INTER-SOCIETY COLOR COUNCIL

NEWS LETTER

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NEW MEMBERS

The following applications for individual membership were accepted at the last Board of Directors' meeting held in New York City on April 4, 1956.

Associate Individual Members	Particular Interest:
Mr. Dee J. Andella National Geographic Society 1146 16th Street, N. W. Washington 6, D. C.	Color engraving and process color printing.
Mr. Stanton H. Petry W. M. Welch Manufacturing Company 1515 North Sedgwick Chicago 10, Illinois	Instrumentation, measurement and specification of color as a physical attribute of materials and the use of color measurement as a sensing element in industrial control.

Affiliate Individual Members	Particular Interest:
Mr. Lony F. Ruhmann Container Corporation of America Design Laboratory 1301 West 35th Street Chicago, Illinois	Use of color in packaging for creation of purchasing impulses.

PHILADELPHIA-WILMINGTON COLOR GROUP

We hear from Miss Martha Jungerman, secretary of the Philadelphia-Wilmington Color Group, that the March 16 meeting occurred on the evening of a heavy snowfall, so that only ten hardy souls showed up. These were richly rewarded, however, since the speaker of the evening presented his topic in the form of a round-table discussion instead of a formal address. Dr. R. M. Hanes, Research Scientist and Project

Director for the American Institute for Research, Pittsburgh, presented the results of a 2-year study on the effect of color of interiors on the behavior of school children. This study was conducted at Johns Hopkins University, and the results showed quite conclusively that certain colors improved both the grades and the attitudes of students. Miss Jungerman tells us that the discussion proved so absorbing that the group did not notice that it was in danger of being snowbound; fortunately, this was noticed in time, and no one suffered any mishap.

DR. R. G. HOPKINSON IS A VISITOR IN WASHINGTON

On April 30 a group of seven members of the Washington and Baltimore Colorists interested in color in the building industry spent a very interesting evening with Dr. R. G. Hopkinson of the Building Research Station, Garston Watford, Herts, England, as their guest.

Dr. Hopkinson, an illuminating engineer, showed pictures of a model construction that has been developed at the Building Research Station for use in studying lighting and color effects before their specification for use in actual buildings. Pictures were shown of schools and hospitals, both in the model and in completed buildings. Their work at the BRS has resulted in a British Standard for "Colours for Building and Decorative Paints," BS 2660:1955. As a report from The Architects' Journal for February 16, 1956 says, ..."the new BS range is designed to cover all architectural uses and it comes to us with the blessing of the paint trade, of BRS and, above all, of the RIBA." RIBA is the Royal Institute of British Architects.

We have sent for copies of BS 2660 and both it and the article describing its development, and a report of it received in a recent letter from Miss Dorothy L. Tilleard of the Paint Research Station in England, will be reviewed in a later News Letter.

D.N.

NEWS FROM CANADA

On April 17, the Colour Council of Toronto met jointly with the Society of Interior Decorators of Ontario at the Art Gallery of Toronto. Martin Baldwin, Director of the Art Gallery of Toronto, addressed the meeting on the provocative topic, "Public Preference in Pictures Versus the Art Gallery's Responsibility."

We hear that past ISCC Vice-Chairman Charles R. Conquergood resigned recently from the presidency of The Canada Printing Ink Co., Limited, to become Chairman of the Board. We know that we speak for the entire membership when we offer Mr. Conquergood our best wishes in his new position.

We are informed that Professor W. E. Carswell of the University of Toronto has been conducting a series of lectures at the University under the general topic, "Colour Composition." These lectures, which were held in February and March, began with a discussion of color history and theory, and progressed to the applications of color in painting and advertising.

PHYSICAL SOCIETY COLOUR GROUP

We reprint below the highly-diverting minutes of the February 22 meeting of this British group.

Mr. R. G. Horner (Group Chairman) was in the Chair. Over 80 members and guests were present. The minutes of the previous meeting having been read, approved and signed, Mr. G. J. Chamberlin delivered a highly diverting talk on "Kippers, Cocktails, Confectionery & Colour." He covered such subjects as the relation of Tomato Colour

to Dollar Shortage, the Art of Selling White Salmon, the political insidiousness of Red Units, and C.I.E. nomograms as Applied to Apple-sauce. His exhibits illustrated the colorimetric presentation of salad, and "Green for Danger" in sausages. During the subsequent hilarious discussion, the Chairman got the blues when tasting one of the speaker's cakes. Messrs. Bromelle, Collins, Holmes, Hopkinson, Hunt, Kalmus, Weale and Winch contributed to the Discussion.

After tea Dr. W. S. Stiles replaced Mr. Horner in the Chair: Prof. Dr. M. Richter (Berlin) gave an illuminating talk on "Colorimetry in Germany." He reminded the audience that in Goethe, Grassmann, Helmholtz, Koenig and Hering, Germany had quite a tradition to follow. At the present time, the main efforts were directed towards the characterisation of improved light sources and the elaboration of the DIN system. The colour atlas based on the latter was remarkable in that the steps were uniform. Fundamental research left something to be desired, but, even so, some work on the characteristics of the normal observer was in progress. The subsequent discussion, contributed to by Drs. Stiles and Kalmus and Professor Wright, largely devolved on the meaning of the term "Colour valence." The meeting closed at 6.30 p.m.

PERKIN CENTENNIAL

One hundred years ago, in 1856, William Henry Perkin accidentally created the first synthetic dye, mauve. This year the entire chemical world is celebrating the Centennial of Perkin's discovery. The climax of this celebration will occur during the week of September 10 at the Waldorf-Astoria Hotel, New York. Twenty-seven national organizations (including ISCC) and two departments of the United States Government will participate in a planned program lasting through the week. This observance is sponsored by AATCC, and directed by the Perkin Centennial Committee. Past ISCC Chairman E. I. Stearns is the representative from both ISCC and OSA.

Included with this issue of the News Letter you will find two brochures relating to the Perkin Centennial. One of these, entitled "The Perkin Centennial, Its Aim and Purpose," was obtained through the courtesy of Mr. Ansco G. Bruinier, Jr., Publicity Chairman for the Perkin Centennial. This pamphlet discusses Perkin's discovery and its impact on the chemical industry, lists the participating organizations together with the topics of the papers which each will sponsor, and describes the exhibits to be featured at the celebration.

The other enclosure is an attractive brochure, issued by The Color Association of the United States, Inc. and obtained through the courtesy of Miss Estelle Tennis, Executive Director of the Association. Included are dyed swatches featuring three mauve shades in honor of the Centennial: Perkin Mauve, Perkin Orchid, and Perkin Violet. Miss Tennis explained that these three tones were suggestive of some of the shades that could be produced, with mauve as the keynote, ranging from pastels to dark, according to the dictates of fashion. CA is one of the organizations participating in the celebration.

We believe that the New York observance will be both instructive and inspiring, and hope that these enclosures will encourage many of our ISCC members to attend the meetings. Put the dates on your calendar now!

WRIGHT'S ADDRESS ON THE STATUS OF COLORIMETRY

Ed. note: In the November, 1955 issue of the News Letter, we published an article under the title, "The Problem Faced by the CIE." This article summarized two papers, one by Dr. Deane B. Judd and the other by Dr. David L. MacAdam, which dealt with certain of the resolutions adopted by Technical

Committee 1.3.1, Colorimetry, at the June meeting of CIE. The article also went into some of the history of color-mixture functions, to establish a background against which these reolutions could be more clearly understood.

We have just received an article by Dr. W. D. Wright under the same title as the one we used in the November News Letter article. We understand that this article is based on Dr. Wright's address before the Optical Society of America at its April meeting in Philadelphia. We are proud to present this contribution by one of the leading figures in the field of colorimetry.

We wish to comment briefly on only one point raised in Dr. Wright's paper, namely, the use of the word "classic" as applied to the work of Guild and Wright, for which use we are directly responsible. In our opinion, a good example of a classic work in the field of literature is Dostoievski's novel, "The Brothers Karamazov." We have reread this novel several times, and feel that, far from being "out of date," the work grows in vitality and meaning with each rereading.

"THE PROBLEM FACED BY THE C.I.E." (Note: In the issue of the ISCC News Letter for November, 1955, an account was given of the problem of the revision of the standard observer data for colorimetry under the above title. Much of this account consisted of a steady build-up of the supposed deficiences of the 1931 observer, culminating in the certainty that the data must be revised. Some of the arguments appeared to me to be incorrect and the general tenor of the article liable to undermine confidence in colorimetry itself. The following description of the establishment of the CIE observer, as I understand it, formed part of the contribution I made to the discussion on "Colour Measurement" on April 7th 1956 at the meeting of the Optical Society of America in Philadelphia, and I hope it may help to counteract the despondency which otherwise colorimetrists may be experiencing.

I am not arguing here for or against revision, since I feel this must be considered in the light of the field tests that are to be carried out. Neither have I included the comments I made on the new pilot data and their implications for photometry, since these questions will be more properly discussed between our respective colorimetry committees. But I am anxious that we shall make our decision against a proper historical background. W. D. Wright).

The subject of colorimetry is in an exciting stage of its history. Widespread and vigorous use is being made of it in industry - in the lighting industry, in television, in defining and maintaining the quality of food, in appearance specifications, in dyeing, in the paint industry, in the specification of signal colours, and in many other directions - but at the same time important decisions are pending which will affect the fundamental principles and the fundamental data on which this activity is based.

A period of ferment can be a period of confusion, and perhaps our immediate responsibility is to prevent confusion degenerating into chaos. We have new ideas and new data to assimilate, and we need to look into the past as well as into the future if our judgments are to be sound.

The foundations of modern photometry and colorimetry were laid 30 or 40 years ago, with Ives and Guild as two of the main architects. Ives published important papers

on the algebra and geometry of the trichromatic system, but the most significant contribution was his extensive study of heterochromatic photometry. He showed that the flicker method gave measurements on coloured stimuli that were in general accord with subjective impressions of their brightness provided certain conditions were observed, notably the use of a 2^{o} field. Moreover, the data were additive, so that the luminous flux in a heterogeneous beam of light could be evaluated from the summation of the flux contributions of the monochromatic components in the beam. /Further tests on additivity have also been made from time to time (see, for example, Buckley, Reps. Progress in Physics, Phys. Soc. Lond., 8, 318, 1942)./ A scientific basis was thus established for a conventional system of photometry, and, with the adoption of the standard V_λ curve in 1924, heterochromatic photometry became a firmly based and widely used system of measurement. We should note in passing that this was essentially an all-American enterprise, since the standard V_λ data were derived, by Gibson and Tyndall of the Bureau of Standards, from a critical examination of investigations which had almost all been carried out in America.

It was recognised even then that if the measurements were made by comparing large areas of colour viewed side by side, the results were not in accord with small-field data, and that additivity would not hold. Whether the photometric legislators of that time were wise to ignore this aspect of the problem, is a matter for argument, but the decision to base photometry on a V_λ curve derived from small-field observations was deliberate and unequivocal.

Guild simplified the colorimetric algebra developed by Ives, by reducing the colour specification to a two-dimensional chromaticity measurement, with the luminance or luminance factor to be determined as a separate photometric observation. Experimentally this was a convenient simplification in view of the equipment available at that time, since with a visual trichromatic colorimeter, the chromaticity of a sample can be determined directly from a colour match on the sample and a colour match on a reference white, without any photometric measurement whatever. Indeed, in vector colorimetry, the only readings necessary to locate a stimulus on the chromaticity chart are those of two wavelengths, once the spectrum locus is known. It was therefore logical to regard the V_λ curve as the basis of photometry and the spectrum locus as the basis of colorimetry. Colour specifications can also, however, be calculated from spectrophotometric data, although spectrophotometry as a method of colour measurement was in its infancy when the colour-matching data were standardised in 1931. Nevertheless, the equal-energy distribution curves needed for such calculations were derived by combining the spectral chromaticity coordinates and the V_λ curve, and nowadays the vast majority of standard colour specifications are, of course, obtained via the spectrophotometer.

To derive the distribution curves, the V_λ curve had first to be broken down into three component curves which, added together, gave the V_λ curve. Photometry thus became entwined with colorimetry, but since small-field photometry gave additive quantities and since colour matches were also additive, the procedure used to obtain the curves was basically sound. It has recently been suggested that we should have recorded the colour matching functions directly, but even if we had thought of doing so, I do not think that it would have been regarded at that time as either necessary or desirable, in view of the pre-eminence given in colorimetry to the chromaticity chart and the spectrum locus. There might even have been some international tension if a new V_λ curve based on British colour matching data had been proposed only seven years after the 1924 V_λ curve had been standardised on American photometric data!

Any standard observer is by its nature a convention, and in view of the very large

spread among the observers in their V_λ determinations and the rather smaller spread in their colour-match settings, there was a considerable latitude in the derivation of the standard data. Hence, taking into account the technical and historical situation as it existed at that time, the colorimetric legislators of 1931 were in my view justified in combining the photometric and colorimetric data in the way they did. My own role was a very minor one, so that I am not claiming any share in the wisdom which I believe was shown then by the CIE.

However, for a very long time Stiles has been of the opinion that it would have been far sounder to have recorded the distribution curves directly from colour matches of spectral radiations of known energy content; a V_λ curve adequate for practical photometry could then be derived by summing the distribution curves after weighting them by suitable luminosity factors. Doubts about the validity of the distribution curves arising from the pitfalls and uncertainties of heterochromatic photometry would thus have been avoided. Nevertheless, if additivity could be assumed and if all the experimental data were free from error, the same result should be obtained no matter whether the V_λ curve was the starting point or a by-product of the investigation.

So much, then, in justification of the procedure followed in 1931. What of the data themselves? The V_λ curve has been criticised for being too low at the short-wave end of the spectrum, and in spite of the enormous variations in blue sensitivity that occur from observer to observer (probably as much as 100 : 1), modern determinations of the curve, whether by flicker, direct comparison, step-by-step or threshold methods, confirm this defect. This error is in turn reflected in the 1931 distribution curves, and recognition of this situation was one of the reasons why the revision of the data had to be considered.

With regard to the spectral chromaticity co-ordinates, I have noticed that the Guild-Wright data are beginning to be referred to as "classic," which I assume is a polite way of saying that they are out of date! However, comparison with Stiles' recent determination of the same data for a 2° field shows very close agreement over much of the spectrum, especially at the long-wave end, and the differences that do exist are hardly significant relative to the observer-spread in all three investigations. I might also add that over the past 25 years the measurement of the spectrum locus (and incidentally of the V_λ curve) has become one of the routine experiments for any student working in our colour laboratory at the Imperial College, and essentially similar curves have always been obtained provided that the observer was reasonably competent at colour matching and that his colour vision was not defective.

There is perhaps a greater <u>a priori</u> likelihood that a change in the white point might be found in any new investigation, since a standard white illuminant and surface is a more complex stimulus to keep to specification than a monochromatic radiation; observer differences, too, could lead to one group of observers having a somewhat different mean from another. Yet in this case also, the white points of the observers we have tested over the years have generally fallen within the chromaticity limits found in our earlier investigation.

The combination of the 1924 V_λ and the 1931 colour matching data to give the distribution coefficients required a knowledge of the relative luminous efficiencies of the matching stimuli. These were determined experimentally, although their values were in effect pre-determined by the remaining data, if the system was to be internally consistent. Some adjustment from the experimental results was in fact necessary to ensure this consistency.

It has recently been suggested that the derivation of the distribution curves involved errors of 25-30 per cent on account of the failure of luminances of stimuli of different colours to be additive (sometimes referred to as Abney's law). I personally believe this suggestion is erroneous, however, since I believe it is the addivity of colour equations (Grassman's laws) which are involved, and not Abney's laws, and if these cannot be regarded as valid, then the whole of colorimetry collapses, no matter what observer standard is adopted. (I ought perhaps to add in parenthesis that I have been unable to convince either Dr. Judd or Dr. Stiles that only Grassman's laws are involved.) In any case, as has already been mentioned, small-field photometric data were shown to be additive prior to the adoption of the 1924 V_λ curve, and I am certainly not prepared to admit that chromaticities derived on the 1931 system are in error by 25 or 30 per cent.

To illustrate the failure of luminance additivity, the following observation has been quoted: "When a white mixture was kept unchanged in the comparison half of the field, and the red component of an equally bright white mixture was reduced in intensity, the resulting color was a bluish-green, very obviously brighter than the white. By merely removing red light from a white mixture, a brighter color was produced." However, it would have to be a very remarkable system of photometry that would take account of such an observation, since negative V_λ values would be required. The observation may lead to the conclusion that it is meaningless to specify the luminance of coloured stimuli, but it cannot be used to discredit one set of standard observer data relative to another.

In use, the 1931 data have proved entirely satisfactory for a vast number of measurements embracing a great variety of applications, with only a few examples where some discrepancy between the CIE specification and the subjective observation has been reported. Even if new data are adopted for large field work, we may well find it desirable to retain the present data as adequate for small field colour and photometric specifications, such as for signal lights, or for analysing the results of small-area colour mixing, such as occurs in colour television. In that event we shall have manifestly done a disservice to colorimetry if we go around proclaiming that the present standard observer is obsolete. This is not the situation, and there is a real danger that colorimetry will suffer a major collapse if one set of foundations are undermined before a new set have been erected in their place.

W. D. Wright

ANYONE LOST A NOTEBOOK?

Mr. G. L. Erikson, who served as Chairman of our April meeting on "Color Problems in the Graphic Arts," informs us that someone left a light brown notebook on the speakers' table. The notebook is about 7" wide, 10" long, and approximately 1/2" thick. The owner can identify it by mailing a sample of his handwriting to Mr. Erikson at 3800 Chester Avenue, Cleveland 14, Ohio.

A. B. HOEN DIES IN BALTIMORE

Albert B. Hoen, retired president of A. Hoen & Company - founded in 1835, world famous lithographers, internationally known for fine mapmaking - died in Baltimore on May 1 at age 92. Among colorists, especially among naturalists, he is known in connection with the Ridgway color charts. Outside of the author, Dr. Robert Ridgway, it is probable that Mr. Hoen was the man most responsible for the production of this book, for it was A. Hoen & Company that produced it, under Mr. Hoen's personal supervision.

Some years ago, Mr. Hoen talked with the writer at some length about this work, and discussed some of the many difficulties that had occurred during its publication.

What became known as a second edition was possible only because the original stock of color sheets provided enough stock for most of the colors. A few cclors had to be replaced, and production of these papers to fit in with the first series was a real headache. The book has been out of print for many years.

Production of Ridgway Color Standards and Color Nomenclature, with 1115 named colors, on 53 color plates, was a remarkable job. As Dr. Ridgway said in the preface to the 1912 edition, "The reproduction of the plates has been a difficult matter, involving not only expensive experimentation, but more than three years of unremitting labor. Vastly different from the ordinary lines of commercial color work, the correct copying of each one of the 1115 colors of the original plates developed many perplexing and often discouraging problems, which were finally solved through Mr. A. B. Hoen's expert knowledge of chemistry and pigments, the skill, industry, and patience of the firm's head colorist, Mr. Frank Portugal, and the personal interest of both these gentlemen. It is, therefore, with the greatest pleasure that the author's grateful acknowledgement is made to the firm of A. Hoen & Company for the satisfactory way in which they have fulfilled their contract."

Mr. A. B. Hoen was a grand old man of color. We salute him for his fine workmanship in the color field, and note his passing with regret.

D.N.

SEARCH FOR DESCENDANTS OF H. E. LEWIS

One of our members is anxious to locate descendants of the late Harry E. Lewis, an artist and student of color who developed a system of Color Harmony some 30 to 35 years ago. Mr. Lewis, at the time, was a resident of Omaha, Neb. We have some of Mr. Lewis' illustrative material for the Color Harmony System which he developed, and feel that it would have some special interest for his family. Anyone having information, please communicate with your editor.

VON TURY HOLDS FORTH ON DESIGN

ISCC delegate Francis Joseph Von Tury, trustee of the Design Division of ACS, was interviewed by the staff of Ceramic Industry, a leading ceramic journal. In the interview, which appeared in the February issue of CI, Mr. Von Tury forcefully expresses the opinion that design is the key to the future prosperity of the ceramic industry. Mr. Von Tury's views on the importance of design are best summed up in the title given the interview by the editors: "Design for Survival."

The lead sentences give some insight into Mr. Von Tury's accomplishments in the field: "... In step with current trends, he /Mr. Von Tury/ has not only changed the character of his own organization from an art pottery to a sophisticated design studio specializing in high-fire ware, but, as the mainspring of the design division of the American Ceramic Society, he has worked assiduously to alert the whole ceramic industry to the practical advantages to be found in capitalizing on the modern concept of design. Because these advantages are intangible at first, this has been a labor of love on Joe's part. But the programs of the past two or three years have begun to strike a gleam in many an executive eye. More are making it a point to attend sessions. And not a few have commented that what Joe has stirred up in the design division is benefiting to a degree even those manufacturers who have never set foot inside a meeting. For, besides making the ceramic industry more aware of the growing importance of design, he is making designers (in key positions in other fields) aware of ceramics - as quality materials and as desirable products..."

In the interview, Mr. Von Tury defines design as "the way we present our products to

consumers and the way we present ourselves, our business, to the public." He elaborates later by saying that the work of the designer is not completed when the finished product is turned over to the sales department. The designer "must also help create the right atmosphere in which a given line will be sold. Through displays, literature, color settings, testimonials, and other devices, he must help establish a selling story that flatters the line." He concludes the interview by saying that "Design is the key, the best tool to hold and increase sales. Without it, producers are lost; with it, there are no limits."

Incidentally, we have just received the maiden issue of a new publication, the American Ceramic Society Design Division News Letter, of which Mr. Von Tury is editor. It is attractively printed, and contains condensations of the papers presented at the 1953, 1954 and 1955 annual meetings of the Division. Many of these papers deal specifically with color. We wish to congratulate Mr. Von Tury on his useful and interesting publication, and wish him every success. Anyone wishing to have a copy may obtain one by writing to F. J. Von Tury, Perth Amboy, N. J.

WILHELM OSTWALD, MEIN VATER

Ed. note: In the January issue of the News Letter, we quoted some correspondence from Grete Ostwald, daughter of the late Dr. Wilhelm Ostwald, and promised a brief review of her book, "Wilhelm Ostwald, Mein Vater." We are now happy to present this review, for which we thank Dr. Günter Wyszecki, of the National Research Council of Canada. As we mentioned in the January article, the last three pages of the book are particularly worth reading, and Dr. Wyszecki has provided a translation which clearly expresses Miss Ostwald's dream of a color-research institute in Germany.

The book is published in Stuttgart by Berliner Union, is dated 1953, has 290 pages, and is priced at DM 24.

The extensive pioneer work of Wilhelm Ostwald, especially in physical chemistry (he received the Nobel prize for his studies on catalysis in 1909) and in the science of color, is still well known all over the world, and many of his results are continuously used in science and industry. Only little, however, seems to be known on Wilhelm Ostwald's life, his way of working, his character, his relationships to colleagues, friends, students and family, and his philosophy of life and science. The book on Wilhelm Ostwald written by his daughter Grete provides all this information. Wilhelm Ostwald's life is described in such a delightful manner that the reader frequently feels that he is taking a direct part in the sometimes very exciting events. The value of the book is considerably increased by the quotation of original documents (letters, lectures, books etc.) in most of the chapters.

The reader of the ISCC News Letter in particular will be interested to learn that about one-third of the book is dedicated to Wilhelm Ostwald's research work on color, which, for example, led to the Ostwald Color System and many fundamental studies on color harmony.

The personal desire of Grete Ostwald to carry on her father's ideas about the psychology of color is expressed toward the end of the book.

For the convenience of the reader of the ISCC News Letter the reviewer has translated the last few paragraphs. However, because of the very poetic fashion in which the book has been written, the translater has to apologize if the English does not reproduce completely the poetic atmosphere of the German original:

"To posterity I am handing over my dream of desire. I have already passed the age of seventy and shall hardly see its fulfilment. This dream sees the Color Research Institute, still missing in Germany, established on the large estate, 'Energie.' This institute does not only carry out fundamental research on a sufficiently wide scale, but is also going to develop, test, and standardize practical color standards, up to the international Color Atlas which was at the beginning of Wilhelm Ostwald's work on color. In particular, I see also the Color Harmony Section in which nobody doubts that harmony is equal to order (Harmonie = Gesetzlichkeit), and see the demonstration room for the coming eventful art of color-music (lichtkunst). A reel of film called 'Wilhelm Ostwald' will lead from the gray chaos into the harmonic gray standards, which gradually become colored and form the beautiful order of the triangles of equal hue up to the almost eye-bursting light energy of the 'full colors.' I see the full-color circle closing, contracting to white and black. I see how it falls from the most tender brightness into the deepest shadow and I see how it turns to neutral gray again. This would be the mathetic (mathetisch) gallery on the Wilhelm Ostwald path in the color world. In the physical gallery, maybe, we shall learn how each of the 24 full colors originate from the lights of their color half (Farbhalb) in the spectrum - to the astonishment of the observer also the purple colors of the spectral gap - and again fall apart into purple-less lights of the spectrum. Pensively, we shall learn how the diaphragm moving along the spectrum band forms a uniformly-spaced color circle out of the color scale with a beginning and an end. The observer will learn how always one color only, the complementary color, possesses the ability to unite to form gray with another color, etc.

"The chemical gallery will perhaps lead into the microchemical interior of the pigments and show, by means of their absorption bands, why there exist so few pure green pigments.

"The physiological walk, as I hope, will make it surprisingly clear why the so-called cold colors blue and green must have their inseparable black content.

"And the psychological walk will not only lead to the amazing surprises of related and unrelated colors but in particular reveal established color harmonies, that is, color harmonies between specified and always reproducible color standards in a delightful order of color and form and an immeasurable fulness.

'Will there also exist a Hans-Hinterreiter film which provides an entirely new experience for eye and feeling by means of an artistically directed ordered transformation of forms and colors? What will it be called? 'Das Leben,' or 'Die Sonne,' or 'Abendwanderung,' or 'Zu Zweit,' or 'Sieg des Lichts,' or 'Die Gotik'?

"Finally the science of color will have a home and a journal in which it may live and bloom. Wilhelm Ostwald's note-books with his experiences, his recipes, his instruments, his color organs (Farborgel), his books and manuscripts, his harmony experiments, his large library, his houses, his garden, his trains of thought in the deep woods of 'Energie.' What should all this better serve than Color, the bringer of happiness to mankind?"

The reviewer is happy to mention that in 1953, on the 100th anniversary of Wilhelm Ostwald's birth, the government and the Akademie der Wissenschaften of East Germany founded the "Wilhelm Ostwald-Archiv und-Forschungsstätte" in Grossbothen near Leipzig, the location of the estate "Energie." This foundation was the first official acknowledgment of Miss Grete Ostwald's work of preserving Wilhelm Ostwald's

work of preserving Wilhelm Ostwald's assets. The new institute is also predestined for research work on color as far as this is possible under present conditions in this part of Germany.

Günter Wyszecki

LETTER FROM FARNSWORTH

The need for testing the color vision of school children as an aid in early vocational guidance is properly receiving increasing attention abroad as well as in the United States. From Montevideo, Dr. Carlos A. Bauza has furnished a copy of his article on "Color Vision Anomalies in Children," published in the Archives of Pediatrics in Uruguay, which has been translated by Dr. C. T. G. King, of our Laboratory.

Dr. Bauza carefully administered standard, modern color vision tests to 1000 boys and 400 girls in Montevideo and found 7.1% and 0.25% color defectiveness respectively. His data is followed by discussions on Child Psychology, Interpretation, Teacher Awareness, Professional Orientation and the Pre-vocational importance of color vision testing. His introduction reviews the History, Physiology, Ontogeny, Hypotheses, Classification and Incidence of color defectiveness in children. The viewpoints and the developments in the Spanish-speaking part of the Americas and some unfamiliar references will interest some readers of the News Letter. Mimeographed copies of the translation are available from the Secretary's office of the Inter-Society Color Council.

Dean Farnsworth

AMERICAN CERAMIC SOCIETY

Ed. note: Our member-body article this month is at one time a history of an organization and a history of an art. Tyler G. Pett, Chairman of Delegates from ACS, has skillfully placed an account of the origin and functions of ACS in broad historical perspective, and shown how it is related to the evolution of the ceramic art. ACS, like most of our member-bodies, is a heterogeneous group involved in a multitude of activities, many of which are highlighted in color. The importance of both the color scientist and the color designer to the ceramic industry is clearly explained in the article.

Ceramics is such an ancient art that its beginnings are lost in antiquity. It undoubtedly was one of man's first crafts, and whether he made baskets or pottery first might be debated. The earliest evidences of man have contained examples of pottery. Not only was it a utility item but it was an early form of expression, both in form and by the application of colored earths to affect design or decoration. Glass has been found in ruins dating from about 12000 - 15000 B.C., and was an established craft in the early Egyptian civilization. The first industry established in America was a glass plant in 1609 at the Virginia settlement. Enamels are known to have existed for several thousand years, probably having been used as jewelry when applied to gold or silver. Terra cotta is an old material used originally in buildings, as were tiles, frequently employed as means of adding decoration. As soon as man began to use fire as a means of carrying on other crafts, for example metallurgy, he had to find containers for both the fire and the work. Out of this came the early beginnings of a refractories industry.

Ceramics in all its forms has been an industry which did not exist until man acquired fire. It then became an art and craft and remained such, even though the industry grew to very large size, until the end of the 19th century. It was then that workers in various branches of ceramics began to transform the industry into one based on scientific facts. The first ceramic school was founded at Ohio State about 1898, followed shortly by schools at Alfred, Rutgers, and others. The first

degree in ceramic engineering was granted about 1902. The American Ceramic Society was founded in 1898.

The Society is a professional society having as its goal the promotion of the ceramic arts and sciences. Its membership numbers about 4000, principally in the United States, although several hundred members are located in some 42 foreign countries. It is divided into eight divisions, the three major ones being refractories, glass, and white wares. The other divisions are basic science, design, enamel, material and equipment, and structural clay products. Participation in the activities of the society by students is encouraged. There are over 300 student members in 14 student branches.

There are three publications of the society: (1) The Journal, an archive of original fundamental research in the field of ceramics; (2) Ceramic Abstracts, where the publication of all that is published in ceramic technology, all over the world, is noted; and (3) The Bulletin, which lists news and articles concerning the applications of fundamental research to the technology. Acceptance of a paper for publication is a mark of recognition, since all articles are reviewed by committees special to the various fields.

Probably this Society is one of the few groups in the Inter-Society Color Council in which two groups exist: those interested in color, and those to whom it is unimportant. The ceramic industry has both extremes; in some parts of the industry color is of little or no importance, and no one cares whether the final product is red or green. On the other hand, there is another segment of the industry where color, design, style, etc., is a very important part of the product.

Even within the divisions such differences exist. Consider, for example, the glass division. Its products range all the way from window glass, tableware, and ovenware to TV tubes, optical glass, light bulbs and tubes, and those products of recent years, insulation and fiber glass. A manufacturer of window glass is often anxious that there should be no color to his ware. His principal concern is that color be at a minimum. If his raw material limits him to a small residual color, he tries to keep it as blue as possible rather than on the yellow side, because of the sales appeal. On the other hand, a manufacturer of tableware wants a product which is uniform in color. A recent popular item, which was retailed through the dime store markets in great volume, was a ruby glass tableware. The production of such ware entailed many problems, since the amount of color not only depended on the amount of coloring agent added to the glass but was also influenced by the temperature and the time this temperature was maintained. A further complication was the fact that temperature and time of heat treatment are also determining factors in what is known as the annealing of the glass, a matter that determines how severe a "knock" it can take without breaking. Another example where critical control is important is the production of high-quality sun glasses, where the manufacturer attempts to produce lenses which are identical in color to a few judds.

The whitewares producers are not concerned with color in producing items such as electrical insulators (unless the color indicates the presence of impurities affecting performance), but are very much concerned with color in producing a product for your dinner table, wall tile or floor tile, or colored bathroom fixtures. Here we begin to meet not only the problem of whether the product is uniform, but the problem of using an item of one manufacturer beside that of another, when both are colored. This is an important problem whether the two items are intended to match or to harmonize. In this segment of the industry we find the designer, who is concerned with color and design, particularly in the decoration of tableware.

The enamel division is another division which is extremely concerned with color and color differences. This industry has come a long way from the time when enamel was applied to gold or silver to adorn a ruling monarch. It is also an expanding industry. Its modern phase is scarcely 100 years old, having originated in the enameling of cast iron cooking utensils around 1840. Now it provides, in addition to cooking ware, plumbing fixtures and cases for kitchen and laundry appliances. Enamel has become a prominent medium of decoration. A very modern use is the covering of the exteriors of buildings with porcelain-enameled panels which permit great permanence in exterior color. Also very new is the application of enamel to the linings of jet engines, where unprotected metal would burn out, and its use in nuclear fission reactors. It is of extreme importance to colorists since it provides a means of producing color standards for other industries - standards in which a very large gamut of color can be presented in a form of great permanence.

Those employed in making structural clay products must work closely with designers and architects, since their work results in brick, building tile, flue linings, sewer pipe, drain tile, terra cotta, portland cement, gypsum, and lime. It is not unusual to find that a certain partially finished job must be redone, because the architect will not approve of a color which varied possibly because of kiln temperature or for some other uncertain reason.

And then there are those producers of refractory materials, whose products make it possible for others to produce items of beauty and color. The refractory manufacturers, who make linings for furnaces and kilns of all types, abrasives, and materials for cutting and polishing, do not generally care what color their product is. But these are the tools upon which almost everyone else in the ceramic industry and many other industries rely to produce their own product. The list is tremendous today: the potter who runs his own business or hobby, the glass manufacturer, the enameler (both of industry and hobby) - to mention only a few.

Within this organization color is an expanding subject. Every year more manufacturers realize that the measurement and control of color is an important tool of their production. The day of the master-worker, who made a daily inspection by eye of the work produced and ordered changes accordingly, is almost gone. In his place come technicians, instruments, standards, and specifications to assure that the product will remain the same. At the last meeting of the delegates of this group to the Inter-Society Color Council, it became apparent that the industry is rapidly coming to the even greater problem, of which color is only a part - appearance.

Look around you; everywhere you will find the results of the laborers in the field of ceramics - in your kitchen, your bathroom, your living room, your dining room, the train on which you travel (the newer cars), your automobile, your office building, your shopping center, your church. The examples you will find have been produced by technical people in this field, who have been concerned with the quality and perfection of the item, working with the designers, who have been concerned with the shape, style, color, and appearance of the product.

Your writer feels that he may have slighted some part of this great society. But it is only because it is great and its scope broad. It is impossible to do more than touch on the many functions of it.

Tyler G. Pett

IDI ANNUAL DESIGN AWARD

The Industrial Designers' Institute has been accepting entries for its sixth annual Design Award Program, with ISCC Vice President Walter C. Granville the Chairman of the Award Committee. The

deadline for entries was May 19.

Medals will be presented to no more than three designers who will be honored at a luncheon June 21 at the Hotel Ambassador East, Chicago.

The IDI Design Award Program is aimed at giving unbiased professional recognition to industrial designers for noteworthy and fresh approach to design and function, combined with practical use of appropriate materials. Designs submitted as evidence for awards must be mass produced and nationally distributed, and every designer, or team of designers, in the industrial design field is eligible to compete.

In announcing the program, Mr. Granville pointed out that designs may be submitted by anyone -- by an individual on behalf of himself, or for someone else, as well as by a design group. Explaining that not more than three individuals, or teams, are honored each year, he described the basis of the IDI award in this way: "It is the professional evaluation of designers' contributions to the field of industrial design -- as well as to the manufacturer and the ultimate consumer."

IDI defines mass production, as related to the award program, in these terms: "appropriate quantity production in any given field; for instance, six locomotives, or 100,000 radios." The product may fall into any category in the industrial design field, except that of fashion, and would include furniture as well as electrical appliances.

Designs submitted to the IDI committee must have been in production in 1955-1956, and must be attributed to an individual designer, or team, working either on the manufacturer's staff or independently.

NEW IES HOME LIGHTING PACKET FEATURES KITCHENS

In keeping with the reawakening trend toward installed lighting in homes, such as with decorative valances, recessed and cove fixtures, and other types in general living rooms, the Illuminating Engineering Society has published a new packet of their well-known Home Lighting Data Sheets, this group featuring the newest ideas in kitchen and bathroom lighting.

"Home Lighting Ideas for Kitchens and Bathrooms" includes room and lighting layouts for typical kitchen and bathroom arrangements, remodeled as well as new construction, with complete instructions and installation data for the lighting systems. Among the latest types of lighting shown are recessed soffits and coves, louverall and luminous ceilings (particularly adaptable to the comparatively small areas of these rooms) as well as standard fluorescent and incandescent fixtures. Ten different rooms are covered and data include dimensions and floor layouts for each, with all necessary information concerning the name of manufacturer and catalog number of fixtures employed; wattage and color of lamps; construction details.

The new home lighting packet "Home Lighting Ideas for Kitchens and Bathrooms" is valuable to architects, electrical contractors, lighting specialists, designers, residence lighting engineers, in fact anyone concerned with modern lighting in the home. Copies of "Home Lighting Ideas for Kitchens and Bathrooms" may be obtained from Publications Office, Illuminating Engineering Society, 1860 Broadway, New York 23, N. Y. Single copies 50¢; quantity prices on request.