

INTER-SOCIETY COLOR COUNCIL

NEWS LETTER

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1958 ANNUAL MEETING
SHERATON PARK HOTEL
WASHINGTON, D. C.

Color in the Building Industry is the topic for the
27th Annual Meeting of the Inter-Society Color Council
to be held at the Sheraton-Park Hotel, Washington, D.C.,
Tuesday and Wednesday, March 25th and 26th, 1958.

The program is arranged as follows:

Tuesday

2:00 p.m. joint meeting with the American Society for Testing
Materials, E-12 Committee.

Visits to the Federal Construction Products Center, Seventh and "D"
Streets, S.W. may be made from 8:45 a.m. until 5:15 p.m., any day,
Monday through Friday. This is the largest display of building
products to be seen anywhere.

Mr. Walter C. Granville, President of the Inter-Society Color Council,
will give an illustrated lecture entitled, "Color in European
Buildings" at 8:30 p.m. at the National Housing Center, 1625 "L"
Street, N. W.

Wednesday

At the Annual Business Meeting in the morning each delegation chair-
man or his appointed representative will summarize the color activi-
ties in his group during 1957. This report and a bibliography of the
articles on color that have appeared in the Member-Body journal will
be published in the minutes of the 27th Annual Meeting.

A Symposium, Color in the Building Industry will be held in the afternoon. It will be moderated by Mr. Waldron Faulkner.

Mr. J. R. Leary, Aluminum Company of America, will speak on "Color in Aluminum."

Mr. Herbert R. Spencer, Jr., Erie Enameling Company, will speak on "Color in Porcelain Enamel."

Dr. Isay A. Balinkin, University of Cincinnati, will speak on "Color in Ceramics."

At the banquet in the evening, Mr. Julian Garnsey, Princeton, New Jersey, will speak on "Color in the Building Industry."

Waldron Faulkner is chairman for the 27th Annual Meeting. Francis Scofield is in charge of the meeting to be held at the National Housing Center where Walter Granville will present his lecture. Everett Call is in charge of arrangements; Dorothy Nickerson is in charge of the dinner; and Mildred Trimble is in charge of decorations for the dinner.

In addition to these activities, of the 27th Annual Meeting, the Board will meet Monday Evening, March 24th, and committee meetings will be held Tuesday morning, March 25th.

THE NEW ISCC OFFICERS
FOR 1958-1959

A count of the ballots at the office of the secretary revealed that all candidates recommended by the nomination committee were elected.

President	Walter C. Granville, IDI, IES, PI
Vice-President	G. L. Erikson, NAPIM
Secretary	Ralph M. Evans, SMPTE
Treasurer	Norman Macbeth, IES
Director	D. Noel Obenshain, TAPPI
Director	Francis L. Wurzburg, Jr., NAPIM, PI
Director	Estelle M. Tennis, CAUS
Director	Waldron Faulkner, AIA (Outgoing President)

Ballots were sent to three voting delegates from each Member-Body of the Inter-Society Color Council. The marked ballots were returned to the office of the secretary where they were counted by George Gardner, Sidney Newhall, and Warren Rhodes on December 4, 1957. Of the 81 ballots mailed (27 Member-Bodies), 56 were returned.

VOTE OF THANKS FROM
THE NEW PRESIDENT

The following is quoted from a letter by Walter C. Granville, newly elected president of Inter-Society Color Council:

"We often fall into the habit of taking good things for granted and the cases of our Secretary, Mr. Ralph M. Evans, and Treasurer, Mr. Norman Macbeth, are no exceptions. They have served the Council faithfully and capably for many years and this year again agreed to stand for reelection. On behalf of the Council, I would like to express appreciation to both for their devoted service. All of the other officers will rely heavily upon their guidance."

Walter C. Granville

EDITOR'S NOTE

One facet of the ISCC operations, not too frequently brought to the attention of the membership, is the disposition of the many color problems which are brought to the attention of your Council officers. Occasionally exploration of these problems entails some considerable investigation and often leads to disclosure of, or reconstruction of, information of general interest. In some cases these problems lead to activation of formal problem committees where progress and results are fully reported at the Annual Meeting. Other cases where the problems are considered outside the scope of ISCC activities, or of insufficient general interest, the problems are referred to other agencies or rejected. Cases in a somewhat "in-between" category may sometimes be successfully resolved without formal action by the Council. In these instances, the News Letter offers a means for publication of information which may be considered of value to the membership. The following report provides some insight into the method for handling such problems and provides an interesting perspective on the goals of one of our ISCC Member-Bodies. The report was prepared by Ralph Pike who looked into the matter at the request of the Problems Committee in order to prepare a recommendation for action by the ISCC Board of Directors.

AAPL REQUEST FOR
DOMINANT WAVELENGTH
FOR PIGMENTS IN
MARTIN FISCHER PERMANENT
PALETTE

A proposal was made to the ISCC Problems Committee in December 1956 by Dr. Wilford S. Conrow on behalf of the American Artists Professional League that dominant wavelengths of dry color pigments with a known history of permanence be listed as a practical standard for artist colors. Dr. Conrow, a leading American painter and guiding force in the AAPL, has been dedicated to the problems of permanence in art for many years. In a communication to the Council, Dr. Martin Fischer of the University of Cincinnati, has given us some further background on the origin of this request:

"To explain Mr. Wilford S. Conrow's colossal labors in behalf of the interests of the fine arts painter, we must go back to 1930 when my Permanent Palette was published and Mr. Conrow found in it observations and rules that made for really permanent painting.

"And let it be noted right away that Mr. Conrow defines permanence not as understood in commercial circles as something that lasts six months or so, but something that lasts for centuries. He is restating Böcklin's charge, made in the last half of the last century:

'Modern pictures have not lasted as many decades as those of the old masters have lasted centuries. To these old masters we must, therefore return'.

"It is an obvious fact that a patron of the fine arts, if satisfied with a portrait or a landscape, desires to have the picture endure without change. You are probably familiar with the fact that the hundreds of portraits, etc. which adorn the walls of private homes, public buildings and military halls, and all painted within the last quarter century, have faded, bled, cracked and blistered beyond all recognition of their original state.

"Mr. Conrow with Mr. Walter Beck tried to remedy the situation, and in several quarters they have been very successful in bringing together the fine arts painter and the manufacturer instead of having them snipe at each other. Thus they have brought about a proper labeling of the fine arts paints and vehicles, knowing which, the artist could either buy or reject."

The interest of this artist group in psychophysical aspects of color traces back to some of the early commercial applications of the procedures which we consider as modern colorimetry in this country. Dr. Conrow provides us with the following historical background:

"Between 1910 and 1917 Dr. M. Luckiesch then head of the Nela Laboratory of the General Electric Company's lamp works in Cleveland, Ohio made analyses for dominant wavelength refracted by dry pigments supplied him by Sherwin Williams Co. These were largely house paints, and many pigments recommended later for artist's use by Dr. Martin Fischer were not included.

"Dr. Luckiesch published his findings of dominant wavelength of these pigments, which he called the spectral reflection factors of dry powdered pigment, giving reflectance factors for various wavelengths of each in his book, COLOR AND ITS APPLICATIONS (Van Nostrand, 1915). The gap remains to be filled so as to include all pigments with a known history for permanence.

"Dr. Luckiesch spent two days with me organizing a camouflage outfit under The Chief of Engineers at Camp American University, Washington, D. C. A research scientist of the Shellkopf Co. of Baltimore had come to us about ten days before, bringing goggles he had made with green and red stained film. With these he showed us that our painted camouflage unseen by the eye in a field when seen in sunshine, stood out as a Paddy Green island in the midst of flaming red vegetation. Dr. Luckiesch explained to me patiently the reason, using spectrophotometric curves for illustration.

"A large order for camouflage paint, Olive Drab, was about to be placed by The Engineer Purchasing Bureau for use in the A.E.F.

COLOR CHARACTERISTICS OF ARTIST'S OIL PAINTS
- BASED ON U. S. DEPARTMENT OF COMMERCE - COMMERCIAL STANDARD CS98-42 -

PAINT NAME	FISCHER CLASS,	C. I. E. DESCRIPTION			MUNSELL NOTATION		
		Luminous Reflectance Y	*Chromaticity Coordinates x y	*Dominant Wave Length mu	HUE	VALUE	CHROMA
Alizarin Crimson	-	31.0	0.392 0.289	495 (C)	6.0RP	5.7	10.0
Burnt Sienna	0	34.5	0.411 0.357	590	2.5YR	6.2	4.5
Burnt Umber	0	30.0	0.364 0.348	585	6.5YR	5.8	3.0
Cadmium Orange	S	46.0	0.467 0.385	589	2.5YR	7.3	9.5
Cd-Ba Orange	S	57.0	0.409 0.381	583	7.5YR	8.0	7.5
Cadmium Red, Deep	S	24.0	0.393 0.306	493 (C)	9.0RP	5.2	5.5
Cadmium Red, Med.	S	30.0	0.446 0.328	606	4.0R	5.8	10.0
Cadmium Red, Light	S	40.0	0.442 0.347	597	7.5R	7.0	10.0
Cd-Ba Red, Deep	S	32.0	0.369 0.308	492 (C)	9.0RP	6.0	5.0
Cd-Ba, Medium	S	31.5	0.424 0.322	610	4.0R	6.0	9.0
Cd-Ba Red, Light	S	39.0	0.446 0.338	601	7.0R	7.0	12.0
Cd-Yellow, Deep	S	57.5	0.443 0.422	578	9.0YR	7.8	9.0
Cd-Yellow, Med.	S	67.5	0.433 0.449	576	4.0Y	9.0	12.0
Cd-Yellow, Light	S	74.5	0.410 0.459	573	8.0Y	9.2	9.0
Cd-Ba Yellow, Deep	S	62.5	0.421 0.412	580	1.0Y	8.2	8.0
Cd-Ba Yellow Medium	S	71.0	0.413 0.432	576	4.0Y	9.2	9.5
Cd-Ba Yellow Light	S	77.5	0.384 0.427	571	8.5Y	9.2	7.5
Cerulean Blue	-	55.0	0.271 0.294	484	1.0PB	8.2	4.5
Cobalt Blue	0	45.0	0.253 0.261	478	3.5PB	7.2	8.0
Cobalt Green	0	63.0	0.301 0.322	499	1.0B	8.2	1.3
Cobalt Violet	0	49.5	0.305 0.273	556 (C)	2.5P	7.4	5.5
Cobalt Yellow	-	74.0	0.363 0.389	573	7.5Y	9.3	5.0
Green Earth	0	62.5	0.309 0.330	546	9.0BG	8.2	1.3
Indian Red	0	21.5	0.375 0.315	620	1.0R	5.2	4.5
Ivory Black	0-S	33.0	0.299 0.309	482	5.0PB	6.6	0.4
Lamp Black	-	14.0	0.289 0.292	475	5.0PB	4.2	1.3
Light Red	0	27.0	0.413 0.332	602	6.0R	5.7	6.0
Manganese Blue	-	59.0	0.266 0.296	485	7.0B	8.1	6.0
Mars Violet	0	22.0	0.331 0.303	498 (C)	2.5RP	5.1	2.5
Mars Yellow	0	55.0	0.400 0.396	579	1.0Y	7.8	6.5
Phthalocyanine Blue	-	17.0	0.181 0.190	478	3.5PB	4.6	14.0
Phthalocyanine Green	-	26.0	0.216 0.311	490	7.5BG	5.3	8.0
Prussian Blue	-	16.0	0.199 0.207	478	4.5PB	4.2	10.5
Raw Sienna	0	54.0	0.375 0.368	581	1.0Y	7.6	4.5
Raw Umber	0	42.5	0.341 0.346	578	1.5Y	6.9	2.0
Rose Madder	-	57.5	0.337 0.305	496 (C)	2.5RP	7.4	6.0
Strontium Yellow	0	79.0	0.353 0.383	572	10.0Y	9.3	5.0
Ultramarine Blue	S	36.0	0.236 0.238	477	5.0PB	6.3	10.0
Ultramarine Green	S	59.5	0.289 0.306	485	1.0PB	8.2	2.5
Ultramarine Red	S	50.5	0.319 0.287	530 (C)	0.4RP	7.3	7.0
Venetian Red	0	21.5	0.441 0.342	599	7.0R	5.0	6.0
Vermilion English	S	37.5	0.437 0.329	605	5.5R	6.4	10.0
Vermilion Chinese	S	42.0	0.376 0.310	630	10.0RP	6.9	9.5
Viridian	-	49.5	0.269 0.318	491	7.5BG	7.3	4.5
Yellow Ochre	0	67.5	0.365 0.366	579	1.5Y	8.7	5.0

(C) Complimentary wave length

*Computed from tristimulus data published in the amendment to CS 98-42. The data were obtained using a Photovolt Colorimeter.

Dr. Henry A. Gardner, paint chemist and physicist gave his collaboration. Before the zero hour with my work on pigments for neutral and against the chlorophyll reaction, produced by the red-green goggles, he formulated a paint with the chlorophyll effect that could be made for \$1.39 a gallon. Dr. Gardner mentions this adventure in his 'Paint Bible' 10th Edition."

During the depression, through the medium of the W.P.A. the government found itself in big business in the production of fine arts. To resolve many problems in quality and permanence, a conference was held of representatives of art associations, art color manufacturers and the Department of Commerce which lead to the eventual development of voluntary quality standards (CS 98-42) for art colors. This standard was effectively released in May 1942. While rigidly defining such properties as drying rate, consistency, and broadly stated chemical composition this specification conspicuously omitted color standards and tolerances. An amendment was issued January 1, 1952 to specify reflectance values in lieu of tinting strength standards, and to tabulate tristimulus values and Munsell Notations for information only.

With this as a background, your ISCC representative wrote to leading artist color manufacturers and interested individuals requesting an opinion on whether development of metric color standards and tolerances for a permanent palette of artist dry colors would be helpful in attaining the objectives of the AAPL.

The response to this letter lead to the conclusion (1) that most manufacturers considered the present U. S. Department of Commerce Commercial Standard CS 98-42 adequate, and (2) they did not believe that a program for refinement of specifications would yield benefits in proportion to the effort required. Attention was called to the fact that tristimulus values for most of the Martin Fischer classified pigments were reported as general information in an amendment to the CS 98-42 standard on January 1, 1952. It is presumed that the samples used in this measurement were fully representative of good commercial quality. The measured samples were prepared in accordance with Section 22 of the reference standard which specified reduction with a standard zinc oxide paste.

In view of these survey results it was recommended to the ISCC Board of Directors that no necessity could be seen for activating a formal problem on this subject at the present time. There does appear to be a definite need for basic work on the permanence of art colors, with particular emphasis on modern commercial pigments, but this type of work is believed to be beyond the scope of the ISCC, with the exception that colorimetric techniques should be used to describe results. Should such a program be undertaken, the facilities of the Council could be effectively used to assist in this aspect of the work.

In view of the specific request of the American Artist Professional League, it was recommended by the ISCC Board of Directors that a brief summary of this matter be included in the News Letter, together with colorimetric data of the

pigments listed in CS 98-42. The accompanying table lists Munsell notations, chromaticity coordinates, and dominant wave lengths that have been computed from the C.I.E. tristimulus values (from Photovolt measurements) reported in the January 1952 amendment to the CS 98-42 report.

Ralph E. Pike

BIG DOUBLE BILL PLUS
NEW CONSTITUTION FOR
COLOUR COUNCIL OF
TORONTO

Interchemical Corporation's popular color-sound film "This is Color" and their newer production "Color Magic" were both on the program of the Colour Council of Toronto for their January 14 meeting at the Prince Arthur House.

At this meeting, the Council also considered the proposed new constitution, which will change the name to "The Colour Council of Canada (Toronto Region)." According to the new constitution, the objectives of the Council are:

(1) The purpose of this Council shall be to bring together in an association, men and women engaged or interested in any phase of colour work, to promote a wider knowledge of colour, through the medium of meetings, lectures, forums, tours, publicity, publications, and other means of communication.

Without limiting the scope, the term "colour" shall be deemed to include light and lighting, light reflective surfaces and their appearance, colour vision, colour psychology, colour names, and terms, colour measurement and systems, colour standards and records, colour uses, colour appreciation and education.

(2) To study, evaluate and report on the use or uses of colour and its application in art, science, and industry throughout Canada.

(3) To promote the formation of similar Councils in other parts of Canada, and to cooperate with other Colour associations or organizations elsewhere.

FRENCH CONGRESS
ON COLOR

The "Second International Color Congress," sponsored by the Paris Color Information Center, will be held in Toulouse, France, March 19-22, 1958. The program has been announced but a complete list of participants is not yet available. One session, the chairman of which is Prof. Yves Le Grand (known to many ISCC members) embraces colorimetry and will include papers on a comparison of color measuring instruments, and industrial applications of colorimetry to problems of research, control, sampling, and subtractive synthesis. A second session, the chairman of which has not been announced, concerns light and color as applied in public buildings and work locations, and the standardization of color safety purposes. A third session, the chairman of which is M. Deribere (Secretary General of the Paris Color Information Center), will be concerned with recent applications of color in photography, motion pictures, and decorating. A fourth session, the chairman of which is Professor Piere Fleury (known also to many ISCC members) will concern color and art and the teaching

of color. In addition, a number of visits are being planned to industrial installations, and receptions and sight-seeing trips are also expected to be part of the program. ISCC members interested in attending may obtain information from: Centre d'Information de la Couleur, 23 rue Notre Dame des Victoires, Paris (2^o), France.

R. W. Burnham

102ND SCIENCE MEETING
OF THE PHYSICAL SOCIETY
COLOUR GROUP

Mr. J. W. Perry presided with some 30 members present. The lecture was presented by Mr. B. W. Anderson of The Laboratory, Hatton Garden, E.C.1. His subject was "Colour in Gemstones." According to Mr. Anderson, rarity and colour seemed equally important in earlier ages. Today one of the main problems is how to explain colour in inorganic crystals. Mr. Anderson dealt with the effects of water and numerous individual elements, and discussed analysis, synthesis and absorption spectrometry. He demonstrated fluorescence in a ruby and emphasised the danger of chromium in signal glasses. In conclusion, Mr. Anderson showed slides of diamonds which had been coloured by exposure to bombardment by nuclear particles.

The colour of gemstones can be ascribed mostly to the presense of small amounts of transition elements. Only in a few cases are colouring oxides an essential part of the mineral's composition. In many gemstones there are well-defined absorption maxima which can be seen as dark bands of light which has passed through the stone is viewed through a direct-vision spectroscope. Though their general nature is dictated by the particular elements concerned, the atomic field of the host crystals determines the strength and position of the bands, so that such absorption spectra afford a rapid and effective means of gem identification. Typical absorption spectra were described and demonstrated.

(Editor's Note: See News Letter No. 98, Jan. 1952, for useful article on "Colors of Gemstones.")

INTERNATIONAL
SYMPOSIUM ON
PHYSICAL PROBLEMS
OF COLOUR TELEVISION

The Journals Optica Acta and Acta Electronica have undertaken the joint publication of the full proceedings of the International Symposium on the Physical Problems of Colour Television held in Paris last July. The journals asked for advance subscriptions before January 1st, 1958, to be addressed to Optica Acta, 3 boulevard Pasteur, Paris 15eme, or to Acta Electronica, 23 rue du Retrait, Paris XX^o, France. The price, \$10, postpaid.

WALTER GRANVILLE
LECTURES TO NEW YORK
RESIDENCE LIGHTING
FORUM - NYC IES

ISCC president, Walter Granville, lectured to the New York Residence Lighting Forum in New York, January 23. Mr. Granville's thesis for his lecture was "Color is Your Partner - it can do Anything and Everything. Make Color Work for You!" The announcement stated, "In our special work, we are thankful for Mr. Granville's curiosity about visual phenomena and his study on the design of interior color and lighting plans." From the release, it seems that the Forum is a part of the New York Section of the Illuminating Engineering Society.

XYZ IN THE REALM
OF COLORS

In a letter to the News Letter, Dr. Judd wrote, "There is enclosed a copy of the June 1957 issue of the Zeiss Werkzeitschrift from the New York office in English which has recently come to my attention. On pages 37 to 44 is a remarkably good simplified account of color measurements by Hans Joachim Höfert, XYZ in the Realm of Colors. It is particularly noteworthy because it shows the role intended for the DIN system of color specification." Since the article is excellent, I should have liked to reprint it in its entirety, but it is too long. The following excerpts are reprinted because they cover some aspects of the DIN system and its relation to the CIE system.

WLR

Collections of Color Samples

Even if the significance of X, Y, Z, largely consists in that they make the judgment of colors independent of color samples, collections of color samples always are of practical importance for the rapid and simple determination of colors by comparison with samples. Such collections are particularly valuable if X, Y, Z is known for each color sample, and especially so if they contain color samples with specified X, Y, Z values. The Munsell Book of Color, much used in the U.S.A., was originally laid out according to empirical viewpoints, but later joined to the CIE system by evaluating the individual samples. In Germany the production of a color chart according to DIN 6164 is in progress for which consistent colorimetric considerations are made a basis for the selection of the colors. The considerations have resulted in the formation of a new system of units of measurement for the DIN color chart, differing from the X, Y, Z system but connected with it by simple ratios. The reasons for the introduction of supplementary units of measurement for the DIN color chart lead to important problems of measurement relations between colors which will briefly be further discussed.

Color Distances in Accordance with Sensation

In the first place the color space X, Y, Z accomplishes nothing more than a mere correlation between the points of the color space and the colors, the points being determined by their three coordinates. If one geometrically forms the distance between two points, which is easily calculated from the coordinates, the question arises whether this distance between X, Y, Z also corresponds to the "distance" between the correlated colors. First of all, the "distance" of colors from one another can be judged only with considerable uncertainty. However, the distance can be quantitatively expressed if one goes back to the threshold values. Under the threshold value is understood that change of X, Y, Z which is necessary to produce a just perceptible change of color. Measurements of threshold values have been extensively carried out. The distance between two colors can be considered then as the number of threshold values passed through in going from one color to another. In so doing it appears that the system X, Y, Z is not equidistant according to the sensations. That means that equal changes of these numbers do not necessarily also mean equal distances of color in every part of the color space. That obviously is a defect in the CIE system. In the DIN color chart, and in other systems not discussed here, one has successfully attempted to eliminate this defect.

For simplicity let us consider not the color space, but merely the color chart, that is, a plane section through the color space. In figure 9 the CIE color chart is plotted together with the new coordinate system of the DIN color chart. From the central point C, which indicates the white of the standard source C, rays are drawn which determine 24 hues. These selected hues are sensorially equidistant in the sense explained above. The closed curves about C determine saturation steps, which likewise are equidistant. Finally equidistance is also attained for the determination of the darkness steps, which are not indicated on the color chart. The units of measurement of the DIN color chart accordingly define a system of sensorially equidistant colors. Intermediate steps between the whole-number values plotted in figure 9 can be indicated in decimals.

	Range
T Farbton (hue)	1 to 24 (color circle)
S Sättigungsstufe (saturation step)	0 (achromatic) to 16 (maximum saturation)
D Dunkelstufe (darkness step)	0 (white) to 10 (black)

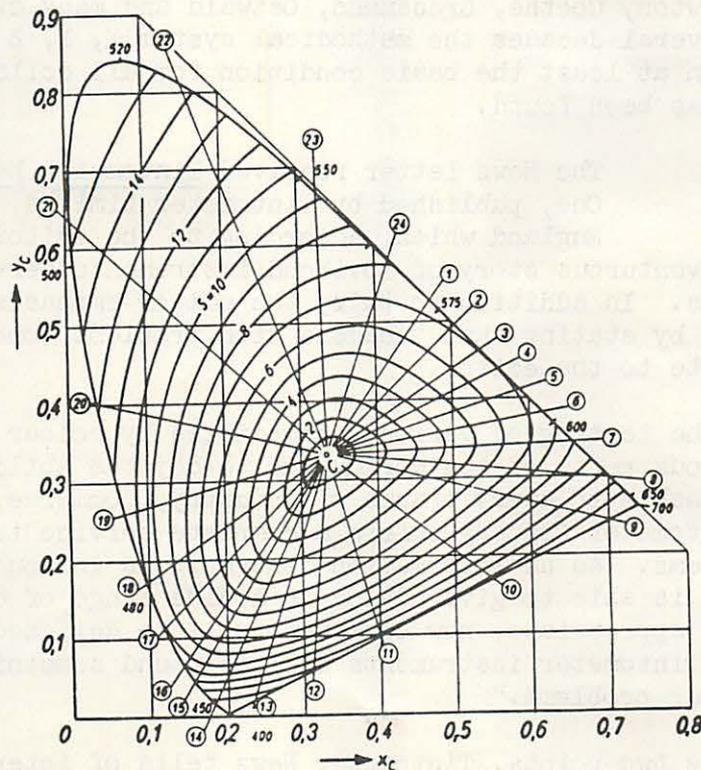


Figure 9: System of the DIN color chart. The lines for integral values of T and S are plotted on the color chart. D is not represented on the plane color chart. (The color chart is so transformed that the standard light source C lies in the center at $x = y = 0.333$.)

Various precision classes with corresponding tolerances have been established for the production of DIN color charts for maintenance of the theoretical values of T, S, D. In the geometrical presentation the tolerance range forms a sphere in the color space of T, S, D with a definite radius about the theoretical value. For the highest precision grade of the DIN color chart the radius of the tolerance sphere has the value of about 0.2.

Retrospect

The X, Y, Z diagram is a physical distillate of the variegated palette of colors. It performs no more, but also no less than an orderly and numerical characterization of colors. That may be of small significance to the aesthetician, and for the physiologists and psychologists may merely be a starting point for further questions. For chemists, colorists, textile technologists and printers the possibility of speaking about colors through numbers is today a necessary prerequisite in the production of dyestuffs and colored material of all kinds. Colorimetrics and the measurement of colors constitute only a small section of the realm of the science of color, which is so attractive because such heterogeneous components, light, eye, sensation, participate in the phenomenon of color. The science of color has traversed intertwined paths by way of Newton, Goethe, Grassmann, Ostwald and many other investigators. If since several decades the methodical system X, Y, Z has come into universal use, then at least the basic condition for all collaboration, a common language, has been found.

TINTOMETER NEWS NUMBER ONE

The News Letter received Tintometer News, Number One, published by Tintometer Limited, Salisbury, England which, according to the editor is only a fragment of the adventurous story of Lovibond instruments serving many purposes in many lands. In addition to this, the editor emphasizes the philosophy of his company by stating that "readers with problems concerning colour are invited to write to the editor.

"Over the years, the testing of various commodities by colour has been steadily growing in various parts of the world, and to-day the ability to measure colour is indispensable to every branch of industry, commerce, science and medicine. The Tintometer Company offers a complete service to all who have colorimetric problems. As an information centre it is in touch with workers in all fields, and is able to give advice on a wide range of colorimetric techniques. Where appropriate, new equipment will be designed, although in the wide range of Tintometer instruments will be found something capable of tackling most colour problems."

To illustrate these two points, Tintometer News tells of interesting and important applications of color in health and commerce problems all over the world. One of the applications is a portable outfit for colorimetric analysis of the blood of workers who handle insecticides. The test is used to identify dangerous or lethal amounts of organic phosphorus in the blood stream. The kit, called a Cholinesterase Kit, is also used to test for fatal absorption of phosphorus in animals treated with insecticides used to kill parasites.

The use of colorimetry also plays a vital part in developing food sources for the starving peoples of India and parts of Asia. Here the colorimeter is

used in assessing the amount of vitamin content, revealing the absence of some important food element, or even in telling the farmer that his field needs lime to grow a better crop. The French Ministry of Agriculture has adapted a colorimetric test using the Aschaffenburg and Mullen test to check whether the milk has been properly pasteurized.

Many countries are finding colorimetry a vital factor in some of their export products. The Indian Standards Institute uses a colorimeter to check the color of edible oils for export because they know only too well that the color of the oil reveals its purity, freshness and other important factors. Huge quantities of honey exported from Australia are graded by color. Finland depends on the export of quantities of newsprint. One of the faults of newsprint is its discoloration. There are several factors causing this, and some of them are being overcome. A chemical test on paper pulp to discover why this discoloration occurs has been evolved by the Finnish Pulp and Paper Central Laboratory. The allowable limits are stated in colorimetric terms. Color is also a critical attribute of butter exported by South Africa. If the color of a batch of butter is different from the butter a customer is accustomed to purchasing, he usually concludes that the new color means an inferior product. The customer rarely concludes that the butter is better, although this may in fact be so. Competition is keen in Malayan pineapple. To insure that the fruit is in mint condition the color is specified in terms of the Lovibond scale.

Colorimetry also shows up in two other unusual places. "Simplicity is the keynote of the Tintometer method of measuring humidity. Small pieces of specially prepared paper are placed in a test tube, in a pile of stored grain in varied and difficult-to-reach corners of warehouses, out in the fields, or even in the crevice of a floor. The colour change of the paper and hence the relative humidity is then assessed by a special Lovibond Comparator. Accuracy is satisfactory for most purposes."

Colorimetry is playing an important part in preventing the dreaded liver flukes in sheep and man. Although this is a world problem, scientists are concentrating on certain parts of Central and South Africa. The victim is attacked when it enters or drinks water which has been contaminated with liver flukes carried by snails. Scientists have aimed to wipe out the snail with an effective molluscicide in much the same way that the malaria-bearing tsetse fly was exterminated. Tintometer Limited developed a comparator which estimates the chemical very accurately.

The News also carried a list of 10 references on Colorimetry relating to various uses of the Lovibond system.

MISCELLANY

Along with Tintometer News came this interesting letter:

"Commander Farnsworth recently spent a day here in this factory, and we greatly enjoyed showing him what we are doing, and discussing colorimetry and its applications with him. Dr. Deane B. Judd was here just recently.

"The enclosed News Letter is an endeavour to bring new applications of colorimetry to the notice of our friends.

"I have just returned from a tour of the Scottish Universities and Technical colleges, where I delivered seven lectures on "Colour and its Measurement". Judging from the questions and discussion, the subject is a very "live" one there.

"With all good wishes for the continued progress of the I.S.C.C.,

"Sincerely, G. J. Chamberlin
Managing Director
The Tintometer Limited"

* * * * *

The New Light and Vision Institute

Mr. H. L. Logan of the Holophane Company sent me a copy of the company publication "Lumen - Hour," which contains an account of teaching and demonstration technique and auditorium in New York City. One set of demonstrations shows the "how" of prismatic light control; another set the "why" of lighting levels; and still another the "why" and "how" of quality in lighting.

According to Lumen - Hour the Light and Vision Institute "tells the story of brightness, shows the facts of color, teaches the value of measurements and plans, and proves the economic virtues of lighting by experts." The Institute is available to selected groups or individuals as another Holophane service.

* * * * *

Skyscraper Fracas

A disagreement between Dr. Isay Balinkin and Life Magazine was reported in Groverman Blake's column in the Cincinnati Times-Star. This disagreement is, in a way, timely because it concerns Dr. Balinkin's topic in the Annual Meeting Symposium, "Color in Ceramics" (for building the industry). On December 2, Life ran a picture of the Velasca Tower, built in Milan, Italy in 1957 which is 26 stories high, calling it Milan's first skyscraper. Mr. Blake points out: "Dr. Isay Balinkin, professor of experimental physics at the University of Cincinnati and a world-renowned expert on color and ceramic tile, has been having words on this subject with Life Magazine. In 1952 a skyscraper done in ceramic mosaic tile, 33 stories high, was erected in Milan. Dr. Balinkin termed this edifice the outstanding example of the use of architectural color to join shape and line in ceramic mosaic tile."

* * * * *

National Retail Dry Goods Association Like Newspaper Color Ads

At the retailers Annual Convention, Newspaper executives explained that the "hottest development in the field of advertising" is ROP color. "ROP" refers to run-of-paper color. This means simply that the color is printed at the

same time that the rest of the newspaper is printed. Color supplements, and occasionally color inserts have been used in newspapers. These color pages may be printed in another plant or by another process and shipped to the newspaper to be delivered with the black-and-white parts.

During the last few years some newspapers have run color throughout the paper with amazing results. An Alabama paper reported that color ads have 20% to 50% more selling power than black-and-white ads. Other newspaper and sales executives reported similar results in using ROP color in newspaper advertising.

* * * * *

Color True and Through

The Eastman Chemical Products, Inc., Subsidiary of Eastman Kodak Company, has recently published a beautifully executed and illustrated brochure on color in plastics, "Tenite Plastics Views."

"Color combines with plastics to give industry a raw material unmatched for variety, scope and usefulness. For whether Color is serving to impart a sense of luxury and excitement in housewares; whether Color is serving to identify an object or convey a message; whether Color is called upon to decorate or to function -- in few other raw materials does Color serve so well, so faithfully and so truly as when it serves in plastics. Yet essentially, the coloring of plastics remains an art. Hand in glove with the methods of science must go the accumulated knowledge of tradition and practical experience and the habit of foresight to make the Color true and lasting. . ."

"Skillful matching makes color true" says the brochure as it discusses "Eye-ball matching," "Colors and Colorants" and colorimetry based on the spectrophotometer. "Research keeps the color true" is the theme of studies in permanency.

It is as encouraging to see this brochure on the subject of color illustrated with color photographs as it is discouraging to see a treatise on color illustrated with black and white photographs. This publication should be an inspiration to all who deal with color in advertising, in a technical sense, or in education. (I wish we could illustrate the ISCC News Letter with color illustrations.)

WLR

DEATH OF TWO ISCC MEMBERS

The secretary received notice of the passing of two members of the Inter-Society Color Council. Mr. John Scott Williams of the American Artists' Professional League has informed us of the death of Dr. Wilford D. S. Conrow, formerly of the Gainsborough Studios in New York City. Dr. Conrow was intimately concerned with the ISCC project for the AAPL. (See article in this News Letter "AAPL Request for Dominant Wave Length for Pigments in Martin Fischer Permanent Palette.") Dr. Conrow was one of the very early delegates of the Council and was active for many years. He was a color specialist and color technologist.

Mr. C. D. Ellis also notified the secretary of the death of J. Beresford-Horniblow of Birmingham, England on Tuesday, December 17 following a short illness. Mr. Beresford-Horniblow was an individual member of the Council.

LIST OF ARTICLES ON "Colors Produced by Reflection at Grazing Incidence
COLOR RECEIVED BY from Rough Surfaces," W. E. Knowles Middleton and
NEWS LETTER Günter Wyszecki, Journ. Opt. Soc. Amer. 47:1020-1023,
(Nov. 1957)

"Correlate for Lightness in Terms of CIE-Tristimulus Values, Part II," G. Wyszecki and C. L. Sanders, Journ. Opt. Soc. Amer. 47:840-565, (Sept. 1957)

"Evaluation of Whitening Efficiency of Fluorescent Whitening Agents," Eugene Allen, Amer. Dyestuff Rptr., 46:425-432, (June 17, 1957)

"Human Engineering in Equipment Design," Alex. E. Javitz, Electrical Manufacturing, 107-126, (Oct. 1956)

"Inter-Eye Differences in Color-Perception," Robert W. Burnham, Amer. Journ. of Psychology LXX:386-394, (Sept. 1957)

"Investigative and Clinical Studies with Diascopy in Dermatology," Leon Goldman, MD; Harold Plotnick, MD; and Isay Balinkin (Ph.D.); A.M.A. Archives of Dermatology, 75:699-705, (May 1957)

"Lo-Kao, The Story of Chinese Green," Sidney M. Edelstein, Amer. Dyestuff Rptr., 46:433-436, (June 17, 1957). (13th of a series of historical articles meant for the textile chemist and colorist, but of interest to anyone interested in color. The author's hobby is science history, and his articles are written with imagination and authority.)

"New Type Color and Gloss Meters," Takashi Azuma, Hideo Ishizaki, Leo Mori, and Isamu Niikura, Matsuda Research Laboratory, Tokyo-Shibaura Electric Co., Ltd., Kawasaki

"A Nomograph for Calculating Color Differences Using the Adams-Nickerson Equation," D. P. Adams, R. E. Derby, Jr., R. E. Ernsberger, and R. B. Solo (MIT) Amer. Dyestuff Rptr., 46:649-654, (Sept. 9, 1957)

"Retinal Summation and the Visibility of Moving Objects", G. van der Brink, 104 pp. (1957 undated), Institute for Perception RVO-TNO, National Defense Research Council, TNO, Netherlands

"Some Graphical Aids to Quantitative Reflectance Spectrophotometry of Dyeings," A. Darbey, Amer. Dyestuff Rptr., 46:465-471, (July 1, 1957)

"Space Error in Color Matching," R. W. Burnham, Joyce R. Clark, and S. M. Newhall, Journ. Opt. Soc. Amer., 47:959-966, (Oct. 1957)

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