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# INTER-SOCIETY COLOR COUNCIL

## NEWS LETTER No. 92

JANUARY 1951

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**FEBRUARY 28  
ANNUAL MEETING**

Remember the date: February 28, 1951; and the place: Washington, D.C. Announcements have been sent to you, with hotel reservation cards. Wardman Park Hotel will be the headquarters hotel; the East Lecture Room at the National Bureau of Standards will be the meeting room.

Remember too that Committee E-12 (Appearance of Materials) of the A.S.T.M. meets February 27, the day before, with a program of interest to all I.S.C.C. members, and that the Optical Society of America meets March 1-3, the following days. All I.S.C.C. members who are interested are invited to attend either or both of these meetings. The headquarters hotel is the same for all three groups.

**WASHINGTON  
AND BALTIMORE  
COLORISTS**

On December 4 at the National Bureau of Standards, Francis Scofield of the Scientific Section of the National Paint, Varnish and Lacquer Association talked to the first meeting of the 1950-51 Colorists season on the Selection of Paint.

He discussed the various purposes served by paint, the various types available, and the reason for the selection of one type rather than another for a given purpose. Mr. Scofield had procured also a very interesting motion picture on paint manufacture, a picture made by the Rinshed-Mason Company of Detroit. A lively question and answer period concluded the meeting. The subject was one requested by several members of the group, and was of sufficient interest that in spite of extremely bad weather - snow and sleet - twenty-seven persons attended.

On January 15 the second meeting was held: a dinner meeting at the YWCA. Again, the subject was one requested by members of the group, the story of the Making of Color Charts, with particular reference to the new Federal Color Card. Harry Keegan had a fine presentation, well illustrated, to show the need for this co-operatively developed color card, and some of the many difficulties that were involved before completion. Frank J. Roetzel, of Color Marketing, Inc., Cleveland, Ohio, the firm that produced the Federal Color Card by the McCorquodale Process of depositing many colors at a single time, was present. The method was described by Mr. Roetzel and others in the group who had visited the Cleveland plant.

The subject of color charts raised a number of questions. Among the audience were several members of the Munsell staff, including F. A. Carlson, now in his 75th year, but still active in producing the papers for the Munsell color standards; and they were asked to describe their methods of chart production. Color samples for the Munsell standards are produced by hand, and in small quantity. An order for two or three thousand special charts is a big one for them to handle, and few costs after the first few hundred can be decreased for quantity production. The Color Marketing process, on the other hand, is one that can be done most efficiently on large orders. Their costs, after the first 10,000 or so can be reduced considerably up to perhaps 100,000. Accuracy of matching depends upon the skill of the color matcher, and once a match is made it costs little more to match enough colors for 100,000 than for 10,000; for mechanical methods take over once the presses are set up on satisfactory color matches.

In connection with this discussion a series of charts prepared for horticultural use were demonstrated and discussed. They had been developed by Miss Nickerson in working with a number of horticultural groups, and combine the best features of a number of well known charts: the equal visual spacing and notation of the Munsell, certain of the presentation methods of the Ridgway, large sample areas, with individual samples easy to get at for matching, inclusion of ISCC-NBS color names, and last, but not least, use of the McCorquodale method to produce a low enough unit cost for a large production so that the price can be within reach of any amateur or professional who is interested in color. It was brought out that the financing of such charts is important, for unless it is done as much as is possible on a non-profit basis, the unit costs will double or triple, so that once again a color chart will not be within reach of all, but merely a few. All the skill and know-how that has so far gone into this work will be freely contributed to chart production once suitable means can be found for financing the project. Several of the horticultural groups are much interested, and Canadian groups have been active in the preliminary work. The present form of chart is such as to make it of general use for many purposes other than agriculture. The Munsell Color Foundation, a non-profit organization formed for the very purpose of stimulating and developing sound work in color, is a logical organization through which such a project might be handled. Costs involved in a 100,000 edition, to be produced by the McCorquodale process and to include 1200 to 1500 samples, would be several hundred thousand dollars, no mean sum. One suggestion is that it might be done by obtaining the cooperation of several large organizations interested in color standardization problems. Advance orders for several thousand copies from each of several such groups would help. A retail price of no more than ten dollars for a single copy should be the top price limit if the chart is to be widely useful. Cooperation could do it!

CALIFORNIA  
COLOR SOCIETY

A meeting of the California group, scheduled for November 30 at the Art Center School Auditorium, announced as their speaker Dr. George Mount, Assistant Professor of Psychology and Engineering at U.C.L.A. His topic, "Psychology of Color," was accompanied by demonstrations. It was reported by Allan W. Edwards, Publicity Chairman of the Society, that although Dr. Mount's lecture was highly technical in many aspects, his delivery was so well executed that laymen present were enabled to grasp the entire meaning of his lecture.

For January 3, Dr. Willard Geer, Assistant Professor of Physics at USC, in charge of survey courses there, was scheduled to speak on "Color in Color Television," again at the Art Center School Auditorium. We have not yet had a report of this

meeting, but have been told that Dr. Geer has an art background and that his demonstration, with demonstration material, was planned for the lay-person's information about color television; how colors are mixed, comparison of CBS, RCA, GE and CTI of S.F. systems; and the quality of color produced by each method.

After the November meeting, with Albert King in the chair, the following new officers were elected:

Chairman:	Dr. C. L. Graham, Eastman Kodak Company
V. Chairman:	Mr. William Manker, Color Consultant
Secretary:	Mrs. Louisa King, Ceramist
Treasurer:	Mrs. Nancy Patterson, Artist

#### BRITISH COLOUR GROUP

The 54th science meeting of the British Colour Group was held on October 4 at the Imperial College. Two papers were scheduled, The Dependence of Anomaloscope Matching on Field Size by Mr. R. G. Horner and Mr. E. T. Purslow of Ilford Limited, and Some Aspects of Colour Adaptation in the Central Fovea, by Dr. E. N. Willmer of the Physiological Laboratory at Cambridge. The 55th science meeting was held Thursday, November 9, in the Lecture Room of the Institute of Ophthalmology, London; the subject, A theory of Luminance Discrimination, discussed by Mr. R. W. G. Hunt of Kodak, Ltd.

On December 6, 1950, a meeting was scheduled for the Lighting Service Bureau, with a paper entitled Variation in Normal Colour Vision in Relation to Practical Colour Matching to be given by Mr. F. L. Warburton of the Wool Industries Research Association.

#### LAW ESTABLISHING NEW VALUES OF PHOTOMETRIC UNITS

The September 1950 number of the National Bureau of Standards Technical News Bulletin announces that by an act approved July 21, 1950 (Public Law 617), the 81st Congress has given formal statutory sanction to a revision of the practical system of electrical units. In large part, the values adopted for these units resulted from research at the National Bureau of Standards, and the present legislation was proposed by the Bureau. The changes in magnitude of the units are small, in no case larger than 1/20 of one percent, but the new law puts the values on a clear and unambiguous basis which assures the closest practicable agreement between electrical and mechanical units.

The story of this accomplishment is told in detail in the NBS Circular 475, "Establishment and Maintenance of the Electrical Units" (Superintendent of Documents, Government Printing Office, Washington 25, D. C., 25 cents a copy). The new Act is similar to the old law in defining the fundamental practical units as multiples of the units of the centimeter-gram-second electromagnetic system. In fact, however, they are also component parts of the meter-kilogram-second system which is being widely accepted in textbooks and in engineering practice. Two sections of the Act define the basic photometric units, the candle and the lumen, which were not previously defined by law.

The provisions of the law relating to photometric units are as follows:

Sec. 10. The unit of intensity of light shall be the candle, which is one-sixtieth of the intensity of one square centimeter of a perfect radiator, known as a "black body," when operated at the temperature of freezing platinum.

Sec. 11. The unit of flux of light shall be the lumen which is the flux in a unit of solid angle from a source of which the intensity is one candle.

COLOR TELEVISION Since the last News Letter, readers undoubtedly have followed court proceedings regarding color television. Broadcasting in color is still held up, although the Chicago court found for CBS.

Meanwhile, because so little publicity has been given to certain features of the problem, some of these, as discussed in the FCC report (reference on page 13, News Letter No. 91), are brought to your attention.

Prior Consideration of Color Television by F.C.C. Public hearings were held as early as January 27, 1941. In February of 1940 RCA demonstrated a "three-channel, three-color, additive system consisting essentially of an independent chain of equipment for each of three colors, including a separate kinescope of proper screen color for each, with optical combinations of the three images." In August 1940, CBS demonstrated a system which utilized 343 lines, 60 frames and 120 fields, with mechanical filter discs or drums at the transmitter and receiver. In its April 30, 1941 order adopting the first commercial television rules and regulations, it was provided that "on or before January 1, 1942, . . . . . complete comparative test data on color transmissions, with recommendations as to standards" shall be submitted to the Commission. Because of the national emergency, the industry reported in 1942 that it was prevented from proceeding with suitable experimentation.

In 1946-47 the F.C.C. held public hearings regarding promulgation of commercial standards. Standards for CBS were the only ones formally proposed for adoption. It requested commercialization of color in the UHF band, using a field sequential system with 525 lines and 144 fields, and a 16 mc channel width. During the December 1946-February 1947 hearings RCA advanced for consideration, but not for standardization, a simultaneous UHF system, disclosed to the public in October 1946. Since the green signal was transmitted on the same standards as monochrome, except for the UHF carrier, the RCA color could be received on existing sets providing a UHF converter was used. The principle of "mixed highs" was mentioned as having excellent promise of reducing band width requirements. In their report on March 17, 1947, the F.C.C. denied the CBS petition, basing their conclusions on two grounds: One, that there had not been adequate field testing; two, that there may be other systems which offer the possibility of cheaper receivers and narrow band widths. The report called for further experimentation, particularly along two lines, one looking toward development of low cost receivers, the other toward utilizing narrow channels. In that report the Commission stated that while compatibility is an element to be considered, it is "of greater importance, if a choice must be made," that the best system be developed, "employing the narrowest possible band width," one "which makes possible receivers capable of good performance at a reasonable price."

At the September 1948 UHF hearing it was reported that it seemed impractical at that time to set up commercial standards for color television in UHF, and therefore it was important for F.C.C. to consider the effect of an interim allocation of UHF channels to a 6-mc monochrome service on the eventual establishment of a color service.

Color Phase of 1949-1950 Proceedings. In a notice of July 11, 1949 the F.C.C.

described the conditions under which it would consider proposals for a change in standards, for channels 2-55, looking toward color television. It required that these proposals be specific as to any change or changes, and show the changes or modifications required in existing receivers to enable them to receive programs in accord with the new standards. Such a system "must operate in a 6-mgc channel," and existing receivers must "be able to receive television programs . . . . by making relatively minor modifications" in existing receivers.

CBS, CTI, and RCA were the only parties who appeared as proponents of their own systems. Hearings were held before the F.C.C. beginning September 26, 1949, ending May 26, 1950 - total of 62 hearing days, covering 9,717 pages of transcript. There were two phases, one ending November 22, 1949, the other continued to February 6, 1950. In the intervening period the parties conducted field tests of color television systems. During the hearings the following demonstrations were conducted:

- CBS - October 6-7, 1949, Carlton Hotel, Washington, D. C.
- RCA - October 10, 1949, Washington Hotel and Wardman Park Hotel, Washington, D.C.
- CBS-RCA - DuMont monochrome comparative demonstration, November 21-22, 1949, Temporary Building E, Washington, D. C. At this time F.C.C. demonstrated a conventional Bendix television receiver equipped with automatic adapter invented by members of the F.C.C. staff.
- CTI - February 20, 1950, Statler Hotel, Washington, D. C.
- CBS-RCA-CTI - February 23, 1950. Comparative demonstration at F.C.C.'s laboratory, Laurel, Md.
- RCA - April 6, 1950, demonstration of trichromatic (3-color) receiving tubes, Trans-Lux Building, Washington, D. C.
- CBS - April 26, 1950. Demonstration of horizontal interlace, CBS laboratories, New York City.
- CTI - May 17, 1950, St. Francis Hotel, San Francisco, California

Conclusions. Following many pages of description and evaluation of the three systems, the F.C.C. presented its conclusions. In their opinion in establishing standards a system must be chosen that produces a satisfactory color picture and is capable of operating through apparatus simple to operate in the home and cheap enough to be economically available to the general public. They believe it not in the public interest to establish standards by which only black and white receivers are cheap enough to be generally available, and color receivers available only to those who pay luxury prices. After listing 7 criteria, which do not include compatibility, convertability, or adaptability as necessary (though they would be desirable), conclusions are presented regarding each system:

Regarding CTI. F.C.C. reports that it falls short of the criteria established; the quality of the picture is not at all satisfactory; there is great doubt as to whether it even qualifies on its claim for one of its principal advantages, compatibility (there is serious degradation in quality of the black and white pictures from CTI color transmissions); its equipment is unduly complex. At the receiver, image control is so critical that the average person could not be expected to operate it, and at the station end even with trained personnel it is doubtful if equipment could be maintained for regular broadcast operation. CTI did not demonstrate any outdoor pickup equipment.

Regarding RCA. F.C.C. reports that it also falls short of the criteria set; the color fidelity is not satisfactory; at no demonstration on the record could RCA

consistently produce pictures with adequate color fidelity, the inability to produce accurately skin tones is a serious handicap. The texture of the picture is not satisfactory, at all demonstrations the quality was marred by misregistration and by dot structure. Even on the score of compatibility the quality of black and white pictures on existing sets is somewhat degraded because of dot structure and misregistration at the camera (though the black and white picture is of reasonably good quality). The receiving equipment is exceedingly complex; the tri-color tube demonstrated late in the proceedings has had little field testing, and has not been available for the purpose of checking its operation; as demonstrated it was not entirely satisfactory, and there is no assurance that it will not be unduly expensive; a time error of one-eleventh millionth of a second results in color contamination. The equipment at the station is also exceedingly complex, with no assurance that satisfactory commercial equipment can be built since at not a single demonstration was accurate registration maintained; even the trained personnel generally available to the average station could hardly be expected to handle the job; these difficulties will be particularly onerous for outdoor pickup; RCA did not demonstrate any outdoor pickup equipment. The RCA system has not met the requirements of successful field testing (one of the reasons the F.C.C. rejected CBS in 1947), RCA has not shown that its equipment is simple enough to be operated by the average individual - the testimony of a trained expert to the contrary. In ruling out the RCA system, testimony of many radio manufacturers directly, and through their trade association, was not overlooked; however, when conclusions based on recommendations and expert opinions are not upheld by demonstrations the F.C.C. cannot feel bound to accept them, particularly since the testimony of many was not based on field testing made by them or upon an analysis of field testing made by others. (It cannot be overlooked that many of these same parties offered recommendations and expert opinions of the same kind as the basis for their advocacy in the 1946-47 hearings of the RCA simultaneous system - a system that never survived field testing.)

Regarding CBS, the CBS system produces a color picture most satisfactory for texture, color fidelity, and contrast. The several demonstrations included a wide variety of subject matter both in the studio and out of doors and the resulting pictures in each case were entirely suitable for home viewing purposes. Receivers and station equipment are simple and easy to handle; they have been subjected to wide use with no difficulty. The difficulties of flicker and fringing are there but are not serious obstacles; they occur rather infrequently, and when they do are not too annoying to the viewer. There is less geometric resolution than in the present monochrome system, but color more than outweighs the loss in geometric resolution as far as apparent definition is concerned. There is some degradation in black and white pictures, as there is for the so-called compatible systems, on receivers that are adapted to receive black and white. However, receivers can be converted to receive CBS color, as well as adapted to receive only in black and white, so that the viewer has the choice of adapting for black and white only, or converting his set to receive color.

(Ed. note: No claim was made for either RCA or CTI that present sets could be converted - at any price whatever - to receive RCA or CTI color; new receivers would be necessary, a fact not usually made clear among the many loud claims regarding compatibility. To this reviewer, convertibility to color, at a modest cost, is a much more important factor than compatibility.)

At the time of the F.C.C. ruling CBS was limited to projection receivers, to sizes no larger than 12 $\frac{1}{2}$ -inch direct view tubes which can be magnified to 16 inches.

However, the tri-color tube is not limited to this size, and RCA and other witnesses agreed that this tube could be utilized on the field sequential system. Therefore, if successfully developed, the tri-color tube can be used with the CBS system. (Ed. note: A rotating drum for color filters applicable to 16-inch tubes has recently been demonstrated by CBS.)

Course of action. Since there was no demonstration on the record of the tri-color tube with the CBS system, two courses of action were open to the F.C.C., either to re-open the record, and have the tri-color tube or other technique for displaying large size tried out with the CBS system, or to adopt a final decision on the basis of CBS at once. If the first course were followed, the Commission would have a definite answer, but would have aggravated the compatibility problem by postponing a final decision; if the second course were followed it would bring to a speedy conclusion the matters at issue and furnish manufacturers a real incentive to build a successful tri-color tube as soon as possible.

Other matters present the F.C.C. with a difficult choice. Developments were demonstrated at the hearings regarding horizontal interlace, and the efficacy of long persistence phosphors in reducing flicker. If successful on further testing, both techniques may make desirable additional changes in the field and repetition rate for black and white pictures. There is also the possibility of new color systems, and improvements informally called to F.C.C.'s attention after the close of the hearings. However, the obvious fact cannot be overlooked that one of the easiest methods of defeating an incompatible system is to keep on devising new ones to lengthen hearings so that eventually time itself overpowers the incompatible system by the sheer number of receivers that will meanwhile be placed in the hands of the public.

"The answer as to which course of action to choose depends on whether a method exists for preventing the aggravation of the compatibility situation if a final decision is postponed. If there is no method to accomplish this, the Commission believes that a final decision should not be delayed and that the CBS color system should now be adopted."

On the basis of the above, and of other considerations set forth in their report, the F.C.C. took action known to most readers, giving the industry the choice of adopting bracket standards, so that new sets could be compatible with both the present and CBS standards, providing time for field testing and provision for new proposals to be heard, or of immediately adopting standards based on the CBS system. When the industry turned down the first alternative, the Commissioners, in their Second Report (adopted October 10, 1950), adopted standards based on the CBS system.

COLOR NOTE      In the "A II" period of Tall-i-Bakun, excavated settlement south  
FOR A & P      of Persepolis and northeast of the Persian Gulf (dating perhaps  
STORES          3800 B.C.), the peaceful villagers were no blushing violets. Some  
houses had as many as seven rooms, unusual for such early times.

In some cases, house walls were painted with red and yellow bands, others a solid red or yellow; and the color was kept fresh by new coats of paint. But the colors must have proved too attractive to more warlike aggressors, for there is evidence that the village was suddenly deserted by the local folk, who left everything behind: their conical bowls, their tall conical drinking vessels, their flint blades for hacking off chunks of meat, their copper awls and tools for fashioning their excellent stone vessels and button seals, and their cream or buff-colored painted pottery. These wares were soon replaced by the shining burnished Red-ware of the invaders.

DESCRIPTIVE  
COLOR NAMES  
DICTIONARY

Container Corporation of America has announced publication of a Descriptive Color Names Dictionary as a 64-page supplement to the Company's Color Harmony Manual. The Dictionary contains 775 names so arranged that the user can work from names to colors or, conversely, from colors to names. All of the names are the kind commonly used to describe the color of merchandise sold in the mass markets. Special promotional words invented for private brand merchandising are not included.

Helen D. Taylor and Lucille Knoche, well known colorists, collaborated with Walter C. Granville of Container Corporation for six years in preparing the new Dictionary. Mrs. Taylor and Mrs. Knoche have both long dealt with the problems of color names in mass markets, the former for Sears, Roebuck & Co., and the latter for Montgomery Ward & Co. Its purpose is to enable merchandisers to describe the colors of products in terms that the general public will quickly understand. Faber Birren also cooperated in early stages of the work.

It is expected that the new Dictionary will be especially useful to newspaper and catalog advertisers who need to describe the color of merchandise pictured in black and white. Manufacturers of paints, tiles, floor coverings, and other building and home furnishing materials will find it valuable in naming the colors shown on swatch cards and in sample kits. It is only necessary to select matching color chips from the Manual and then find the names in the Dictionary which correspond to the notations on the chips. Similarly, when a customer asks for merchandise in a certain color by name, the supplier can use the Dictionary to locate the chip in the Manual which corresponds to that name. Indexing is very complete; for example, "dusty aqua green" is alphabetized under d (dusty), a (aqua) and g (green). The authors are to be congratulated on this useful supplement to the Color Harmony Manual and useful addition to our color literature.

COLOR IN MEN'S  
CLOTHES

In The New Yorker, December issue, under the Talk of the Town column is an item that refers to color in men's furnishings: "After Tartans, What?" In tracing the fad of using tartans in practically all items of men's furnishings, from evening jackets to belts and slippers, which they believe has now reached its peak, they go back to Raymond Twyeffort, "who was quietly turning out tartan waistcoats as early as 1941." They report that Alexander Shields, who has a men's shop on East 60th Street, New York, was the first to advertise tartan jackets and trousers nationally a year ago, and Rogers Peet the first big manufacturer and retailer to go all out for them. In fact, at Chipp, Inc., which made its first tartan waistcoat in 1947, over 800 tartan evening jackets and 4,000 cummerbunds have been sold! The reporter wound up his survey at Twyeffort's in Rockefeller Center, "and found that restless pioneer already looking beyond tartans." "I want really bright colors in men's clothes. Green! Yellow! Red! Let's get back to the vivid coloring of the American peasantry! Every man wearing what he pleases!!"

To Raymond Twyeffort, a long-time individual member of the ISCC, whose efforts toward increasing the use of color in men's clothing we always follow with interest, Good Luck!

SEVEN COLORS  
OF ECBATANA

Herodotus states that Ecbatana, capital of the Medes north west of modern Hamadan in Persia (Iran), was surrounded by seven walls painted in seven different colors. The first and largest was of a white color surrounding an area equal in extent to the city of



Athens. The second was black, the third purple, the fourth blue, the fifth orange and two innermost walls in different colors, the battlements of one being plated with silver, the other with gold. If there be any truth in this story, says one authority, the walls were probably of brick, the surfaces being enamelled in colors.

REVIEW OF COLOR-  
VISION TESTS BY  
ELSIE MURRAY

From Medical Physics, Vol. II, Otto Glasser, editor (Chicago, Year book Publishers, Inc. 1950) we have a reprint, pages 1161-1171 of a section on Vision: Color; Tests, prepared by Dr. Elsie Murray of Cornell's Department of Psychology color laboratory. The section includes considerable discussion of the influence of theory on test development. Of "Helmholtz' trichromatic theory that retinal receptors were of 3 types only" she concludes that "this was to confuse thinking and retard test development for decades," devoting about a page to this topic, following it with discussion of other theories following Helmholtz that "have proved more fruitful in stimulating test development, notably Hering's tetra-chromatic and Edridge-Green's heptachromatic hypotheses." There is a section on Clinical and Vocational Application of Tests, one on Variable Factors and Classification. Practical Screening and Differential Tests of both reflected and transmitted light are discussed under several headings, Stillings, Ishihara, A.O., differential tests such as the Farnsworth-Munsell 100 hue test, the Farnsworth Dichotomous Test, Myers and Pierce Chrome Grading Series, ISCC Color Aptitude Test, Murray 3-degree Color Pattern Tests, Group tests, Collins-Drever E test, the Edridge-Green and New London U. S. Naval Lantern, and several others.

From a recent communication from Dr. Murray we understand that she is back at Cornell, continuing her work on heredity of color defects, new tests with Munsell papers, and a number of related problems. She is working under an American Philosophical Society Grant-in-aid; also returns shortly to a problem under a National Institute of Health Fund. We are glad to hear from her, and wish her good progress.

COLORS OF  
PARCHMENT  
MANUSCRIPTS

Parchment or vellum was made from the skins of young cattle, sheep, goats and antelopes by dressing with chalk after washing and scraping with pumice. Pliny the Elder, quoting Varro (first century B. C., says that Eumenes II, king of Pergamum in Uysia (Asia Minor, 197-159 B. C.), first promoted the manufacture and use of parchment. He planned to found a library which would rival the famous library of Alexandria. This ambition aroused the jealousy of Ptolemy Epiphanes of Egypt (205-182 B. C.), who clamped an embargo on the export of papyrus sections. This embargo was the "mother of the invention," forcing Eumenes to develop the production of vellum, a fine variety of parchment. From his city-state the product became known to the Greeks as pergamene, and from this came our word parchment. Deluxe editions, according to St. Jerome, who did not approve of such extravagance, were made of vellum dyed purple and inscribed with gold and silver inks. Ordinary editions were written with black or brown ink and had headpieces and initial letters colored with blue or yellow or (most often) red ink, whence the word "rubric", from the Latin for "red". Parchment or vellum continued to be used until the late Middle Ages when paper was introduced from China by Arabian traders.

COLOURS AND HOW  
WE SEE THEM

This is the title of a book based on the Royal Institution Christmas Lectures which Professor Hartridge gave to boys and girls in 1946. Dr. W. D. Wright, noted author and color worker, in reviewing it for the Proceedings of the Physical Society, reports that

the spirit of entertainment and instruction always associated with the Christmas lectures is well reflected in the pages of this book. It is essentially an experimental book which mentions a great many phenomena: The spectrum, spectral absorption, colour mixture, interference, diffraction, applications of colour in science and medicine, dichroism, the effect of intermittent illumination, and so on. Dr. Wright suggests that anyone invited to give a lecture on colour will find a wealth of demonstrations from which to draw, many of the experiments being illustrated in colour. The theoretical explanations of the phenomena do not go very deeply into the subject, but that is hardly to be expected in a book of this type. *Colours and How We See Them*, by H. Hartridge. (Royal Institution Christmas Lectures (1946-47). Pp. xi + 158. 1st Edition. (London: G. Bell & Sons Ltd., 1949.) 15s. (From review by W. D. Wright in Proceedings of the Physical Society, Section B, 63, Part 10, October 1950.)

COLORS OF THE  
MOSAIC OF  
THE PHOENIX

The famous Mosaic of the Phoenix in Antioch, on the Orontes river in Syria, is one of enormous size, over 40' x 33', but it creates in most observers an impression of a carefully wrought tapestry. It was executed in the beginning of the fifth century. Originally the pattern contained more than 7500 roses, though reduced as now preserved in the Louvre. In the center a phoenix is perched on a mountain of rocks. About the bird's head is a halo of "mauve gray". The bird is seen in profile, apparently as though about to take off in flight. The neck is bent in a double curve, "more energetic than graceful". The brilliant eye, encircled with black, attracts the spectator's attention. The predominant colors of the rocks are green, "bister", and maroon. The colors of the bird are green with brown and gray in the shadows, yellow and even white in the highlights. The whole is surrounded by a broad border. According to legend, the fabulous bird, of great beauty, after living five or six hundred years in the Arabian wilderness, the only one of its kind, would build itself a funeral pile of spices and aromatic gums where it would immolate itself. But from its own ashes it would again emerge in the freshness of youth. Hesios, Herodotus, Manilius, Pliny, Tacitus, Ovid, Aelian and Celsus all referred to the bird. The plan and execution of the Antioch phoenix, though small in comparison to the immense tapestry of flowers, produces an impression of astonishing beauty and majesty well calculated to resurrection and persistence of life after death.

MAERZ & PAUL  
DICTIONARY OF  
COLOR

McGraw-Hill in a recent news release states that a new edition of the Dictionary of Color by Maerz and Paul will soon be published. They report, too, that important in the new edition will be the use of recently developed pigments used in the printing inks that "will afford a decided improvement in the richness, depth, and brilliance of over 7,000 samples contained in the book." We assume that this means that the color name plates will be adjusted to agree with the new colors in the second edition, and that when referring to a specific color sample it will be necessary to refer to the Dictionary by edition number, whether 1930 or 1950. This book has provided a good reference dictionary in the past, and should continue to do so in the future. The new volume is priced at \$25.00. For further details, contact McGraw-Hill's Book Information Service, 327 West 41st Street, New York City.

COLOR AND  
HOPALONG

General Aniline and Film Corporation, in the Fourth Quarter 1950 issue of the magazine Rainbow, reports a "Hopalong headache" in dyestuff orders. A certain black dye normally sells a few thousand pounds during winter months. But a single morning last January orders

came in for 15,000 pounds of it! Some quick sleuthing revealed that this strange and sudden demand "was due to the intense desire of a few million small fry" for black cowboy outfits "just like Hopalong Cassidy's." Fashions and fads flare and fade rapidly, and occasionally they originate in the regal favor of some dowager queen mother; but the Hopalong black is one of the few cases on record where the youngsters set the fashion. Truly this is the younger generation's era.

TCCA  
COLORS

The regular editions of the 1951 Spring Rayon Card, highlighting Aloha Pastels and Spanish Brilliants, and the 1951 Spring Woolen Card, featuring Pastel Sugartints and gay Barn Dance Colors, have been recently released by Mrs. Margaret Hayden Rorke, Managing Director of the Textile Color Card Association. These colors were listed and briefly described in News Letter No. 90 (Sept. 1950), page 4, to which reference may be made. Twenty-one colors have been adopted for Spring and Summer 1951 by the Millinery Color Committee of the TCCA. Highlighted in the pastel range are Meringue Glacé, French Nougat, Sugar Pink, Icing Blue, Cream Pistache, Lemon Candy and Crayon Aqua. Subtle high-fashion colors are Lei Orchid, Banana Green and Golden Sulphur. Important shades in the basic group are Cachou Brown, Chutney Brown, Moon Shadow, Graychalk, Blueberry Mauve and Anchor Navy. Prominent in the brilliant gamut are Cherryblush, Hot Tangerine, Sparkle Green, Exciting Red and Sweet Cherry. All of these millinery colors were chosen from the Association's 1951 Woolen or Rayon Cards. Eleven also appear in the glove selection for Spring, thus assuring smart color harmony in the ensemble.

Fifteen colors for women's smooth shoe leathers, nine for women's suede leathers and fifteen for men's shoes have been recently chosen for Fall 1951 by the Joint Color Committee of the Tanners' Council of America, National Shoe Manufacturers Association and the National Shoe Retailers Association, in cooperation with TCCA. For women's smooth leathers there is a new dark and a new medium brown, a Cordovan shade and a claret for town wear; a new light navy and the repeated colors, Cognac Brown, Turftan, Admiral Blue, Parkway Green and Cherry Red for town and country wear; a new "orangy" tan for casual and country wear, and the repeated shades Golden Wheat and Gingerspice for casual wear. For the men, this type of leather has called forth British Tan, a new Bourbon version, Tartan Tan, Redwood Brown, a new darker brown, Cherrystone, American Burgundy, Town Navy and black.

For women's suede leathers for town wear are the new dark brown already mentioned, a new light "moche shade" and the repeated colors, Admiral Blue, Maple and Parkway Green. The four new suede colors for town and country wear comprise the above-mentioned new light navy, a new "spicy version," a new medium grey and a new medium green. Black is included in both smooth and suede leathers. The men's grained leathers for town and country wear include Tartan Tan and a warm medium brown. Brushed leathers for town and country comprise Admiral Blue, Prairie Brown and the Slate Gray. Chosen as casual colors are the smooth-leather shade, Rocky Tan, and two brushed-leather shades, Saddletone and Desert Copper.

ISCC-NBS COLOR  
NAMES CONTINUED

We continue here the ISCC-NBS equivalents of the common color names, begun in the September and November, 1950, issues of the News Letter.

Bois de rose	TC.125	7.2 R 4.9/5.0	grayish red
Bois de rose of MF	MP.5J9	6.5 R 4.4/5	grayish red

Bole (red ocher, etc.)	MP.5F11	0.2 YR 4.2/5.6	moderate reddish brown
Bone brown	MP.8C12	2 Y 2.7/2.5	moderate olive brown
Bordeaux (red)	MP.3K4	2.3 R 4.1/11.9	strong red
Bottle green	MP.31J7	8.5 G 3.2/2.6	dark green
Bottle green of TC	TC.66	4.1 G 2.1/2.6	dark green
Brazil red	Hamly	7.5 R 4.0/10.5	dark reddish orange
Bremen blue	MP.36K1	8.5 BG 5.3/4.5	moderate bluish green
Bremen blue	Hamly	2.5 B 6.5/6.0	light greenish blue
Brewster green	MP.24L1	5 GY 2/3.7	dark olive green
Brick red	MP.6B11	2.1 YR 4.0/4.7	moderate reddish brown
Brick red	U.S. Army	7.5 R 2.5/10	deep red
Brick red	Hamly	10 R 3.6/5.0	moderate reddish brown
Brittany (blue)	TC.142	7.7 B 5.2/4.2	moderate greenish blue
Brittany blue of MP	MP.35J6	9 B 5/5	moderate greenish blue to moderate or grayish blue
Bronze	MP.14L9	9.8 YR 4.3/4.0	moderate yellowish brown
Bronze of TC	TC.159	2 Y 3.2/4	moderate olive brown
Bronze green	MP.16L7	3 GY 3.2/2.3	grayish olive green
Bronze yellow (yellow bronze)	MP.11L8	8.2 YR 6.1/9.0	dark orange yellow
Brown	TC.119	4.3 YR 2.8/4.3	moderate brown
Brown	U.S. Army	5.0 YR 2.8/3.5	moderate brown
Brunswick green, middle	MP.23C12	2 G 2.9/4	dark yellowish green
Buff	MP.11K7	10 YR 6.6/7.3	moderate orange yellow
Buff	U.S. Army	9.6 YR 7.1/5.4	light yellowish brown
Burgundy (red)	TC.102	0.5 R 1.6/2.0	blackish purple to very dark purplish red
Burgundy red of MP	MP.56E8	5 RP 1.9/1.2	blackish purple
Burgundy violet	MP.42J8	5 P 4.2/7.8	moderate purple
Burnished gold	MP.12L7	0.6 Y 5.5/6.3	dark orange yellow to strong yellowish brown
Burnished straw	TC.117	6.1 YR 5.2/5.6	light brown
Burnt carmine (purple lake)	MP.5K6	4.0 R 3.3/10	deep red
Burnt ocher	MP.3G12	10 R 4.8/11.3	strong reddish orange
Burnt orange	TC.160	1.2 YR 4.8/9.8	moderate reddish orange
Burnt orange of MP	MP.3E 12	0.3 YR 5.0/10.8	moderate reddish orange
Burnt russet	MP.6L10	6.3 R 3.1/8.0	dark red
Burnt sienna	MP.5F12	0.8 YR 4.0/8.4	dark reddish orange
Burnt umber	MP.15A12	5.3 YR 3.6/4.6	moderate brown
Buttercup (yellow)	MP.11J5	2.0 Y 7.1/4.6	grayish yellow

CALLING MR.  
SCOFIELD  
AND MR. PAUL

We very recently received from Mr. E. Taylor Duncan, a very helpful correspondent, three clippings of which two raised and perhaps answered some questions about the permanency of paints. They were all from the Louisville Times, the questions (by writer Tom Wallace) in the November 8 issue, and the answers on November 21.

Wallace's humorous article "What Was the Paint-making Secret of the Ancients(?)," quoted the Rev. James L. Kelso, a professor of Biblical archaeology and well-known ancient-pottery expert as well, as saying that the colors in paintings on the walls of Jericho of the time of Herod the Great were "as fresh-looking as they were when the painters laid them on." Wallace states that they seem better preserved than the paint on the mummy-case coverings of some bald-headed Ramesses. Praising our own chemists for the fine things they have done (and, he thinks, could do) with paint, he asks: "Do they deliberately avoid producing lasting paint because painters' unions, manufacturers, wholesalers and retailers of housepaint would become bankrupt..... without resale?"

Two weeks later a certain W. S. Furness answered that ancient paints actually examined have proved to be rather poor materials, except for the "earth colors," lamp black and some madder lakes. To this the Editor may add that it is well known that many ancient ultramarines were badly washed, hence rather dull at least, though all through ancient times it was greatly prized in the form of the mineral lapis lazuli, enough to import it over apparently impossible distances. Also that most ancient paints were less exposed than today to sulfurous and gasoline fumes. Mr. Furness states further that "most present-day house paints are actually designed to erode at a definite rate, but not to give the manufacturer more business. The home owner not only wants protection, he also wants beauty and this erosion of the film reduces the dirt pick-up so that the paint will stay brighter and fresher looking."

The other item, in the November 7, 1950, issue, was headed Tigers Don't Like Blues. It was reported from India that peasants who paint their barns and houses in bright blue have been free of tiger infestation when other houses in the same village which were not so painted suffered attacks by these beasts of prey. Perhaps in this connection we had better page Dr. Gordon L. Walls, author of "The Vertebrate Eye."

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