D. B. Judd

INTER-SOCIETY COLOR COUNCIL

NEWS LETTER NO. 111

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COLORISTS AND AMER. INST. OF DECORATORS

On January 28 the Colorists of Washington and Baltimore and the District Chapter of the American Institute of Decorators held a joint dinner meeting at the Y.W.C.A., 3rd floor, 17th and K Streets, N.W., Washington. The meeting was addressed by the long-time member of the ISCC and well known lecturer on color, Mr. H. Creston Doner, Director of Design and Color, Libby-Owens-Ford Glass Company, Toledo, Ohio. His address on the subject Our World of Color, illustrated with colored slides, included a discussion of the use and effect of color in industrial products for home and personal use, and the influence of color on merchandising and on consumer acceptance. Arrangements for the meeting were made by Mrs. Mildred F. Trimble, an active member of both the Colorists and the AID.

PHILADELPHIA-WILMINGTON COLOR GROUP

This affiliate of the ISCC held its 18th meeting on February 17 at the Philadelphia Textile Institute, Henry Avenue and School House Lane, Germantown, Philadelphia. It followed an informal dinner at the Alden Park Manor in Germantown. The meeting was addressed by Mr. C. Homer Flynn, Executive Secretary of the Federation of Paint and Varnish Production Clubs, who described the nature, formulation and use of the Inter-Society Color Council Color-Aptitude Test. This test, which was developed and prepared by an ISCC committee under the co-chairmanship of F. L. Dimmick and C. E. Foss, was issued in 1953 in its latest edition through the encouragement and financial support of the FPVPC, whose Executive Director, the speaker, was intimately connected with the project.

COLOUR COUNCIL OF TORONTO

This group has been very active with meetings and literature in the past few months. It distributes a regular news sheet, called Color Comments, and has drawn up a Prospectus to inform prospective new members of the aims, purposes and achievements of the Council. Officers are Charles R. Conquergood, president; E. Victor Grainger, treasurer; and Stuart K. Graham, secretary. The Executive Committee includes R. C. Allison, Prof. W. E. Carswell, J. H. Downton and John Affleck. At the November meeting, Professor K. B. Jackson of the University of Toronto gave a demonstration of third-dimensional seeing. At a dinner meeting on January 28, Professor W. E. Carswell, well known

ISCC member and lecturer on color, spoke at Prince Arthur House, 145 St. George Street, Toronto, on the subject "Colour Simplified and Complicated." In connection with the latter aspect of color, he paid tribute to the orderly systems developed by Ostwald in Germany, by Munsell in the United States and by Villalobos in Argentina. The February (25th) meeting, held at the same place was addressed by Mr. Hutchinson Scott, Costume and Set Designer for the Crest Theater, whose subject was "Colour in the Theater." We have as yet no information on the March meeting except its date, March 16, but are informed that on April 27th the Council will be addressed by Dr. E. I. Stearns, immediately Past President of the ISCC, whose subject will be "Dyeing for a Living."

TINTOMETER REPRESENTATIVE TO VISIT U.S.

From G. J. Chamberlin, managing director of The Tintometer, Ltd. in Salisbury, England, (and an ISCC member) - we have word that he will be in this country June 8 to July 14, 1954. He will read a paper at the Canadian Institute of Chemistry which meets June 21-24, and will attend the A. S. T. M. meetings in Chicago the week of June 13-18. He will be in New York June 8-12, Chicago June 13-18, Toronto June 20-25, Washington June 29-July 2, and New York again July 4-14. He expects to talk to several groups, and will have with him a set of lantern slides. We give this information so that any of our I.S.C.C. members who may be interested in the Tintometer may have an opportunity to get in touch with him. He can be addressed at The Tintometer, Ltd., The Colour Laboratory, Salisbury, Wilts, England.

PHYSICAL SOCIETY COLOUR GROUP

The 77th Science Meeting of the Group was held on January 6 at the Royal Photographic Society, 16 Princes Gate, London S.W.7. Speakers and their subjects were: Dr. W. C. Price of King's College, London, Modern Theories of the Colour of Organic Molecules; Dr. R. W. G. Hunt, Kodak Research Laboratories, The Use of Coloured Couplers to Overcome Unwanted Absorptions in Colour Photography. The 78th Science Meeting was held on February 17 in the Physics Department, Imperial College, Imperial Institute Road, South Kensington, London S.W.7. Speakers and subjects were: Dr. L. C. Thomson, Group for Research on the Physiology of Vision, Medical Research Council, A Study of the Appearance of Spectral Colours and their Relationship to Müller's Theory of Vision; Prof. W. D. Wright, Imperial College, Some Conservative Thoughts on the Trichromatic Theory. Of the four named speakers, Dr. L. C. Thomson and Dr. R. W. G. Hunt are respectively Chairman and Secretary of the Colour Group. New officers were to be elected at the General Meeting during March, 1954.

USED G.E. SPECTRO-PHOTOMETER AVAILABLE

Announcement has been made that a General Electric Recording Spectrophotometer used by Container Corporation of America is available for purchase. This may be of interest to some readers, since we understand that this model of the instrument was completely sold out before the appearance of the new model. Details concerning the condition of the instrument and prices will be furnished on request by Walter C. Granville, Assistant Director, Department of Design, Container Corporation of America, 38 South Dearborn Street, Chicago 3, Illinois.

BALINKINETICS

The ideas of dynamic ISCC Past President Dr. Isay Balinkin, professor of experimental physics at the University of Cincinnati, are never static, especially when color is involved. We learn from a report in the Cincinnati Times Star of February 27 that the salt of the earth is due for a shakedown, if his ideas prevail. He doesn't like the fact

that the salt we shake onto our mashed potatoes is white, so that we can't see how much has been deposited. And we all know that if enough salt is imbibed to upset the sodium-potassium ratio in the blood, dire results may follow. His protest was registered before a gathering of high-school science students from Ohio, Indiana and Kentucky present for the first of UC's annual series, "Application of the Physical Sciences." Adding a liberal sprinkling of sensible seasoning to his own lecture on "Light and Color," he suggested blue salt for potatoes, green salt on sliced tomatoes, and so on.

The Editor wonders if the housewife may perhaps not "give two shakes" for the idea, since she would have more salt cellars to wash. But a modification of the idea comes to mind. The Editor's pet peeve is a pair of completely similar shakers, one for salt and one for pepper. He would put a pepper red band or spot on the latter, and perhaps a salad green mark on the former.

WALLS NOT WALD

Our apologies are due to psychologist Elsie Murray for our slip on page 10 of the January News Letter, where we stated that she disagreed with Dr. George Wald. She now (i.e., on February 24) writes from the Psychology Laboratory of Cornell University that: "For the researches of Dr. George Wald of Harvard on rhodopsin, Vitamin A, and lately on cyanopsin, I have profound admiration, and since 1933 have drawn much inspiration from them. My current critical protest is directed against quite another person, Dr. Gordon L. Walls, California optometrist, known principally for his philogenetic studies of retinal rods and cones in the "Vertebrate Eye," an interesting 1952 compendium . . . In 1952, however, teaming up with the psychology department of the University of California, he launched a . . . monograph in a quite different vein, couched in a racy and semi-journalistic idiom; lashing out at some 40-odd notables - Maxwell, Helmholtz, Hering, Hecht and others, and peppering (if only with birdshot) a number of our own fraternity."

Miss Murray then gives her detailed reasons for disagreeing with Dr. Walls. The letter is too long to reproduce in our available space; but the Editor will send a copy to interested persons (assuming Miss Murray's permission). She says that a review in the forthcoming issue of the American Journal of Psychology gives further details of the controversy. She says that there are several points of practical interest to at least a third of our member bodies. The review suggests "that the 'purging' of the retina of the macula lutea may be an artifact of method - or the lack of it." As for her "somewhat immoderate stricture on the anomaloscope, this stemmed not merely from Farnsworth's 'Comparative Evaluation of Anomaloscopes' in 1952, as from a growing conviction that carelessly or too rigidly constructed, in the hands of novices relying on set norms or rule-of-thumb procedures, the anomaloscope (and the Rayleigh equation) are as great obstacles in the path of advancing visual science as the old Holmgren wool test was in its latter days in the hands of laymen." - Again, our spologies, Miss Murray.

COLOR TELEVISION IN VERY BLANK VERSE

Color television is surely not for me,
Even though this restricts the things that I may see,
Television in grays besides can only be
For all those who have leisure time more than a wee
Leisure, freedom and time are that which we have not
And one sees that to edit has been our sad lot
Letters manifold must be answered on the spot.
Editors lives are all lives of bad frustration
Television - banning's a part of our ration

Deadline-meeting is all there is of elation.
Radio tune-in may help to keep us near-sane:
Ears can hear while a line of thought we can maintain
Assuming that dogs and editors have a brain.
Editors, like people, also possess two eyes
One for the screen and one for the page, you surmise -
Try it out yourself, if you want a big surprise
'Tis not the procedure these pages can advise.
We tried it; that's why this verse is so very blank
Our vice verse helps to leave no time to send you thank,
Vice versa why you oft look for some place to spank.
If we can rent a color television space
Our commercial will thank contributors apace
And that may aid "escape" and help to save our face
And give us time to earn our daily bread each day
And some yellow butter - even café-au-lait.
Less frustrated we then may be; but now we say
"Anyway we have twelve syllables in each line,"
Even though one idea per page is not so fine,
And though our fork of time is left wtih single tine.

I.H.G.

MACBETH-MUNSELL DISK COLORIMETERS

We had a five-line item on this subject in our January issue, subsequent to receiving a letter from Warren B. Reese of Macbeth Corporation after our January 1 deadline. He told us that a colorimeter we had described in our November 1953 issue was only Type 1, especially designed for tomato-product grading. It has two spinning-disk motors, with a sample holder between. Word was received that the Department of Agriculture's Fruits and Vegetables Branch is interested in revising the U. S. standards for peanut butter. This involves a color comparator to establish the cutoff point between "light roast" and "heavy roast." Mrs. Bellamy of Munsell Color Company has made up some disks for the U.S.D.A.; and it is quite possible that the Type 1 Disk Colorimeter will fit this application very nicely.

The Macbeth people are in process of developing a new model, Type 2; the same as Type 1 in all respects save that there will be only a single spinning-disk motor in the center of the deck, and no sample holder. A number of firms have shown interest; and it will no doubt be applied to problems in the leather, textiles, paper, plastics, and paint industries, whenever a circular disk of the sample can be cut and mounted concentrically with the Munsell papers and spun together. Elsewhere in this issue we mention studies by ISCC President Nickerson of measurements on fluorescent samples by disk-colorimetric methods. Simultaneous spinning of sample and standard here and in other problems should help to reduce effects of texture difference.

Mr. Reese also described another new development, the Vue-O-Critic, which is "nothing more than a small semi-portable room in which the illumination and surround conditions are controlled for viewing progressive proofs against art copy or color transparencies in the Graphic Arts trade." The lighting is Macbeth artificial daylight of 7500°K; the box chamber is painted light neutral gray (Munsell N 8/). The fairly high color-temperature is because arts craftsman have largely gained their experience at a north window. Lighting comes from the side, so as to eliminate glare. There are other interesting details, and we suggest that anyone interested write to Mr. Reese at Macbeth Corporation, P.O. Box 950, Newburgh, N.Y.

(not at present to ISCC Treasurer Norman Macbeth, who is on an around-the-world trip).

COLORIMETRY OF FLUORESCENT MATERIALS

This problem, which is being tackled by the ISCC subcommittee on Problem 18, held two meetings during 1953, one at Hotel Statler, New York City on March 19 and the other at Hotel Seneca, Rochester, N.Y., on October 16. Copious minutes (with exhibits) were circulated to committee members by Secretary Eugene Allen of Calco Chemical Division of Cyanamid during the year; and during January, 1954, he added the minutes of the October meeting, again with accompanying material. Along with the former minutes was circulated a very interesting 4-page discussion, The Problem of Color Measurement of Fluorescent Materials, which outlined the whole problem and summarized its present status; this was prepared by Dr. Allen himself. Also included was a fine 38-page report, The "Day-Glo" Daylight Fluorescent Color Specification System," prepared by Richard A. Ward of Switzer Brothers, Inc., 4732 St. Clair Ave., Cleveland, Ohio. Another but brief exhibit, dated October 26, was prepared by G. H. Patterson of E. I. duPont de Nemours & Co.; it presented the fluorescence spectrum of an orange-red paper obtained with the Cary Recording Spectrophotometer Model 10 with Modified Cary Fluorescence Attachment.

With a letter of February 24, 1954, Dr. Allen passed on to committee members an interesting paper by the late Mr. R. Donaldson of the National Physical Laboratory, entitled Spectrophotometry of Fluorescent Pigments. These copies were obtained through the courtesy of Dr. W. E. K. Middleton. Dr. Allen describes the procedure advocated by Mr. Donaldson as a simplified version of the so-called "matrix spectroradiometry" procedure. Mr. Donaldson's own abstract is as follows: "A method is described for measuring the spectral reflexion of fluorescent pigments for incident monochromatic light covering the ultraviolet and visible regions of the spectrum. The results are recorded in the form of a square table from which quantum efficiencies and spectral reflexion curves for sunlight or any illuminant of known energy distribution are calculated. Data are given for a red pigment and an optical bleach. Three curves only, showing the variation of tristimulus values with incident wavelength, are sufficient for the calculation of colour. The curves of tristimulus values may be derived from the reflexion curves or measured directly by a template colorimeter."

Another meeting has been called for Thursday, March 25, 1954, at 8 p.m. in the Buffalo Room of the Statler Hotel, New York City. Of the meeting, Dr. Allen writes: "The meeting this time promises to be a most interesting one. One of the reasons for this is that Miss Nickerson is planning to demonstrate the technique of disc colorimetry as applied to fluorescent materials. She has tried this method on the samples which Mr. Ward has submitted, and has come up with some very favorable results." A copy of the brief Nickerson report was enclosed (see the next item).

NICKERSON ON FLUORESCENCE

Those who have read the preceding item have some idea of Miss Nickerson's disk-colorimetric procedure for measurement of the color of fluorescent materials. The tabulation accompanying her first report gives C.I.E. and Munsell specifications for six samples, as obtained by Mr. Ward, using C.I.E. Illuminant C and by three other observers using Macbeth light of 7500°K, of 6500°K, and blue skylight, respectively. The Nickerson results, while only preliminary, are a remarkable check on Ward's, although they used somewhat different exciting lights. Results obtained under the direction of Mrs. Blanche Bellamy in the Munsell laboratory were similar (the two

Macbeth lights and blue sky). Because of the simplicity and speed of the method, and the fact that matches can be made under as many different light sources as are of interest (since each match takes only a few minutes), will make all persons faced with the problem watch the development of this method with great interest.

FLUORESCENCE AND THE SWITZERS

While we are on the subject of fluorescent materials, we shall mention an article in the October 26, 1953 issue of Advertising Age received through the courtesy of ISCC Secretary Evans. It is entitled: "Joe and Bob Switzer Gain Success by Letting Others be Manufacturers." As you may guess, this means that their policy has been to license manufacturers to produce and sell the Switzer fluorescent products. For example, Interchemical Corporation was licensed to produce the "Day-Glo" letterpress ink used in an epoch-marking Fire-Orange face on the cover of the September McCall's. Other similar examples are given in the article, which tells a most interesting success story. Along with reprint of this article we received also a copy of the Vol. 5, No. 6 issue of Switzer Bros. "Day-Glo Herald." Here are mentioned many new developments in the fluorescence field, such as Sheffield Day-Glo Fluorescent Snow, for decorating Christmas trees, cards, etc.

CARPETING, UPHOLSTERY AND DRAPERY COLORS

Since we last reported on the activities of our member body, The Textile Color Card Association of the U.S. we have received five solid pages of material reporting the manifold activities of this Association under the dynamic leadership of its Managing Director, Margaret Hayden Rorke. We learned recently that eight colors from the Carpet and Rug Color Card and nine from the Upholstery and Drapery Fabric Color Card of the TCCA, were specified as standards for carpeting and fabric draperies in an excellent article by Faber Birren, entitled "The Functional Application of Color to Offices," appearing in the Certified Planning Service of the Operating Manual, issued recently by the Wood Office Furniture Institute, for which Mr. Birren is color consultant. The colors specified for carpeting in the COPS plan are the TCCA colors Sylvan Gray, Natural Beige, Seacrest Green, Cedartone (Tan), Petal Rose, Silverpine (Turquoise), French Citron (Lime Green) and Blue Quartz. Those specified for draperies are Silverwing (Gray), Shellglow (Beige), Brown Fudge, Cascade Green, Green Absinthe (Lime), Chalk Pink, Brittany Blue, Crown Yellow and Green Aqua. The COPS Color Chart, a part of the Operating Manual, lists 32 color schemes suggested by Faber Birren for decorating offices to create an attractive and harmonious working environment and to promote human efficiency.

SEASONAL COLORS FOR 1954

The Advance Confidential Hosiery Card for Spring and Summer 1954 was issued in December by the TCCA. To place added emphasis on color coordination in the ensemble, the seven new hosiery colors were exhibited in long flowing swatches of nylon, each accompanied by fabric samples of the individual color to which it is coordinated, as well as a smart accent note. Featured with Pecan Beige are harmonizing light to medium beiges. Sunglamour, a "golden suntone," is keyed to the lively scale of gay sports hues. With Glacé Coffee, a "light mocha", are the new spring browns. With Clovespice, a "tropical" color are "coral-tinted" capucine or nasturtium tones. Burnt Topaz is accompanied by cognac and apricot shades. Moonstar, a hazy gray, blends with the gamut of grays. Pearl Taupe, a light taupe, is shown with blues, headed by navy. A supplement, "A Palette of Water Colors", features hosiery colors which harmonize with the pastels promoted by the textile and shoe industries for the spring and summer seasons. The colors are Pink Mist, Peachdawn, Beige Cloud, Golden Sky and Blulite.

Fifteen colors were presented in TCCA's 1954 Spring and Summer Glove Color Card. Especially significant are Cruise Aqua (an "animated peacock"), Fiesta Pink (a "bright cerise") and Cheerio Blue (a "sparkling sapphire"). A pastel group includes Pink Tulip, Blue Daisy, Persian Amethyst and Seasun (a light lemon yellow). The beige to brown gamut is represented by Off-White, Champagne Sec, and Glacé Coffee. Cognac, a "spirited brandy" shade, Misty Dawn, a new gray, Rancho Orange, a "vivid nasturtium," Flight Green, a brilliant emerald, Joyous Red, White, Chamois, Navy and Black complete the list.

Forty new colors are included in the 1954 Fall and Winter Colors for Woolens and Worsteds. The first group are dark shades notable for their richness and depth. They are called Shades of Dusk; the names are: Blue Fog, Autumn Wine, Midnight Blue, Black Coffee, Lacquer Brown, Duskgreen, Charcoal Gray and Winter Red. A lighter group, called Ceramic Tones include Porcelain White, China Pink, Blugloss, Goldglaze, Aqua Clay, Rose Pottery, Turquoise Tile and Copper Lustre. The Duo-Tones are twelve groups of harmonizing shades. In this group Flame Nasturtium is coupled with Capucine; Orange Amber with the "coppery" Tortoise Shell, Bois de Rose with Mahogany; Tealwing with Blue Peacock; and Sparkle Blue with Royal Sapphire. In the forefront of "neutrals" are two beige and brown ranges, Mokatan and Tobacco Leaf of warm yellowish cast, and the more "muted" colors Oakbeige and Nougat Brown. Other neutrals are Aluminum Gray and Parisian Taupe. Two brilliant reds are Lightning Red and Berry Red. Yellowish greens include Grecian Olive and Tuscan Bronze, while Green Tile and Orient Green are bluish greens. Completing the list are two violines, Florentine Mauve and Spanish Purple.

The 1954 Fall and Winter Colors for Man-made Fibers and Silk also include forty colors. The first group, called Colors of the American Colonies, are in the medium range: Williamsburg Mauve, India Tea, Colonial Spice, Independence Bronze, Concord Gray, Mt. Vernon Blue, Continental Beige and Virginia Rose. A group of more dramatic dark colors shown on heavy satin are called Nightfall Colors; it includes Café Blue, Festive Wine, Green Fantasy, Grape Brandy, Dramatic Purple, Evening Green, Soirée Brown and Night Gray. The following are the blending shades of the Duo-Tones of this group: Golden Tortoise and Topaz Gold; Bois de Rose and Mahogany; Terra Cotta and Capucine Orange; Blond Ivory and Ashen Taupe (neutrals); Candy Beige and Metallic Brown; and Gunmetal Gray and Lustre Gray. The strong red family contributes Oriental Ruby and Crystal Rose; the blue family, Blue Enamel and Stained Glass Blue (tinged with violet); the purples, Italian Amethyst and Wild Violet; and the greens, Frosty Lime and Rustic Moss (yellower), and Luminous Green and Irish Mint (these two bluish). The list is completed by Roman Turquoise and Indo Peacock.

I.H.G.

SAFETY COLOR CODE We received from Mr. Evans also copy of American Standard Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment, approved by the American Standards Association on September 11, 1953 (numbered Z 53.1 - 1953). ISCC and National Bureau of Standards representative on the Sectional Committee in charge was Harry J. Keegan, well known to ISCC members for his work on color for safety. His NBS alternate was Stuart J. Owen, Jr.

The provisions of the new color standard are well summarized by Tables 1 and 2 and a CIE chromaticity diagram. The safety colors specified are a red, an orange, a yellow, a green, a blue, a purple, white and black. Table 1 gives their CIE, ideal Munsell and ISCC-NBS specifications (in the latter two cases for the center point

of a specified area of colors). Table 2 gives standardized colors from recognized sets of material standards found to pass the specifications. For ceramics, this means the Commercial Standard, Colors for Bathroom Accessories, NBS CS-63-38; for paints, Colors for Ready-Mixed Paints, Federal Specification TT-C-595; for paint pigments, NBS Standard Samples of Paint Pigments (of numbers in the range 1110 to 1755); for pigmented papers, colors of the Munsell Book of Color (specified by Munsell notations); for pigmented plastics, the glossy side of the Jacobson-Granville-Foss Color Harmony Manual issued by Container Corporation of America; for other plastics, either colors for Molded Urea Plastics, NBS CS 147-47, or Colors for Polystyrene Plastics, NBS CS-156-49; for printing inks, specified colors of the Maerz & Paul Dictionary of Color (McGraw-Hill Book Co.); and for textiles, colors of the Standard Color Card of America, Ninth Edition, issued by the Textile Color Card Association of the U. S. Inc. (in the cases of purple and black, two alternative colors each). Four pages of text give the special applications of each color and the color definitions. Mr. Keegan and his associates on the Sectional Committee in charge, as well as the ASA, are to be congratulated on a fine job.

THE FOUR TIMES OF COLOR

This is the title of an article on the back cover of Plastics Newsfront, organ of the Plastics and Resin Division of American Cyanamid Company. Though it partakes somewhat of the nature of an advertising article, we thought that its dignified and interesting nature assured its interest to our readers. Accordingly, we reproduce it here with the permission of American Cyanamid through the courtesy of Norman L. Price of the Plastics and Resins Division.

Identification of colors by the time of day is the basis of a comprehensive concept of color harmony known as Quantacolor. The four times, or Quantas, of color emanate from morning, noon, late afternoon, and evening. Each Quanta contains all colors, but differs from the other three in quality and impact. Any color within one Quanta will coordinate with any other color of the same Quanta, but will clash with colors of another Quanta. Each group is broken down into warm and cool colors.

Putting this simple but comparatively new knowledge to work for the benefit of manufacturers is the function of the Quantacolor Company. In its modern mid-Manhattan offices in New York, the company's staff of color experts can quickly and convincingly demonstrate the Quantacolor theory with its Quanta-grouped BEETLE Plastic chips. BEETLE, which has more than 2500 available colors, was chosen to represent plastics in the company's groups of various materials. When a white chip from one Quanta is held against another Quanta, the chip immediately seems to lose its own bright color and assume a dirty, unattractive appearance. Back in its own Quanta, the chip is clean white again.

These experts point out that their experience with clients in a variety of product fields proves their contention that conscious use of this natural relationship of colors in a product tends to increase sales. When the relationship is ignored or is not achieved by chance, an otherwise good and well-designed product is apt to go begging for buyers. Most people unconsciously reject packages or products whose colors are not harmonious.

A manufacturer faced with the problem of choosing colors to bring about maximum sales can refer to the Quantacolor Company for the answer to his dilemma. If he already has the label for a bottled product, he can choose a color from the same Quanta for the cap, thereby giving the package greatest visibility and eye-appeal.

Or if his product is a wrist watch, he can coordinate the colors of the band, dial, metal case, price tag, and the protective display box. The Quantacolor Company's sets of BEETLE chips enable manufacturer or designer to actually see and feel the type of material that will be used in molding the watch box or bottle cap, and to select a color that will be in tune with other elements of the package. Printing inks used on the package label must also be carefully selected. To help the printer achieve the correct hue, Quantacolor furnishes him with three or four close variations of the shade desired. With these to guide him, he has a better chance of attaining the preferred color. If he is unsuccessful, however, he is at least able to match one of the close variations, any of which will harmonize pleasantly with the package.

The Quanta theory of color was observed and worked out about 40 years ago by a Scottish artist named H. K. Elcock. Its practical application, however, began only eleven years ago when the Quantacolor Company was established.

In addition to determining suitable color combinations, the theory defines the personality of each Quanta. This simply means that the colors of Quanta II, for instance, are better suited to certain types of applications than are the colors of the other Quantas. If a product doesn't sell well, a change of Quanta may be what's needed. Each Quanta has its own field of usefulness. In terms of packaging, for example, Quanta I colors give a product eye-catching brilliance; Quanta II suggests unobtrusive distinction; Quanta III denotes very high fashion; Quanta IV implies tradition, mellowness, and durability.

Within each of American Cyanamid's two groups of molding materials there is a gamut of attractive colors which fall naturally into the four Quantas. Thanks to Quantacolor grouping, appropriate colors in plastics can be readily selected to assure a product - be it a box, bottle cap, appliance, or dinnerware - the best possible chance of sales success.

GRANVILLE TO BUSBY ON COLOR-CHIP PERMANENCE

We reproduce here with permission a letter, dated February 25, 1954, from Walter C. Granville, Assistant Director, Department of Design, Container Corporation of America, to Mr. H. S. Busby in response to the letter of the latter mentioned on page 8 of our January issue (No. 110). We think many of you will find it very interesting.

Dr. Godlove has been kind enough to send me a copy of your letter of December 30, 1953 which was the subject of a discussion in a current issue of the Inter-Society Color Council News Letter. Since there has been reference by several people to the stability of the color chips in the Color Harmony Manual I thought a few comments might be appropriate.

The color chips in the Manual were prepared by applying a pigmented lacquer of appropriate color to a sheet of clear transparent cellulose acetate, glossy on both sides. The coated side appears mat because the pigmented lacquer was so formulated; the opposite side of the chip appears glossy. Chips for the first addition of the Manual were produced in 1940 and 1941 and the mat sides of all of them were spectrophotometered in 1943. In 1951 we selected about two dozen colors from regions of the color solid that would normally be suspected of changing in color with age and had the originally measured swatches for these particular colors remeasured, using the same spectrophotometer (at Electrical Testing Laboratories).

It is the opinion of Mr. William F. Little, Head of the Photometric Department of ETL, and myself that the differences between curves, representing an eight year interval, are so small as to be within the experimental error of measurement. We conclude, therefore, that Carl E. Foss achieved remarkable success in imparting stability in color with age to these chips. To the best of our knowledge they represent the most stable general collection of color standards now in existence. Evidently their rate of change in color with age is so small that we will have to wait for the passage of decades rather than years or months in order to determine the rate of change in color with age.

COLOR AND FASHION

One of the most interesting articles in this field that the Editor has ever read was presented before a Hosiery Symposium in Chicago on September 18, 1953 and published in the American Dyestuff Reporter issue of February 1, 1954 (vol. 43, p P76). The speaker and author was Helen Sisson, Fashion Director of Phoenix Hosiery Company of Milwaukee, New York, Chicago, and San Francisco, who not only seems to have ideas but can transmit them in a lucid and trenchant style which carries a punch. She deals with the history of the use of color in fashion and points out the leadership of the artist in interpreting the spirit of the times. But she points out that the use of color in the industrial age is no longer the field merely of the artists but has gone over into the field of science. During the wars of the Twentieth century, women began to take over industrial jobs and simultaneously won political freedom and freedom from household drudgery. And in the twenties of that century came freedom from the old prejudices about color which had served to trammel 170 million people of our country from the Victorian era, but who now were instilled with the new spirit. This change in people was felt by both manufacturers and stores. Color was no longer regarded as a staple article: so much good black, navy, light blue, tan, Kelly green and deep green to stock up. "Brown was (then) primarily for the redhaired, blue for the blue-eyed, black for the elderly ladies, and red - well red was a fast color and I don't mean color-fast!" The women who were now bobbing their hair, using lipstick and driving automobiles "wanted new colors to express the excitement of life." Along with experimentation in styles - the length of the skirt, up and then down - came experimentation in color: with tangerine, periwinkle, bois de rose and taupe, with Patou a color leader among designers.

During this period women's legs became part of fashion and good stockings (of silk) became essential to appearance. During the thirties color became ever more important - in Technicolor, in plastic articles, even in the Ford car; and of course in the favor shown for Van Gogh paintings. Color co-ordination and harmony of ensembles became the dominating problem. Here color science lent a hand. The author pays tribute to Egbert Jacobson, who taught that in color, science and art are one and sounded the keynote of Munsell and Ostwald, that "Harmony equals Order." The post-war era became the "Golden Age of Color and Texture." Manufacturers began to study the likes and dislikes of the woman with a paycheck. "Manufacturers study her, retailers cater to her, . . . magazines have been created . . . for her and all others bid for her dollar." Manufacturers and stylists give her ensembles already color harmonized, with printed advice on coordination. "The entire fashion market is moving in color harmony . . . as if it were painting a picture."

But while almost all other sorts of merchandise are blossoming out in brighter colors, hosiery colors are nondescript, and "women are still walking around with the bare-leg look, no-color look and the one-color look (beige)." "Why should we let the modern woman be so conservative about discovering the positive quality of her legs when she has learned the art of make-up, of hair coloring and of dressing

in attractive colors?" Phoenix Hosiery Company therefore produced more chromatic hosiery colors and originated a program of color-cuing, color-boxing and color-displaying ten harmonized colors. It now looks as if color keying will become standard in selling color-harmonized hosiery. "We shall not be satisfied until the whole world awakens to the beauty of color, for color is life."

It happened that the reviewer had recently cooperated with his colleague Dr. J. B. Normington in work for a hosiery company, in the course of which some very attractive blue, red and yellow nylons were dyed. Examples of these were sent to Miss Sisson, along with comments by the reviewer on the ideas of her article. She responded with three dyed stockings in deeper and less-bright shades ("sky colors"), while pointing out that the consumer is interested not in the color of the stocking in hand, but in the stocking on the leg. For example, in a Phoenix advertisement in Mademoiselle, it is mentioned that nylons that are blue in hand look the "misty color of milk glass" on the leg. The reviewer in his letter had asked the author whether she advocated vivid or bright colors for <u>all</u> women, or whether a woman with a "lackluster, negative personality" had not better remain gray or rather neutral; and if she has piano legs whether it would not be wise to avoid bright stockings, wearing instead a bright Ascot if she happens to have a well-modelled throat. Though the author and the reviewer agreed on all essential points, the former countered with the remark that if a woman's stockings are blended to her costume her legs will actually be less conspicuous than as if they contrast though this contrasting color is a negative beige. Also with the remark that birds big or little can wear bright plumage attractively because it is well harmonized. The only place the reviewer really disagrees with the author is in part of a closing sentence in her responding letter, where she says that "the beige stocking has become such a habit that no-one looks at legs for color and very few for form!" You may guess in which part we disagree.

I.H.G.

THE COLOR AND ART OF INDIA

Two recently published books which the Editor has enjoyed reading carefully deal with the art, the architecture, the archaeology and the color of Greater India. For the first, by the well known archaeologist Stuart Piggot, Prehistoric India," in the Pelican series (1950), includes the interesting prehistoric cultures and colorful painted potteries of Baluchistan and Afghanistan, the painted ware from Anau, in Russian Turkestan, and their connections with the early cultures of Iran and western Asia. The other book, "The Art and Architecture of India" (1953), by the noted authority, Benjamin Rowland, deals also with the art of Ceylon, Cambodia, Siam, Burma, and even Java. So much is included in the latter work, and even in the 300-page little Pelican book, that a systematic survey is hardly possible in our available space. We shall therefore hit only some of the outstanding high spots.

Both books of course deal at some length with the pre-Aryan Harappa or Indus Valley culture of India. It is a never-ending source of amazement to the reviewer to learn of the advanced state of this culture in the 3rd millenium B.C., while remembering that it was developed by a Dravidian-speaking blend of black, almost dwarf Negriot or "Proto-Australoid" stock with a Mongoloid and a Mediterranean type. Yet they built great cities with broad parallel streets at right angles thirty centuries before many European cities gave up the practice of running narrow streets any old way which suited the enthusiasm of the moment. They had the potter's wheel and were masters of the metallurgy of bronze, which Egypt never had during many centuries of its historical period. The cities destroyed by the Nordic Aryan invaders had multi-storied homes well provided with bathing facilities and drains, even

rubbish chutes to send rubbish to the streets for collection. Brightly colored children's toys and bangles of nearly all precious materials were everywhere.

But to bring our attention closer to color, we shall review briefly the Harappa pottery wares. The vessels were mostly intended as storage jars. They were covered with a deep red-ocher slip and polished to a lacquer-like finish. The designs were applied with a glossy black pigment before firing. The most notable and characteristic motifs were variations of the intersecting circle; other designs included foliate and animal patterns. There were also vessels of gray clay coated with a polished black slip; and so-called "reserved-slip" ware. The latter had a light-colored slip laid over a dark body-clay and then wiped off again in streaks, so as to produce a pattern of alternate contrasting dark and light bands. A "plain" ware was red, buff, or gray in color, and lastly there was a polychrome ware, probably intrusive or late, with black designs on a buff or cream-colored ground filled in with red, green, or yellow pigment applied after firing. And at Chanhu Daro were naturalistic scenes in black, white, and red on a yellow-ground.

But polychrome ware was characteristic of the culture of Nal in Baluchistan. This ware employed a full range of hues - red, blue, green, and yellow. Piggott distinguishes an Amri-Nal culture, because the pottery of Nal is related to that of Amri in the Indus Valley, whose culture antedates both that of the Harappa and the Nal cultures. Another probably older ware came from Quetta in northern Baluchistan. The cultures of Quetta, Amri-Nal, and one known from Kulli in southern Baluchistan, are all classified as Buff-ware cultures, while so-called Zhob cultures from sites in the Zhob valley of northern Baluchistan are Red-ware cultures. In Iran too, speaking broadly, Buff-ware is found in the south and Red-ware in the north. The Quetta ware is painted with geometric motifs in a fine, assured, free style with a purplish-brown ("black") paint, with no use of a second color (unusual in Baluchistan). The Zhob cultures are best known from the well stratified site Rana Ghundai, excavated only a few years ago by a British general. Of the interesting items from this site, we shall mention only the pottery of the second-lowest or "Bull" stratum. This was a superb wheel-turned ware decorated with fine stylized figures of humped bulls and black buck, skillfully painted in black paint on a ground which varies from pinkish or buff to a dark terra-cotta color.

The limitations of our space and function deter us from speaking of the other interesting aspects of the Harappa culture. Besides in general we read that Harappa arts and crafts give an impression of a thoroughly competent dullness, heavily weighted down by the dead hand of conservatism, without the barbaric spontaneity of some older and more primitive cultures. Throughout the centuries of the Harappa culture there was little change - its beginning was little different from its end. Why we do not know. Of that other great well of population, China, we may perhaps say that it failed to progress in many of the arts (as metallurgy) because of the ubiquitous presence of that adaptable material, bamboo, which could be made into almost anything. Unless the reviewer has missed it, neither Piggott nor Rowland give an explicit explanation in the case of India. But on reading Rowland's great book, in which all discussion of art, architecture and daily life are dominated by their relation to Buddhism, one gets the impression that religion may be the dominating conservative element. In Greater India, one might almost say that art is religion, and religion is art. Buddhism of course was an immense stimulus to art especially in architecture and sculpturing; or perhaps it is more accurate to say that the patrons of Buddhism among the rulers, such as the great Asoka, were the dominant influence on art.

In Rowland we may find some details of the famous wall paintings at Ajanta in the Deccan. They were in one of 26 rock-cut cave-temples at Ajanta, dedicated in the second century B.C. The principal mural recounts the story of the Buddha's sacrifice of his tusks during his incarnation as an elephant. Most of the painting is given over to a wonderfully naturalistic recording of the elephants in their deep-forest home. Rowland gives (p. 146) details of the painting on a gesso ground which includes outlining the composition in "cinnabar red" (vermilion).

In Rowland, we learn that the favorite mediums for carving the famous Gandhara art, the official architecture and sculpture (and painting) of northwest India in the first seven centuries of our era, under the patronage of the Kushan kings, were the blue schist and green phyllite of the region. That the stucco sculpture of northwest India and Afghanistan was originally brilliantly colored. In a ruined monastery at a site in Kabul, several specimens of lime-plaster sculpture were well preserved. Flesh parts were a "pinkish terra-cotta," with lines of deeper red to indicate folds of the neck, lips, etc. Black and brown were used for details, and the robes of Buddhist figures were painted a deep vermilion. Jewelled ornaments and headdresses were picked out in "lapis lazuli blue" (ultramarine). This blue color dominates the paintings found at Bamiyan in north central Afghanistan, done in a "Central Asian" style. This mineral ultramarine probably came from Badakshan in northern Afghanistan; it travelled in prehistoric times across Asia to Mesopotamia and Egypt; and was the source of the Roman market. The Central Asian style is well illustrated in the early sixth century painting in the Cave of the Painter at Kizil in the Kucha district of Turkestan. Here the heavy plastic shading, characteristic of Indian painting, is largely absent, and the color scheme, limited to dark reds and browns and malachite green (2 G 5.4/4.8), lacks the richness and tonal range of the Ajanta murals, but closely approximates to the colors of the Bamiyan paintings. The latter have an almost heraldic appearance due to a combination of wiry line drawing with areas of "flat", brilliant color. A dancing figure in the Treasure cave at Kizil is in a second Indian style, called Indo-Iranian. It is characterized by the use of an arbitrary scheme of chiaroscuro (light and shadow), whereby the contours of the figures and the interior of the flesh parts are heavily reinforced by broad lines of orange pigment! This phase of Turkestan painting is distinguished by its strident brilliance of coloring: malachite green, orange and lapis-lazuli blue are the dominating colors in this completely non-realistic palette. "Strangely inarticulated figures have their faces and bodies outlined with thick bands of orange shadow" (Rowland).

Both Rowland and Piggott give fairly complete chronologies. The latter not only gives the chronological relationships of India and Baluchistan, but in tables shows their parallels with the cultures of Iraq, Iran, and the Caucasus. Unfortunately, his dates in the text often contradict those indicated in his Indian table; and we get the impression that the table came (unrevised) from an earlier publication. Nevertheless the book is worth many, many times its price (65 cents). Of Rowland's work, the only deleterious remark (from our viewpoint) we can make is that it deals far more with sculpturing and architecture than it does with painting and color. But no doubt this is because the art of Greater India which has survived the ravages of time includes relatively little painting or color.

I.H.G.

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