have three "dimensions" or attributes; or at least the latter paid no attention to any of them but hue. Paintings by illustrators stated to exhibit clearly the warm eye or the cold eye, seemed to the Editor to differ mainly in the dominating inclusion of strong chromas or weak chromas, or in stress of light values or of dark values. But the Editor does not wish to argue this point with Mr. Hartley, who has devoted many years of his life to painting and the study of harmonious combinations of colors. While Hartley stresses publicly one dominating principle, one may guess he uses sensibly, consciously or sub-consciously, other art principles and rules of color harmony resulting from a rich experience. Mr. Hartley has evidently given his avocation much thought and speaks with earnest conviction. Doubtless many people will find his fan-like gadget and his principle helpful. The Editor would prefer, however, to use any well organized three-dimensional arrangement of color exemplars along with the empirically established rules and principles of color harmony, paying attention to the "expressiveness" of the groups of adjacent colors (to use Ralph Evans' convenient term) and their functional fitness. Perhaps the Editor is prejudiced: as he could not agree that Maitland Graves' one principle of dominance and subordination is all powerful and controls our art and color appreciation, so he cannot believe that any principle so simple as Hartley's can control our aesthetic reactions, or even the harmonious combination of colors. The esthetic facts and relations are immensely more complicated than that.

Sir Joshua Reynolds would balance the warm and cool colors, with the warm predominating somewhat. Mr. Hartley would put together a "cool" purple and a "cool" red. What would happen when he has "warm-eyed" guests (who are in a slight majority), or when he changes the illumination from daylight to incandescent light, Hartley does not say. But we may close this review by registering our belief that many people will find it interesting and profitable to discuss Paul Hartley's ideas with him.

MIDDLE The October 1951 issue of the American Journal of Archaeology contains an article, by Wm. Stevenson Smith of the Boston Museum of KINGDOM Fine Arts, which many of our readers will find of much interest. It PAINTING deals with the paintings in the tomb of Prince Djehuty-hetep at Deir el Bersheh. A description of this tomb was published by Newberry in 1895, but the article under review presents new material from over sixty more fragments obtained by a Harvard-Boston Museum re-clearance in 1915. Bersheh was a few miles north of the capital of Akhenaten, the first monotheist ruler of antiquity. The time of the painting was the period of the Middle Kingdom, coincident with the flourishing Twelfth Dynasty (1991-1778 B.C.). Djehuty-hetep was Governor of the Hare Nome and a High Priest of Thoth. His inscriptions state that he was a child

in the reign of Amenemhet II, held important offices under Sesotris II and continued as a great official into the reign of Sesotris III, when he prepared his tomb. A statue of the Monarch was found at Megiddo in Palestine (the Armageddon of the Bible), where he was a sort of High Commissioner.

The paintings in the tomb are said to be remarkable for the great beauty of the workmanship, the precision and delicacy of the drawing, their refinement and subtlety, the multiplicity of detail, and the "clarity of the pure, bright tones." The tomb was relatively late in Dyn. XII, as were two others in a similar style at Qau and Meir. The better known tombs at Beni Hasan were not much earlier (about 1892 B.C.), but W. S. Smith says: "There is (in the Bersheh tomb) none of that bald, clumsy provincial style which still lingers on in the Twelfth Dynasty tombs at Beni Hasan and Thebes and is still apparent at Bersheh itself in the tomb of Djehuty-nekht. There is a tomb of another Djehuty-nekht from Bersheh at the Boston Museum; and here the quality of the painting approaches that of the Djehuty-hetep tomb. The three persons whose names contain "Djehuty", referring to a god, should not be confused. The "clumsy provincial" style referred to above seems to have been an influence of the Eleventh Dynasty. This dynasty is usually considered as a part of the First Intermediate Period, which fell between the Old Kingdom (to 2126 B.C.) and the New Kingdom. In an Intermediate period tomb at Mialla, a "strident color scheme" appeared, in which donkeys and cattle were painted in bright pink, lavender and even purple. Even toward the end of the Old Kingdom, in a tomb at Meir, the usual gray of donkeys took on a pink cast, looking almost lavender against the blue-gray of the background.

The softer nuances and new color combinations of the New Kingdom were made possible by the experimenters of the Intermediate period (a period of Asiatic invasions) who broke down the conventions of the Old Kingdom color scheme. The new palette was made up of a variety of reds, browns, yellows and some light blue including pink, light red, lemon yellow, and browns ranging from dark chocolate brown to a "soft light brown." A common feature of the period was a striped cloak, which in a fragment on the shoulder of Djehuty-hetep appears to be a banded combination of red and black. For other details of coloring, we must refer the reader to the original article.

I.H.G.

COLOR AND THE EMOTIONS

We have received a copy of an interesting paper by Faber Birren, published in the American Journal of Occupational Therapy (March-April, 1952), entitled "The Emotional Significance of Color Preference." The editors understand that Mr. Birren, well known color consultant and author, has during the past two years been in contact with several medical men and has been studying the color content of the literature of psychiatry and psychoanalysis. The present paper is perhaps the first story in a medical journal of the relationships existing between color preference and human personality.

This is a happy field for Birren where he can apply his own empirical observation. He frankly admits in the article that much of the correlations he traces are speculative, but his arguments in this complex field are at least plausible and their syllogistic factors and conclusions are checked by Birren's own empirical observations. In specific instances he may go too far, as when he states that narcissism is revealed by a preference for blue-green. But here he speaks of a "personal conviction" only, based on a high percentage of cases observed, and does not pretend to offer scientific proof. At the very least, if one is curious, one will find his discussion interesting.

To give only a few more conclusions, we may begin by citing the conclusion that red is the color of choice of the manic and hypermanic patient. Yellow is the color of schizophrenia; brown, the color of paranoia, here quoting E. P. Mosse. But Birren would connect yellow with feeble-mindedness, rather than schizophrenia. Schizophrenics, he says, generally prefer blue. Yellow is the intellectual color. Green is the favorite of psychoneurotic and psychotic persons. Convivial persons may be attracted to orange; artistic persons may prefer purple.

These are a few of the conclusions. We lack space to outline the arguments leading to them. They are at any rate largely clinical observations. Anyone interested in having a copy of the article may write to Faber Birren at Faber Birren & Co., 500 Fifth Avenue, New York 18, N. Y.

I.H.G.

PSYCHOLOGY OF COLOR

This is the title of a talk by Dr. Forrest L. Dimmick of the U. S. Naval Medical Research Laboratory, New London, Conn., before the 35th Annual Conference of the Chemical Institute of Canada at Montreal on June 3. Consideration of the Phenomena of color requires discussion of at least five factors: (1) light sources, (2) transmission media, (3) reflecting surfaces, (4) seeing eye, and (5) perceiving person. The first four factors set the conditions and exercise the controls over the appearances of color. Those conditions have been thoroughly studied and are available as spectrophotometric measurements, transmission curves, reflectance characteristics, and sensitivity curves.

Dr. Dimmick had his audience look in detail at the resultant visual effects and discussed the additional influence of color mixture, surface modes of appearance, spatial and temporal effects, color-order systems, discrimination and psychological effects. Further, it was considered how these aspects may generate esthetic effects, therapeutic effects and efficiency effects. Finally, the latest development in evaluating color discrimination for individual purposes was demonstrated.

I.H.G.

LUMINANCE, AREA AND COLOR

In the March issue of the News Letter, we reviewed a paper on the dependence of color upon area, by R. W. Burnham, of the Color Control Department of Eastman Kodak Company. In the January 1952 issue of the American Journal of Psychology (pp. 27-38, vol. LXV) is a companion paper by him on the Comparative Effects of Area and Luminance on Color. Burnham now reports that, in the ranges studied, a given area of color appears slightly brighter and perceptibly more saturated at higher levels of luminance than at lower levels, and that colors at a given level of luminance appear (to the same extent) brighter and more saturated in larger areas. The expectation that similar changes in area and luminance produce similar color shifts is realized. A six to one change in visual angle produced color shifts comparable in direction and extent to those found with a similar change in luminance of the test field.

I.H.G.

COLOR VISION: A RETROSPECT

This is the title of an interesting article by W. S. Stiles, reprint of which we received through the courtesy of Dorothy Nickerson. It was published in the January 1952 issue of Endeavour (vol. XI, No. 41). It is beautifully illustrated with four pages in full color. The article does not admit of brief abstracting; suffice it to say that it is succinctly and lucidly written. It is an historical treatment which

deals with the work of Boyle, Newton, Goethe, Young, Dalton, Seebeck, Purkinje, Chevreul, Helmholtz, Grassmann, Maxwell, Schultze, Müller, Hering, Rayleigh, König, Abney and Munsell; and with the group of people on whose data is based the 1931 C.I.E. system of color specification and the standard observer.

COLOR

PERCEPTION

The second British review article passed on to us by Dorothy Nickerson was a Review of Ideas on Colour Perception, by L. C. Thomson in *Ophthalmic Literature* (vol. VI, No. 1, June, 1952). After outlining the Thomas Young hypothesis, this paper contrasts two views: (1) that the magnitudes of physiological responses or sensations are directly proportional to the amounts of real matching stimuli, or (2) that hypothetical stimuli may be accepted, as Helmholtz did, along with overlapping response curves, thus admitting the presence of only three visual mechanisms. The first view is contrary to Young's hypothesis. The next two sections deal with the strength and the weakness of the Young-Helmholtz hypothesis. The next and longest section (16 pages) deals with the research problems in this field in the last thirty years. This includes work on the fundamental response curves, work with small visual fields, the paracentral retina, color adaptation, Willmer's hypothesis, an attack on the trichromatic hypothesis and the Wundt-Hartridge "polychromatic" theory, the conflict between the modern and Young-Helmholtz and polychromatic theories, and Pickford's work on defective color vision. A section on zone theories deals with the G. E. Müller theory as developed by D. B. Judd. There follows a section on the behavior of the intermediate mechanisms, which includes consideration of the work of Granit, of Motokawa and of Le Gros Clark. There is then a brief section on the "difference principle" involved in Müller's zone theory. The main conclusion is that it is fruitless to argue the comparative advantages of the multi-chromatic and trichromatic theories. Instead one may admit that there is a "trichromatic stage" in the visual process. In picturing what happens in other zones, a multi-chromatic process is "neither impossible nor incompatible." One can admit the fact of trichromacy and the Young-Helmholtz explanation of it; effects of a psychological nature originating in other zones need not be in conflict with the trichromatic theory.

I.H.G.

COLORIMETRY

The third British paper passed on by Miss Nickerson was entitled *Modern Problems of Colorimetry*, and constituted the 17th Thomas Young Oration, delivered by Dr. W. D. Wright on February 23, 1951. It was published in the *Proceedings of the Physical Society* (vol. LXIV, p. 537-49). This article is somewhat difficult to abstract, in spite of Dr. Wright's customary lucidity, for it deals more with the underlying "philosophy" of colorimetry than with its techniques. It may be said, however, that any worker in the field will be fully repaid by a careful reading of the article.

The following remarks are disconnected incidental ones rather than a connected abstract of Wright's paper. On page 538, the usual procedure of establishing an equivalence of the physical stimuli of color sensation is explained by analogy to the balancing of weights on a chemical balance, and we clearly see that equivalence in one respect does not necessarily imply equivalence in other respects. On page 539, some work of MacAdam's is said, on a certain basis, to "make nonsense" of heterochromatic photometry. The question of the validity of the C.I.E. standard response data, with some of Judd's conclusions, is considered on page 542. Of colorimetric instruments, the Donaldson colorimeter and one developed by G. T. Winch in 1946 and manufactured by General Electric, come in for special attention. The question of the difference between the "primaries" of additive mixture of lights and of subtractive mixture of pigments is discussed; and the statement is made that the

Colour Group of the Physical Society will have justified its existence, if after 50 years, it has fully clarified this subject in the minds of the general public.

I.H.G.

COLORS IN TWILIGHT

We have received reprint of another of the series of articles on color coming from the versatile and prolific pens of Dr. W. E. K. Middleton and his co-workers. The present one, published in collaboration with Eleanor G. Mayo, in the Journal of the Optical Society of America (42, 116-21, Feb., 1952), deals with The Appearance of Colors in Twilight. Sixty-four colors well distributed near the Munsell 6-value plane were viewed as 2° squares surrounded by a 5° black square in turn surrounded by a large area of Munsell N 6/. The colors were viewed in random order at six different luminances in a 6500°K illumination. The observer was requested to signal by means of a switch whether he observed red, orange, yellow, green, blue, purple or gray. Sixteen sets of observations were made by each of two observers, and eight sets by a third, all with normal color vision. At the lowest luminance only occasional observations of purple were reported, nearly all colors appearing gray ("in the night all cats are gray", reads the German proverb). As the luminance was raised, purple appeared first, then blue. The colors along an axis from about Munsell 7.5GY to 2.5P required the greatest illumination to appear chromatic. These results show an interesting correspondence with those of Middleton and Holmes (J.O.S.A. 39, 582; 1949) on the appearance of colors subtending small angles. From a practical point of view, an important conclusion is that the lowest luminance at which colored signals appear to be reliable is not much below 0.4 lux, which is about twice the greatest luminance produced by the full moon in temperate latitudes.

I.H.G.

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