

INTERSOCIETY COLOR COUNCIL

NEWS LETTER No. 95

JULY, 1951

Dr Judd
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NEW INDIVIDUAL MEMBERS

We welcome to individual membership the following persons,
whose applications were accepted by the Executive Committee at
a meeting held in New York on June 13th:

D. Parker McAdoo, Pemco Corporation, Baltimore, who deals with physical and chemical properties of ceramic pigments; is interested both in control of conditions for producing uniform color, and in the measurement and specification of color tolerances for ceramic pigments in glazes, enamels and glass colors; is a member of ACerS.

Edward E. Mueller, Rutgers University, where he is teaching a course in Ceramic Colors and is undertaking research for his doctorate concerning possible suggestions for revisions in the 1931 ICI standard observer (as discussed in a recent session of the OSA called by Dr. MacAdam); is a member of ACerS.

Frank H. Taylor, Philadelphia, deals principally with paints, inks, dyes; working with Helen D. Taylor, Color Consultant; interested particularly in color standardization and color names; member of Philadelphia-Wilmington Color Group.

John C. Wright, Mill Valley, California, painter, color designer, interested in color since 1936, deals principally with architecture, more recently color consultant for all fields; particularly interested in color in architecture, subjective color in painting, color aesthetics and public color choice, and graphic art as a psychotherapy and diagnostic aid.

CALIFORNIA COLOR SOCIETY

This very active group met, we have learned, at 8 P.M. on June 13 at Art Center School 5353 W. 3rd St., Los Angeles. The speaker was Mr. Ralph Atkinson of the Atkinson Laboratory, who spoke on The Dye Transfer Process, this constituting the second of a series of lectures on Color Reproduction. The speaker, of long commercial experience with the subject process, demonstrated the making of a color print and discussed the practical aspects of the method.

FRED RAHR
DECORATES
CHURCHES

We learned through the courtesy of E. Taylor Duncan that Frederic H. Rahr, of the company of that name, 9 East 56th St., New York City 22, was in Louisville recently to select the colors for decoration of two of the Kentucky city's churches. He came at the suggestion of Dr. J. S. Long, Chemical Director of the Devoe & Reynolds (paint) Company, whom he also invited. A regular message from the rector of St. Paul's Episcopal Church, dated May 20, states that the work is expected to be done in August. The committee in charge "was unanimous in its feeling that we will do well to follow Mr. Rahr's suggestions in every detail". According to the good rector, this decision was apparently made after seeing color sketches for some of New York City's leading churches.

THE KING
AND EVANS

A letter from Dr. Balinkin, ISCC chairman, now in Stockholm attending the I.C.I. conferences, dated during the meetings, tells the following interesting bit about the presentation of Ralph Evans' lecture by Deane Judd: "Sessions of the Congress opened Wednesday - it was a gala performance. Deane had timed Ralph's paper to a minute, because the time schedule had to be held within 30 seconds, for the King of Sweden was going to come and listen to Ralph's paper. Deane addressed his presentation: 'Your Majesty, Ladies and Gentlemen.' I was on the balcony supervising the slide projection because the man projecting them did not speak or understand English. In two or three instances it was well that I was there. After the paper the King talked with Deane, also shook hands. The next day Deane and I sent Ralph a cable: 'Your paper received enthusiastically by Congress stop King of Sweden present wished convey his personal appreciation.' Both Deane and I as well as many others felt that Ralph's absence was the only unhappy factor. Next day the papers came out with Deane's and the King's picture taken at the meeting."

Those of our members who have seen one or more of Mr. Evans' very fine lectures will agree with us that for this international meeting nothing could have been more interesting or colorful. Whether or not the entire audience could understand the words they could surely understand the language of the very beautiful slides.

DELEGATES

FROM T.A.G.A.

At the Columbus meeting of the Technical Association for the Graphic Arts (successor to T.A.L.I., our newest ISCC member body) the following voting delegates to the ISCC were appointed: W. P. Greenwood, chairman (Forbes Lithograph, Boston); Dan Smith, (Interchemical Corporation, New York City); Philip Tobias, (Edward Stern & Company).

Mr. Greenwood reports that the Columbus meeting was a most interesting one, with particular enthusiasm aroused by a talk given by H. L. Sherman of Ohio State University on "Aspects of Vision as It Relates to Art Copy." This talk cast some new light on the psycho-physical aspects of visual perception with particular emphasis on experiments in training peripheral vision by means of short-duration flash exposures. The practical application of these principles to the training of pilots, football players, and art students made a fascinating story.

NETHERLANDS
COLOR GROUP

Recently the secretary received from Dr. A. A. Kruithof of the Philips Research Laboratories at Eindhoven, Netherlands, a copy of a letter to Mr. R. G. Horner, secretary of the Colour Group of the British Physical Society in reply to an inquiry about the Netherlands color group. We believe that our members will be glad to know of the activities of this group as indicated by the following paragraphs quoted from Dr. Kruithof's letter:

In the Netherlands there has existed since 1947 the "Nederlandse Vereniging voor Kleurenstudie" (Dutch Society for Colour Study) which is accessible to all those who are interested in colour problems. The hon. secretary is Mr. E. Rijgersberg, Piet Heinstraat 111, 's-Gravenhage. The Society now comprises 30 members, chiefly industrial physicists and chemists. Further there are a few artists, but no physicians, physiologists or psychologists.

The chief activity of the society is of an educational character. To that end a "Colour Day" is organized every year where colour problems are treated in a more or less popular way by various experts (physicists, physiologists, psychologists, artists, architects, etc.). The attendance on those "Colour Days" amounts on the average to about 300 persons.

Besides that a sub-group of about 10 members discussed the problems of the naming of colours. These discussions did not lead to definite results until now.

COLOR TELEVISION Now that the Supreme Court decision has upheld the FCC decision making the standards of the CBS color television system the official color television standards for this country, CBS is proceeding with preparations for regular color-television service, and hopes that other broadcasters will follow. On June 25 the first commercial color television service in the entire world was inaugurated over CBS color television network, originating from Station WCBS-TV, New York, and broadcasting from many of its outlets on the eastern seaboard.

Within approximately 90 days from this time CBS plans to broadcast 20 hours per week of color-television programs and will increase this amount as color receivers and color converters become available to the public. Already a number of manufacturers have announced their decision to make combination color and black-and-white television sets as well as slave units (a small color image console which can be simply hooked up to an existing black and white receiver for color viewing while the black and white receiver continues to receive the monochrome programs. Thus those with black and white receivers, no matter what size screen, need not fear the obsolescence of their sets.

Meanwhile RCA indicates in June releases that at a meeting on June 19, 1951, they would provide sample kits to 231 manufacturers licensed to use RCA inventions, these to contain one tri-color kinescope, one kit of assorted circuit components, and one assortment of tri-color tube parts. This is announced by RCA in fulfillment of its promise of March 30, 1950, that as soon as the tri-color tube had been perfected to a point that specific usable information was available, it would be given to RCA licensees.

HELSON AT U. OF TEXAS We recently received a letter from Professor Harry Helson, chairman of the APS delegation to the ISCC, old friend and famous psychologist, indicating that his many friends should address him now at the Department of Psychology, University of Texas, Austin 12. (In the same mail we received our copy of Who's Who in the East, which stated that Dr. Helson's autobiographical data, probably not with new address, are given in Who's Who in America). Helson writes that "It is great to be back in a research atmosphere." Helson is known as the foremost exponent of the Gestalt psychology in America, and is an outstanding expert in the phenomena of Color Constancy and Color Transformation. He is known also for his work carried out in cooperation with Dr. D. B. Judd on these and related subjects. Information about the Helson-Judd effect may be

found at several places in R. M. Evans' "An Introduction to Color" (John Wiley & Sons, 1948). The Editor made use of Helson's cooperative work with Josephine Grove (Mrs. Brennan), in a paper on the effect of changing lights which appeared in the June JOSA. He takes this opportunity to wish Harry Helson the best of luck in his new connection.

In early July RCA started color demonstration broadcasts in New York. These have been reported quite favorably by newsmen invited to attend the first New York demonstration. One reporter notes that almost all of the shortcomings of the then vastly improved system demonstrated in Washington last December have been eliminated and that RCA, in reply to the direct question, says it is ready to be tested in simultaneous televising of scenes and action. Because the RCA method is compatible (it is not, however, convertible) viewers in Manhattan were requested to report on their black-and-white reception. This demonstration was shown on five receivers, two 14-inch sets showing a 9x12 inch picture, one 21-inch set with a picture about 12x16 inches, and two black-and-white sets to demonstrate compatibility. One Washington reporter notes that the three color receivers were untouched during the demonstration, and showed three identical color pictures. The program was a varied one from the studio, with a switch for the finale to Palisades Park for swimming beauties.

With the RCA system this much improved it is to be hoped that soon they will be ready to ask FCC to see it. The big question to the consumer -- and to the FCC which represents the public interest -- once color reproduction methods provide equally good and equally stable color results, will be how much the various methods will cost, both to broadcast and to receive. Other methods are heard of occasionally; undoubtedly there is a long way yet to go, but we can be sure that color television, though an infant, is a very lusty one!

DR. E. I. STEARNS
HOLDS NEW POST IN
CALCO RESEARCH

Just too late for our last issue, we learned that during the week of May 11, 1951, Calco announced that Dr. E. I. Stearns - one of our ISCC Counsellors - has been named Assistant to Dr. R. H. Kienle, Director of Calco's Application Research Department. Dr. Stearns, who graduated at Lafayette in 1932, obtained an M. S. in Chemistry from Rensselaer Polytechnic Institute in 1933, and Ph. D. in physical chemistry from Rutgers in 1945. He joined the staff of the American Cyanamid Company, Calco Chemical Division in 1933, was appointed the Chief Physicist in 1944, Assistant Director of Physics Research in 1945, Sectional Director of Application Research in 1948, and now - 1951 - Assistant to the Director of the Application Research Department. In his new assignment Dr. Stearns will conduct special research, technical evaluation and field service assignments. Our congratulations!

At the present time Dr. Stearns - a member of several of our Member Bodies - is serving the ISCC not only as Counsellor but also in the very important capacity of chairman of the Committee on Arrangements for our 1952 annual meeting. This is to be a 3-day session, February 7-9, 1952, Statler Hotel, New York City, with exhibits that will show the wide color interests of ISCC's 21 Member Bodies.

BIRREN AND THE
COAST GUARD

We have just learned that Faber Birren, an associate editor and Color Consultant of New York, has been retained by the U. S. Coast Guard to develop a manual of uniform color practice. A similar report was prepared for the U. S. Navy in 1948. The new project is part of a program of color standardization and safety and will

involve special research in color and safety and will embrace all major facilities such as air stations, repair shops, life boat and life stations, radio stations, supply depots, training detachments, etc. The final report will be illustrated in color and will serve as a master plan for the Coast Guard.

COLOR
VIGNETTE
NUMBER 1 In the French national flag the three vertical bands of red, white, and blue are not of the same width. Because of different angle of refraction for red and blue rays, the red appears closer and for the same angle of subtense would look narrower. After conducting a series of experiments, Commission of Enquiry recommended that the width be made in proportions of 37, 33 and 30 for the red, white and blue so that they appear of equal width.

Color Vignette No. 1 was submitted at our request by ISCC chairman, I. A. Balinkin, on the eve of his sailing for Europe. Another from the same pen is given below. If you would like this feature to be continued, we request that delegates, members and News Letter subscribers submit other items for future Color Vignettes. The definition of the term and its inclusiveness, is, we hope, sufficiently delineated by Balinkin's first two Vignettes. Please send in others.

COLOR IN
DESIGN A follow-up article in ELECTRICAL MANUFACTURING to the one of last October by I. A. Balinkin appears in the July, 1951 number. It is a case history report, A Practical Approach to Color in Design, by Alex. E. Javits, associate editor.

A story of how selections and specifications are made is reported for the Burroughs Adding Machine Company; for Pitney-Bowes, Inc. (which employs Frederick H. Rahr, Inc. as consultants); for the National Cash Register; for the gay power mowers of the Huffman Manufacturing Company; for the Hoover Company, color-coding for critical control knobs by the Electronics Section of the Navy's Bureau of Ships; for the General Electric Company, including their use of ASA's standard grays; for the Figuremaster line of Marchant calculators, Oil-O-Matic burners, test instruments; and for RCA Victor. At Western Electric Hawthorne Works a color program was adopted some years ago as part of a shop-modernization plan; the Navy is guided by a 96-page manual, The Application of Color to Shore Establishment, first published in 1948 as a result of a contract placed with Faber Birren and Company, color consultants.

In addition to the Hunter instrument described in the October 1948 issue, the other three types shown at the March meeting of the ISCC at the National Bureau of Standards are illustrated and described: the Color-Eye of the Instrument Development Corporation, the Macbeth-Ansco Densitometer; and the Photovolt model 610 reflection colorimeter.

Altogether this is a report that many of our readers may wish to consult. Although we are not able to arrange for general distribution as we were for the companion paper, the editors of ELECTRICAL MANUFACTURING (1250 Sixth Avenue, New York 20, N. Y.) will supply reprints to any ISCC members engaged in product design, either in an engineering or appearance-styling capacity, provided that requests are individual and are sent on their business or company letterhead.

COLOR PROBLEMS
IN PLASTICS A very interesting report on Color Problems in Vinyl Film and Sheet by Fred G. Clark of Bakelite appeared in India Rubber World, February 1951. We believe that anyone

interested in the subject will want to see a copy, and suggest that perhaps reprints may be obtained by writing directly to the author.

One of the purposes of the paper, which was given originally before the Plastics Film, Sheet, and Coated Fabrics Division of the Society of the Plastics Industry, is to point out the very careful consideration that must be given before even 0.01% of a colorant can be added to a vinyl film. While the uninformed may take less care in adding colorants than in adding other raw materials, actually one must learn in this industry to think of coloring materials first as chemicals and only second as colorants. The author discusses requirements of indoor and of outdoor colorants, problems in vinyl coloring, manufacturing, color control, and ageing problems, also cost factors.

THE FIRST PAINTER In response to a request, in previous News Letters (No. 78, Sept., 1948 and No. 40, March 1942), we put an article about the first painter whose personality is known to us. This is the "Tell el-'Ajjul painter" so named from the site (near ancient Gaza) where he flourished in the 16th century B.C. Since then we have at hand a fine and more complete account of him published in the Handbook to the Nicholson Museum, Sidney, Australia, (end Ed., 1948). Though we sent for it, for other reasons, by air-mail and had the 500-page book returned the same way, making it cost several times its list price (18s.), we felt amply repaid by this account and many others of color interest. We once wrote to a famous linguist and archaeologist that we thought all archaeologists but himself color-blind. We have since had to revise our opinion, not only because of the Handbook, but also because of Ann L. Perkins' "The Comparative Archaeology of Early Mesopotamia" (Univ. of Chicago Press, 1949). The Handbook authors, A. D. Trendall, J. R. Stewart and others, are certainly not color blind, if one can judge from their pottery descriptions. We have had two fine letters from Mr. Stewart, writer of the outstanding section on Cyprus (pp. 115-199 and 2 maps). Though he stated that he had to "write my section from scratch" in four months after "four years in a German P.O.W. Camp," it is one of the finest jobs of the kind we have seen.

Gaza was a Phoenician city, of Southwestern Palestine; but the painter's work was also found at Megiddo (Biblical "Armageddon") in the north. The troubles of the time make it probable that he emigrated from the north to Gaza (and Gezer?). His earliest work at Megiddo was found in stratum X, which fell to the Egyptians about 1550. But the bulk of the Bichrome pottery, the type employed and developed by him, fell in level IX, which was the city captured by pharaoh Thothmes III (about 1493). At Tell el-'Ajjul, the Bichrome ware belongs to a certain "Palace II" and to a city built on top of a destruction level which probably represents the conquest of Ahmose (1570-46), who drove the Hyksos out of Egypt and established the New Empire. W. A. Heurtley has shown that the master was working before 1550, with a floruit after that date. Some later work seems to show that his school continued after the probable death of the master (after 1500). Besides a dozen sites in Palestine, pottery attributed to him has been found in many sites in Syria, Cilicia and Cyprus.

Heurtley distinguished two Bichrome styles at 'Ajjul, the second of which was attributed to our master. Before describing these, it is advisable to go back to their antecedents. The Khabur ware, found in sites around the Syrian river of that name, has simple designs in matt red, reddish brown or black on a light buff or cream surface. Some of this ware goes back to 2000 B.C. It was copied in Egypt, sometimes on a red or orange ground. In level VI at 'Atschanch in Syria (1700) was

a rather coarse pottery with reddish buff slips and decoration mainly of bands of red bordered with black. This was found mixed with Khabur ware. A similar Bichrome style occurred in Megiddo X (1650-1550 B.C.), and in Egypt's Dynasty XVI (1600). The Megiddo ware takes a variety of decorative forms, including plain horizontal red bands bordered with black (some before 1600). The simple styles developed before 1550, and still more so in Megiddo IX (1550-1493), grew into the elaborate but brilliant styles making use of naturalistic decoration with birds, fishes and animals in zone and panel arrangement.

The 'Ajjul first style has birds drawn in outline and filled in with dots or bars. In the second style, that of the "Ajjul Painter," birds, fishes and animals have the interiors filled in with solid or partly solid filling; and "unlike the abstract ornamental creations of the first style, have personality" (J. R. Stewart). Along with the figured vases were many with painted non-representational designs: curvilinear, rectilinear and geometric ornaments as well as stellate and cruciform motifs.

Many more details about the 'Ajjul painter's work and that of his school, and the Bichrome wares generally may be found in the Handbook, pages 63 to 70. It seems clear that the 'Ajjul painter "took an existing Bichrome style and transformed it into something richer, more varied and individual." Whether he developed it from the ancient Asiatic tradition of natural decoration (pottery from Iran, Elam, Ninevah, Tell Halaf, Al 'Ubaid) or from North Syrian suggestions (Khabur ware) on which birds, plants and animals appear, is not yet known. The shapes employed were those of purely Palestinian forms, but some seem to show influences from Cyprus, the "copper island."

In our brief 1948 article we listed other painters, known by such names as the Nessos Painter and the Ceramicus Painter. These lived and worked much later (7th - 6th centuries B.C.). An earlier one (but not as early or by any means as well known as the 'Ajjul painter), who was known by his own name, was an Egyptian painter of the 13th century B.C., named Neb-re'.

I.H.G.

COLOR VIGNETTE NUMBER 2 A rubber packing band on an electric stuffing sausage would be most durable if made out of black rubber. In the operation of processing meat, the scuffing of the band may introduce particles of rubber into the sausage. So, the belt is made of white rubber. It looks more sanitary.

METROPOLITAN LIFE INSURANCE BOOKLET We have recently received a copy of "Methods of Testing and Protecting Eyesight in Industry" (Industrial Health Series No. 4), published in April, 1951 by Metropolitan Life Insurance Company. This is a well-illustrated little booklet of 72 pages which we do not feel competent to review. We can be sure, however, that it was as competently executed as the other material for public information published by this Company.

Illustrating the publisher's desire to get the best available advice, we note, along with other acknowledgments, that help was received from our Secretary, Dorothy Nickerson, from Dr. Gertrude Rand (Mrs. Ferree of the late famous Ferree & Rand team), and from the staff of our member-body the Illuminating Engineering Society.

In lieu of a review, we shall content ourselves with listing the sections of the booklet: Purpose and Scope of Industrial Eye Examinations; Visual Testing and Eye Examinations in Industry; The Functions of the Eye and Techniques for their Measurement; Special Arrangements for Protection of the Eyes in Very Fine Work Processes; Basic Principles of Industrial Illumination; Industrial Lighting Standards; Industrial Lighting Systems; Industrial Service of the National Society for the Prevention of Blindness. Further information may be obtained from W. J. McConnell, M. D., Director, Industrial Health Bureau, Metropolitan Life Insurance Company, One Madison Ave., New York 10, N. Y.

TAYLOR
DUNCAN
ALERTED

Our appeals for help have elicited the generous help of ISCC member, E. Taylor Duncan. For many months he has been, apart from our Secretary, our most prolific contributor, one of his major contributions being a steady stream of bibliography of patents relating to color; another is service as a newspaper and journal clipping. In the past we have mentioned some of his travels. In a recent letter from him, were inclosed five 1951 clippings from the Louisville Times. Evidently both the Times and Mr. Duncan are color-conscious and alert. Two or three of these and past items from Mr. Duncan could easily serve as Color Vignettes, to use Chairman Balinkin's term introduced in this issue. One item deals with the Supercine color process, which two Times editors seemed to regard as possibly challenging Technicolor. Another with changing hairdo color through the ages; a third with putting chromatic color (specifically blue and red) back into wedding gowns. It was Mary of Scotland who in the 16th century changed the bridal color from red to white. Lack of space in this issue forces us to review this material in later issues. One short Duncan item (which we don't think indicates any untoward Duncan habitude) is that of the following paragraph. Many thanks, Mr. Duncan!

COLOR AT
THE BAR

From the Louisville Times, May 5, 1951, by courtesy of Mr. E. Taylor Duncan: "Gimme an orange" may sound peculiar at the bars at Churchill Downs, but not ridiculous. However, what do you think of "Gimme a green"? That's a standard drink order at the track today. To simplify matters for new bartenders a color code is used. There are six colors: Orange, blue, red, green, yellow and white. No pink, as in lemonade and elephants. Prices range from 60 cents for yellow to \$1.10 for white.

CLASSICAL GREEK
COLOR TERMS

In the preceding issue of the Newsletter (May 1951), we ended an article entitled "Blond or Brown, Greek vs Greek", with the sentence: "In a subsequent issue, we shall have more to say about the hair and eye coloring of the Greek heroes and gods, whom the Greeks probably made after their own image". We are attempting here to keep that promise. There we dealt with phoenix (redskinned), phoinix (blood-colored and also wind-tanned), xonthos (brown haired, furred or plumed), and Aeolic (patchy or variegated), along with some legends involving color.

Many of the following notes were taken from the standard work of Professor Myres cited in the May issue. He states that fifth-century sculpturing in white marble had the flesh parts polished as if to imitate ivory, and the hair heavily primed with a red color over which the remains of gold leaf are still in place. This was meant to represent a fair-haired type. The masterpieces of Pheidias, Polycleitus and Thrasymedes were also in ivory and gold. Athena was fair-haired, her hair and clothing being rendered with gold. She was conceived as gray-eyed (glaucopis), and might be taken as a Nordic type. Poseidon (Neptune) in Homer was always blue-black-haired, indicating the "Mediterranean" type of the earlier, pre-Hellenic

Greeks. Zeus (Jupiter) in one Homeric passage had also "blue-black" eyebrows. His wife, Hera (Juno) on a 5th-century vase had yellow hair, and a statue of her gold and ivory. Demeter in Homer was described by xanthe, like Athena in Pindar. This meant probably the color of ripe corn, of which Demeter was patroness. But xanthe may also include brown and does include the green-yellow color of jaundice, as well as the pale, sandy color of some rivers. Aphrodite (Venus) in Homer was "golden," and Pindar alludes to Apollo's "golden hair." Hair dyeing was often done with Xanthium Strumarium, (of the cocklebur genus), giving a golden yellow. The practice was indulged especially by the lively, lovely ladies of leisure of Thebes. The Spartans and Danaans were fair-haired. The flower ion, equivalent to the Latin viola, but not identified exactly as to species, according to Pindar has "rays (or spikes) or xanthe and full purple."

Though the vase painters of the 6th-4th centuries usually painted in black on a red clay, they sometimes rendered hair and beard in the same purple as was used for clothes and bronze work. Later, they diluted the black glaze-paint so as to produce a "half-tone effect and sometimes used this to render a contrast of light and dark hair. The polychrome scene painters on "white ground" vases of Athens frequently used a warm terra cotta brown (brightening to brick red) for the hair. They sometimes used dark umber for one head in a group, and clear tints of ocher for another. We have already mentioned that Achilles was yellow-haired, while his son was pyrrhos, red-headed.

Turning to skin color, the Minoan painters regularly colored the women white and the men a deep maroon or terra-cotta. Some vase painters of the 7th - 6th century B.C. revived this scheme and coupled women in white with men drawn in mere black silhouette like the rest of the design. The Greeks used ochros for both the sallow parchment-like "Armenoid" skin and the clear, often bloodless, complexion of the Mediterranean brunets. Chloros was used for other complexions and for cream cheese, unripe fruit and vegetables such as unripe apples and celery. Homer's Achaean chiefs had "lily-white" skins, so were probably Nordic, at least not Mediterranean.

Describing eyes, melan meant black. Glaukon in the Iliad described the sea, the change in eye color when a lion is roused, and the normal color of Athena's eyes. In later Greek, it described the foliage of the olive, willow and the "glaucous" poppy, the pale green mineral beryl, and the "whitening" (glaucoma) of the eye by disease, as well as the colors of certain fishes, birds and animal furs. It described light-colored eyes from gray to hazel. Charopon in eyes meant a "glad" eye, intermediate in color between melan and glaukon, and more saturated, for Theocritus makes a girl boast that her eyes had more of this hue "than those of gray-eyed Athena." The term included eyes from gray to blue.

To these notes chiefly from Myres we may add that Egyptian conventions showed the flesh of men as red, with women lighter, even white. Queen Hetep-Heres II of Dynasty IV, daughter of Cheops, was shown in the colored bas-reliefs of her tomb as a definite blond. Egyptian hair was nearly always shown as black or dark brown, the eyes brown; but the queen's hair was painted a bright yellow stippled with fine red horizontal lines, while her skin was white. This is the earliest known evidence of blondism. Later Egyptian reliefs depicted Libyans as blond (and with Nordic features). But Egyptian women's flesh tones were rarely painted purely white, unless they were goddesses or deified sovereigns; the color was what has been described as "pinkish yellow." Pale orange might be a more correct description. Minoan frescoes showed the male flesh as a deep terra-cotta, female flesh as white.

The people of the Andronovo culture of Minusinsk in Siberia (1000 B. C. to the Christian era), introduced iron and the habit of making plaster death masks. They were apparently a Nordic type (long heads, narrow, often aquiline noses, etc.); and some hairs from the beard held in the plaster were blond. But some preserved head hairs were brown. In the 4th century A.D., the type changed to one with flat faces and broad noses (Mongoloid). In the masks, eye slits were painted blue and the hair blue with black lines. In a previous issue, we have pointed out, that the Scythians were "white" and in no sense Mongoloid. Hippocrates described the Scyths as white-skinned. Even the later Alans had "golden hair."

The Olympian gods, of course, were pictured by the Greeks, - or more likely for the Greek aristocrats - as like themselves. That is, mostly blond, with ivory skins and golden hair, though we have mentioned exceptions.

Whenever the subject of Greek color vocabulary is brought up, it is natural to recall the famous controversy on Homer's use of color terms which is associated with the name of the great British statesman, William Gladstone (his book 1858). Already in 1557, J. C. Scaliger had pointed out the vagueness of the color words of the ancient writers; and F. W. Doering in 1788 touched on the same subject. Gladstone went much further, pointing out the absence of certain colors in Homer, concluding that this was due to an anomaly of the eye, a real color blindness. Among the German systematists of evolution, L. Geiger (1871-78) went even further, maintaining that Homer's color blindness was typical of a general stage of historical development. The ophthalmologist, H. Magnus (1877) outlined a slow development of the physiological color sensitivity in historical times. Besides numerous articles and pamphlets, there were books, by Bónaly (1897), Hockegger (1884), Veckenstedt (1888), Grant Allen (1879) and Pérez de Barradas (1932-33) against the Gladstone theory, and by W. Schultz (1904) in favor of it. Here we shall say that in all important aspects, the controversy has been settled against Gladstone. Anyone interested in these matters may read the excellent survey, "The Use of Color in Literature," by S. Skard in Proc. Amer. Philos. Soc. 90, 163-249 (1946). A dissertation by J. König, reprinted in Archiv. gesam. Psychol. 60, 129-204 (1927), contains lists of all known color words in Greek, Latin and German.

I.H.G.

SMOKE CHART This issue contains several interesting contributions from our good contributor, E. Taylor Duncan, of Louisville. One of the most recent of these was the Plibrico Smoke Chart, copyrighted by Plibrico Jointless Firebrick Co. It seems that there has been a smoke-nuisance debate in Louisville, occasioned in part when the Goodwill Industries of Kentucky appealed from a decision of the Police Court that found them guilty of six smoke-ordinance violations. The chart has a mask showing five grays, marked 20%, 40%, 60%, 80% and 100% "dense" respectively. The Munsell values of these colors (4 of them apparently screen printed) are about 8.6, 7.5, 5.7, 4.1, and 2.6 respectively. The mask is held at arms length and the smoke viewed through an aperture.

NU-HUE COLOR HARMONY Some months ago we received a copy of the Martin-Senour Professional Guide for securing color harmony with Nu-Hue paints. This interesting chart, which shows 160 color chips, is scientifically arranged to show how these colors may be obtained from the 16 basic liquid tinting colors, each identified by the initial letter of the latter's color name, as "C" for Canary Yellow #2270. The basic paints are "synthetic organic in structure," insuring control of tinting and blending properties. Neutral colors, which may be used anywhere in large areas (along with small bright "accents") are shown in the

bottom row. Pleasing combinations are shown side by side. The upper third of the chart shows bright clear colors, which may be used as pastels on one wall of a room if other walls are more neutral; and as deeper tones in recreation rooms. The lower two-thirds of the chart contains grayed colors suitable for "subtle, distinctive decorative effects". All colors are shown in a series of deep to pastel tones. Good practice makes the ceiling a pastel of the same series as the deeper tones used on the walls. Contrasting colors are side by side from left to right. Contrast may be varied in strength by using pastels, or grayed tones that are side by side. Three gray masks are provided for making the types of selections of color combinations indicated in the foregoing sentences. The list price, one dollar, to this reviewer seems small for such a well organized and suggestive chart. The address of the Martin-Senour Co., is 2520 Quarry St., Chicago 8, Ill.

BIBLIOGRAPHY

- A. Opler; J. Opt. Soc. Amer., 40, 401, (June 1950); Spectrophotometry in the presence of stray radiation: a table of log [(100-k)/(t-k)]
- D. D. Pant; Proc. Indian Acad. Sci., 31A, 35-41, (1950); Analysis of absorption bands of the uranyl salts
- R. H. Park (to American Cyanamid Company); U. S. Patent 2,542,564 (1951); Color predictor
- The Pavelle Color Inc., New York 19, N.Y.; J. Opt. Soc. Amer., 41, 281, (April 1951); Semi-automatic color analyzer
- J. W. Perry; J. Opt. Soc. Amer., 40, 119, (Feb. 1950); Abridged spectrophotometric colorimetry with photo-cells
- M. H. Pirenne & E. J. Denton; J. Opt. Soc. Amer., 41, 426, (June 1951); Quanta and visual thresholds
- J. M. Preston & Y. F. Su; J. Soc. Dyers and Colourists, 66, 357, (July 1950); The cellulose-dye complex. Part IV. The polarized fluorescence from dyed fibers
- P. Pringsheim; J. Opt. Soc. Amer., 41, 279, (April 1951); review of "Lumineszenz. Ergebnisse und Anwendungen in Physik, Chemie und Biologie" by Fritz Bandow. Wissenschaftliche Verlagsgesellschaft M.B.H., Stuttgart, 1950, Pp 255 + vii, 79 figures. Price 26 D. M.
- B. Pullman, M. Mayot & G. Berthier; J. Chem. Phys., 18, 257-60 (1950); Occurrence of hypsochromic shifts on alkyl substitution: structure and color of methylated derivatives of azulene
- R. G. Quynn, E. J. Bernet & E. R. Fischer; Textile Research J., 20, 492-509, (July 1950), through Amer. Dyestuff Repr., 39, 610 (Sept. 4, 1950); Gloss measurements on fabrics
- O. Reeb & M. Richter; Licht-Technik, 2, 186, 205 (1950); Grauer strahler und farbtemperatur (gray radiation and color temperature)
- M. Richter; DIN-Mitteilungen, p. 50 (April 1950); Die farbe als gegenstand der normung

- G. Righini; Atti. Fond. "Giorgio Ronchi" 5, 65-70 (April 1950); The effective wavelength of a pseudomonochromatic photoelectric system
- A. Ringer; Pharmazie 5, 162-6 (1950); Measurement of absorption in solution of red and yellow dyes: I. Methods, theoretical basis, azo dyes
- A. Ringer; Pharmazie 5, 269-76 (1950); Measurement of absorption in solution of red and yellow dyes; II, quinones, nitrophenols and dyes of animal origin
- A. Rose; J. Opt. Soc. Amer., 41, 210, (March 1951); Dark adaptation
- H. v.Schelling; J. Opt. Soc. Amer., 40, 419 (1950); Method for calculating the effect of filters on color vision
- J. Schoen; Arch. tech. Messen, Issue 170, T25-6 (March 1950); Use of the automatic-equalising photometer in measurement and control
- H. J. Selling & L. F. C. Friele; Appl. Sci. Res., Vol. B1; 453, (Vezelinstituut T.N.O., Delft, 1950)
- R. W. Shackleton; J. Soc. Dyers & Colourists, 66, 221-4 (1950); Standardization of dyes (control of physical, chemical and tinctorial properties)
- R. H. Sinden; J. Opt. Soc. Amer., 40, 647, (1950); Some consequences of the additivity of luminosities
- S. C. Slifkin (to General Aniline and Film Corporation); U. S. Patent 2,537,097 (1951); Dyeing of textile materials by the use of light-sensitive diazo salts
- S. C. Slifkin (to General Aniline & Film Corporation); U. S. Patent 2,541,178 (1951); Photographic process for dyeing of textile materials
- Louise L. Sloan; J. Opt. Soc. Amer., 40, 41, (Jan. 1950); Comparison of the Nagel anomaloscope and a dichroic filter anomaloscope
- P. C. Smethurst; Bu. J. Photography, XCVII, 325, (June 23, 1950); Sensitivity and contrast standards in printing papers
- P. W. Smith; Amer. Dyestuff Repr., 39, 520 (Aug. 7, 1950); Observations on the anomalous light fastness of some dyed textiles
- Society of Dyers and Colourists, Co-ordinating Committee for Fastness Tests; Amer. Dyestuff Repr., 39, P912 (Dec. 25, 1950), Observations on I. H. Godlove's "Uniformity of Grading of the American, British and German Light-Fastness Standards"
- E. I. Stearns; Amer. Dyestuff Repr., 39, P358-66 (1950); Measurement of dye strengths
- E. I. Stearns; Amer. Dyestuff Repr., 39, 109, 120, (Feb. 20, 1950); Current activities of the Inter-Society Color Council
- E. I. Stearns; Amer. Dyestuff Repr., 39, P199 (March 20, 1950); Light observations in England

- E. I. Stearns (to American Cyanamid Co.); U. S. Patent 2,540,797 (1951); Method and apparatus for color matching
- E. I. Stearns (to American Cyanamid Co.); U. S. Patent 2,540,798 (1951); Color predictor for pigments
- E. I. Stearns & G. L. Buc; J. Opt. Soc. Amer., 40, 336 (May 1950); Transmittance of interference filters
- W. H. Steel; J. Opt. Soc. Amer., 41, 223, (April 1951); Accuracy of polarization photometers
- K. B. Stoddard & M. W. Morgan, Jr.; J. Opt. Soc. Amer., 41, 363, (May 1951); review of "Researches in Binocular Vision" by K. N. Ogle; W. B. Saunders Co., Philadelphia, 1950. Pp 345 + IX, Figs. 182. Price \$7.50
- G. C. Sziklai & A. C. Schroeder (to Radio Corporation of America); U. S. Patent 2,543,477 (1951); Kinescope for the reproduction of color images
- G. C. Sziklai (to Radio Corporation of America) U. S. Patent 2,545,420 (1951); Color television receiving system
- G. C. Sziklai; J. Opt. Soc. Amer., 41, 321, (May 1951); Tristimulus photometer
- E. P. Taubes; Photog. Soc. Amer. J. 16B, 39-42 (June 1950); Colored lighting for color separations
- J. Terrien; Compt. rend. 230, 1462-3 (April 17, 1950); Simple optical system, with spectral transmission adjustable at will, for heterochromatic photometry or colorimetry
- J. Terrien & F. Desvignes; J. Opt. Soc. Amer., 40, 845, (Dec. 1950); Photometric separator for precision visual spectrophotometry
- V. J. Thuau; Rev. Techn. Ind. Cuir., p. 67 (April 1950); Méthod simple pour contrôler la couleur des produits tannants
- D. J. Troy, Jr. & L. G. Glasser; J. Opt. Soc. Amer., 40, 80, (1950); Reducing stray light errors in the Hunter Multipurpose Reflectometer
- L. E. Varden (to Pavelle Color Incorporated); U. S. Patent 2,544,196 (1951); Photoelectric color analyzer
- T. Vickerstaff & D. Tough; J. Soc. Dyers & Colourists, 65, 606 (Dec. 1949) abstr. in Amer. Dyestuff Reprtr. 39, 133 (Feb. 20, 1950) The quantitative measurement of light fastness
- H. F. Weaver; J. Opt. Soc. Amer., 41, 331, (May 1951); Transmittance of a prism
- A. E. Weber; Amer. Dyestuff Reprtr., 40, P78 (Feb. 5, 1951); Dyeing of wool with vat colors with particular emphasis on the anthraquinone types
- P. Weber; l'Usine Nouvelle, (Feb. 2, 1950); De la couleur en milieu industriel

P. Weber; L'Usine Nouvelle, p. 19 (Feb. 10, 1950); La couleur dans les ateliers

P. K. Weimer (to Radio Corporation of America); U. S. Patent 2,545,325 (1951); Color television receiver

H. Weise; Farben, Locke, Anstrichstoffe p. 338 (Sept. 1950); Neuere amerikanische Untersuchungen über Genauigkeit in der Farbmessung und zur Toleranzfrage

F. C. Williams; J. Opt. Soc. Amer., 40, 104, (1950); Objectives and methods of density measurement in sensitometry of color films

A. J. Woiwod; Nature, 166, 272 (Aug. 12, 1950); Fluorescence of amino-acids, peptides and amines on filter paper

E. Wolf & M. J. Zigler; J. Opt. Soc. Amer., 40, 211, (April 1950); Dark adaptation level and size of testfield

E. Wolf & M. J. Zigler; J. Opt. Soc. Amer., 41, 130, (Feb. 1951); Dark adaptation level and duration of testflash

R. F. Wolf et al.; Rubber Age, 69, 51 (April 1951); Color reactions between silica pigments and certain accelerators and antioxidants

W. D. Wright; Rayon and Synthetic Textiles, 31, 30, (June 1950); Color discrimination

R. F. York; Dyer, CV, 442, (April 6, 1951); The dyeing of acetate rayon with vat, acid and direct colours

S. G. Younkin; J. Opt. Soc. Amer., 40, 596, (Sept. 1950); Measurement of small color differences in tomato purees

S. Yura; J. Jap. Chem. 4, 364-9, 378 (1950); Optical bleaching agents

M. J. Zigler, E. Wolf & Ester S. King; J. Opt. Soc. Amer., 41, 354, (May 1951); Influence of surround brightness and short wave components of radiation on dark adaptation

The Allied Research Corp., Culver City, California; J. Opt. Soc. Amer., 41, 214, (March 1951); New Universal Spectrophotometer

The American Association of Textile Chemists and Colorists, South-Central Section; Amer. Dyestuff Repr., 40, P101, (Feb. 5, 1951); Spectrophotometric studies of continuous dyeing

D. G. Anderson; J. Sci. Instr., 27, 131-2 (May 1950); Report on the preparation of the glasses for the photocell correction filter

Anon.; J. Opt. Soc. Amer., 40, 183, (April 1950); Recommendations of the International Commission on Illumination (I.C.I.), eleventh session (1948).

Anon.; Research, 3, 191 (April 1950); Ultraviolet absorption spectra of the two phenylanthracenes