

Inter-Society Color Council *Newsletter*

NUMBER 223
March-April 1973

ANNUAL REPORT ISSUE

The annual report issue is scheduled for publication early in July, 1973. This note is intended to remind ISCC officers, delegation and committee chairmen to have their formal annual reports in the hands of the Secretary by no later than June 15 so that we may meet our publication deadlines.

R. W. Burnham
Editor

ISCC PUBLICATIONS ON FILE AT LIBRARY OF CONGRESS AND COOPER-HEWITT MUSEUM

Volumes of ISCC records were deposited July 28, 1971 in Washington with the Library of Congress, Science and Technology Division. We now have call numbers for these publications.

ISCC Newsletters, 1933-1967, in five bound volumes are listed under L.C. number QC495. I 58. Additional volumes will be added in the future as they are bound. The five volumes contain the following numbers:

Vol. 1	Nos. 1- 38	1933-1941
2	39- 79	1942-1948
3	80-115	1949-1954
4	116-156	1955-1961
5	157-197	1962-1968

Bound volumes of ISCC Minutes of Annual Meetings, a closed set of two volumes, are listed under call number QC495. I 578. These volumes contain the following:

Vol. I (not marked)	1931-1949
II	1950-1962

(Since 1962 these annual minutes are not bound separately, for they are included as a regular part of the Newsletter series.)

A similar set, one that had been on file with Dr. Judd at NBS, will soon be placed on file at the Cooper

Hewitt Museum of the Smithsonian Institution, located at 9 East 90th Street, New York City, in care of Mr. Christian Rohlfling.

It should be noted that 8 bound volumes of Newsletters, October 1933 through June 1965 (Nos. 1-176) are already on file at Cooper-Hewitt, courtesy of Walter Granville. Mr. Rohlfling has indicated that Cooper-Hewitt would like to have the duplicate set of Newsletters, for this will permit one set for general library use and one for the Color Archive. The Judd set is therefore being sent to Mr. Rohlfling for this purpose.

D. Nickerson

ADDITION TO ERRATUM N. #222 JAN.-FEB. 1973

In my enthusiasm to report an error in the ISCC membership list, I totally neglected to provide the name of the valuable member of our Committee on Publications whom I mentioned--but not by name. He is Robert T. Kintz who has been of immeasurable help to me as Editor.

R. W. Burnham
Editor

BLAME IT ON THE DYER

In a recent edition of 'Go,' a house magazine of Coats Patons Ltd, Mr C. J. Wright, who retired recently after 51 years' service with J. & P. Coats, recounted a story which most dyers will be able to apply to their experiences. The story, told in Rosita Forbe's book Adventure, is about the judgment of a famous Quadi of Arabia, who presided over his court in the days when burglary was a much-respected art.

One day a thief appeared before him, demanding justice. He had, he complained, been engaged in his honourable profession when a window ledge had broken under his weight. He fell, and had been lamed as a result. Naturally, the thief was angry. The householder, he felt, must have some responsibility in the matter.

The judge summoned the householder, who promptly blamed the carpenter who had been instructed to repair the window sill only a matter of days previously. The carpenter, charged with causing the downfall and disablement of the thief, insisted he was not responsible. He had been so distracted by the appearance of a beautiful woman in a marvellous blue robe that he had abandoned his carpentry and set off in hot pursuit of the lady.

It was clearly the woman who had caused the accident. But wait--the woman pointed out that beauty such as hers was God-given. Not even the great Quadi could bring the Almighty to justice--so, argued the woman, the guilt must lie with the dyer who had created her exquisite robe.

In his wisdom, the judge decreed that the dyer was undoubtedly responsible for the thief's predicament. And the dyer, being an honest man who gloried in his work and his art, agreed that he indeed was responsible for the beautiful robe and therefore for the ensuing distractions it had caused. The judge immediately ordered that the dyer be taken and hanged in the doorway of the house where the accident had occurred--and a crowd departed on that errand. After a short time, the lame robber stamped back into the court, followed by an angry mob, shriekingly proclaiming that there was no justice in the land. The doorway of the house had been too low; they could not hang the dyer.

The Quadi thundered back at them. Fools that they were, how dare they say there was no justice? 'Find a smaller dyer,' he roared, 'and hang him!'

Reprinted from SDC NEWS No. 24, Feb. 1973

PAINING COMMEMORATES 350TH ANNIVERSARY OF THE AMERICAN TANNERS

Unveiling at Boston Museum of Science

In commemoration of the 350th anniversary of the beginning of the tanning industry in America in 1623, Irving Glass, president of the Tanners' Council of America, unveiled a painting of Experience Michell, first tanner in America. The ceremony and preview of the painting took place November 28th at the new, multi-million dollar Museum of Science in Boston. Participating in the unveiling was W. M. Boyce, manager of the Dyes and Textile Chemicals Department of American Cyanamid Company, who commissioned the painting, which appears on the 1973 Cyanamid calendar.

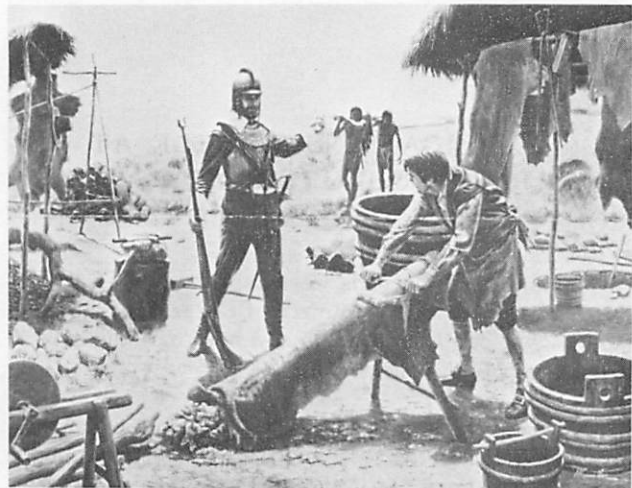
Mr. Bradford Washburn, director of the museum,

presided at the ceremony. Others present included Mr. Jeff Edenburg, president of the New England Tanners' Club, Mr. James Doty, Governor of the Mayflower Society, Mr. Cameron Mackenzie, New England regional manager, Dyes and Textile Chemicals Dept., and Cyanamid leather dyes representatives Robert Barry, Bobby Lindstrom, and Don Piette.

Also present were representatives of the "Plimoth Plantation," a recreation of the original settlement which is located at Plymouth, Mass.

Following the unveiling, the painting was loaned to the New England Tanners' Club for exhibition at their two-day meeting. Currently, it is back at the Boston Museum of Science as an auxiliary to a fifteen foot scale model of "Pilgrim Village," presented to the Museum by the Mayflower Society.

The Museum is planning to establish an exhibition of primitive tanning as an adjunct to the painting. Members of the New England Tanners' Club are cooperating in this project.



EXPERIENCE MICHELL--THE FIRST TANNER IN AMERICA

(Artist--Mort Kunstler. Commissioned by Dyes and Textile Chemicals Department.)

It was three hundred and fifty years ago, in the year 1623 that the first tanner in America arrived on the ship Anne. His name was Experience Michell (changed by his descendants to Mitchell), and he had been a member of the congregation in Leyden, Holland, to which the Pilgrims had belonged. He must have been a fairly young man when he came to Plymouth in 1623, for sixty years later, in 1683 he was still listed in the Colony records.

Lots for land preference were drawn on the ship Anne, as it lay at anchor in Plymouth harbor. Where Ex-

perience Michell stood in the drawing is not known, but he was able to select land highly desirable for his purposes, boundaries running from "The Third Brook" to "Strawberry Hill," about a mile north of the Plymouth stockade. Water was essential for the tanning operation, and undoubtedly Experience erected his crude tannery buildings--thatched lean-tos--alongside the brook. At that time, tanning was carried on more or less in the open, and operations ceased during the winter months.

The first skins tanned in the "Plimoth Plantation" were from deer shot by Pilgrim hunters, and in larger quantity, deerskins bought from the Indians. It was not until after 1631, that sheep became common enough to be a major source of supply, and cattle hides much later.

Tanning in the early seventeenth century was far simpler than it is today. After a thorough washing, the hides were treated with lime to loosen the hair, or more simply still, rolled up and stacked in the sun to partially putrify. When the hair was sufficiently loosened, the hides were placed over a half-log, or "beam" supported by legs at one end. The tanner scraped off the hair and flesh, after which the hides were again washed, and then packed in the curing pit--hogshead sunk in the ground--with pulverized oak bark between the hides. Oak bark contained tannin--tannic acid--the essential chemical that turned the skins into leather, preserving them against rotting. When the pit was full, an "ooze," made by soaking oak bark fragments in water, was poured into the pit, to fill every crevice.

Here the hides stayed for a year--two years in the case of sole leather--then taken out, and hung up to dry. This was the essential tanning process, although other steps might be taken to give a softer, more pliable quality to the leather.

The artist, Mort Kunstler, has painted a moment when Captain Miles Standish, holding a matchlock musket and wearing his sword, gestures to the Indians. His head is protected by a steel helmet of the times, and he wears chest armour. His sturdy leather knee boots will deflect arrows and protect him from brambles and thorns. Powder charges and shot carried in leather packs, hang from a shoulder belt. In his left hand he holds a lighted wick, always ready to fire his matchlock.

John Pory, a contemporary of the Pilgrims, wrote that while the colonists were on good terms with the Indians, ". . . because they never did them wrong, yet stand they night and day precisely upon their guard."

Experience is at work scraping the hair and flesh from a deer hide laid over the "beam." In the background, a mile distant, is the Plymouth stockade, and to the left, Plymouth Harbor. Behind Captain Standish, to our left, is a pile of rolled up hides, putrifying in the sun. To

our right, and behind Experience is an open pit, and behind it one filled with hides and oakbark, battened down to wait out the year of curing. And again, just behind Experience, hides are hung up drying.

Miles Standish was well-acquainted with Experience Michell, as was John Alden. In later years, Standish and Experience served together on a boundary commission, and the three located eventually further north in Duxbury.

The leather craft that Experience Michell introduced to America flourished. Twenty years after his arrival, there were at least four other tanners in the Plymouth Colony, and soon tanners became common in the Massachusetts Bay Colony. Methods of tanning became more precise, and the process was improved, and by the early nineteenth century, open tan yards began to give way to enclosed buildings and year-round operation. The New England area continued to be the largest producer of leather, but tanneries opened in the middle west wherever oak bark could be found. The father of Ulysses Grant was a prosperous Ohio tanner with branch outlets in Illinois and Wisconsin. Ulysses, as a young man worked in his father's beam house. At the opening of the Civil War, Ulysses was a clerk in his father's Galena, Illinois store.

The making of boots and shoes grew adjacent to the New England tanneries, and in the mid-nineteenth century, after Elias Howe adapted his invention of the sewing machine to the stitching of leather, the craft of shoemaking became an industry.

Quality characterized both American leather and American shoes, and so fine was their reputation, it is said that when Edward VII came to the throne of England in 1901, he regularly ordered shoes for himself and his family from a shoe company in Lynn, Massachusetts.

Leather has been essential to mankind throughout history, and has played an important role in the development of America. In addition to leather boots and shoes, for almost three hundred years leather saddles and harness were as necessary to American transportation as gasoline and tires are now.

Leather clothing was used by the frontiersmen and trappers, and leather jerkins protected the Pilgrim fathers from the fall and winter winds. The enthusiasm of youth today for leather clothing has revived this American tradition, and appreciation of the utility and beauty of leather is at an all time high.

The tanning industry today remains an art as well as an industry, for the animal hides that form its raw material are almost infinitely variable. A high degree of judgment and experience are required to achieve uniformity of product.

Because of this need for special skills, it is common

to find tanners today who learned their art from their fathers, and many who count their experience in decades, not years. At the same time, the tanning industry has utilized all the advantages of modern research and science to improve techniques and processes. Three hundred and fifty years old in America, the tanning industry has the vigor of youth.

THE MOST WANTED SHOE LEATHER COLORS FOR FALL AND WINTER '73

(According to Early Samplings)

The following are suggested initial formulations which the tannery colorist might use in developing final formulations for these most wanted colors.

All formulas for 100 lbs. leather shaved weight.

For Men and Boys

Samplings for business and dress shoes point up the popularity of five colors; three in brown shades, a red and a blue.

CAYENNE (an orangy brown)--grain calfskin--
2% Calcocid* Brown Y
1/4% Calcomine* Orange EGL

RAISIN (a light chestnut brown)--grain calfskin--
1% Calcofast* Olive Brown G
1/4% Calcocid Milling Yellow R
1/16% Calcofast Brown MF

TAURUS (a deep brown)--grain calfskin--
2-1/4% Calcocid Brown RD Ex
1-1/2% Calcocid Brown 2Y
3/4% Calcocid Blue Black Ex

MAHOGANY (a dulled, fairly deep red)--grain calfskin--
1/2% Calcocid Brown 2Y
3/4% Calcocid Milling Red BF Ex Conc
1/16% Calcofast Gray G
1/4% Calcofast Brown MF

STOVEPIPE (a metallic blue-gray)--grain calfskin--
1% Calcocid Brown RD Ex
3/4% Calcomine Catechu 2B Conc
1/2% Calcomine Brown MCW
1/2% Calco Bottom Black ELA New

SUEDES--Three suedes are especially in demand, all browns.

CASTORO (very deep brown--almost black)
1/2% Calcocid Bottom Black ELA New
3/4% Calcomine Catechu 2B Conc
1-1/4% Calcocid Brown RD Ex
1/4% Calcomine Brown MCW

ESSENCE (medium brown)
1-1/2% Calcocid Deep Brown GL Special 150%
2-1/4% Calcocid Brown Y
3/8% Calcocid Brown RD Ex

CANYON TAN (with a slight orange cast)
1/8% Calcomine Orange EGL
1/8% Calcofast Olive Brown G
1/4% Calcocid Brown Y
1/16% Calcocid Yellow BN

SPORT--For sport shoes a yellowed, medium light brown leads, called:

OATS--grain calfskin--
1% Calcofast Olive Brown G
5/8% Calcofast Brown MF
3/8% Calcofast Gray G
1/4% Calcofast Neutral Yellow G

The "weekend and city" preferred color is a fairly deep and lightly reddened brown, called:

ROOT BEER--grain calfskin--
1-3/4% Calcocid Brown Y
2% Calcocid Brown RD Ex
1/8% Calco Suede Black FLX

For Women and Girls

Two camel colors--a lightened and a deeper toned--are in demand.

CLASSIC CAMEL (lightened camel)--sueded calfskin--
1% Unitane 0-110[®] TiO₂
3/16% Calcocid Brown Y
1/8% Calcofast Gray G
1/8% Calcocid Orange Y Ex
1/16% Calcofast Brown MF

CARAVAN (deeper toned)--grain calfskin--
1% Calcofast Olive Brown G
1/8% Calcocid Brown 2Y
1/8% Calcofast Brown MF

A reddened, earth brown, Volcano, is creating much interest.

VOLCANO--sueded calfskin--
2% Calcofast Brown MF
3/4% Calcocid Brown RD Ex
1-1/4% Calcocid Milling Red GP Conc

Another popular reddened shade is:

OXBLOOD--grain calfskin--
3/8% Calcomine Scarlet 3B
3/8% Calcomine Scarlet BL
3/8% Calcofast Black WA
1/8% Calcocid Brown RD Ex

*Trademark

Among the browns the most interest has been shown in a deepened golden brown--New Earth, and in Briar Root, a rich reddened brown.

NEW EARTH--sueded calfskin--
2-1/2% Calcocid Brown Y
1/2% Calcocid Brown RD Ex
1-1/4% Calcofast Olive Brown G

BRIAR ROOT--grain calfskin--
3% Calcomine Catechu 2B Conc
1/4% Calcomine Catechu 4G

Reproduced from Leather Lines, American Cyanamid Co., Dyes and Textile Chemical Dept., Vol. 18, No. 1, Feb. 1973

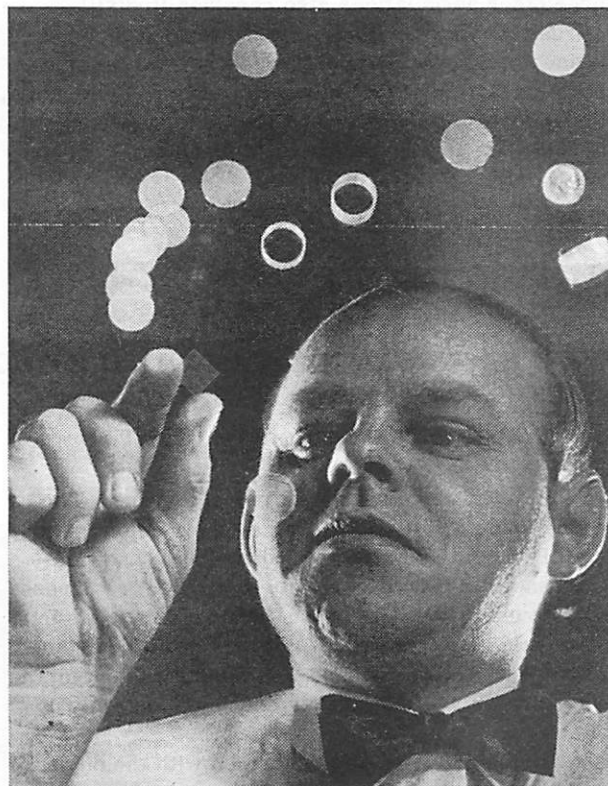
TINYVISION

During an electronics experiment at Albuquerque's Sandia Laboratories, a scientist accidentally sent a pulse of electricity through a dime-sized ceramic chip. He watched in amazement as the ceramic abruptly changed color. Now, after four years of study and further tests, Sandia experimenters believe that the chance observation may have spawned an entirely new technology that will eventually have wide applications in computers and communications.

In Philadelphia at a meeting of the American Ceramic Society, Ceramist Gene Haertling and Electrical Engineer Cecil Land explained the secret of the ceramic's unusual behavior. Tiny crystals in the ceramic--packed some 100 million to the square inch--respond to electric voltage much as iron filings align themselves in a magnetic field. High voltage causes many of the crystals to change their orientation; low voltage affects only a few. By reversing the voltage, the change can be erased. That accounts for the color change; the ceramic is transparent only to a narrow range of light frequencies, or colors, at one time.

Telegrapher's Key. When the degree of orientation of its crystals is changed, the ceramic becomes opaque to the original color, but allows another color to pass through. Sandwiching a ceramic plate between two polarizing disks and applying different voltages in sequence, Haertling and Land found that they could precisely control the color the ceramic would transmit.

With these properties, the Sandia scientists say, the ceramic will be useful in computers. Because its crystal orientation is determined by the last applied voltage, it is ideal for memory storage; its light-transmitting qualities can be used for computer read-outs and displays. Placed in front of a laser, the ceramic filter can block off the laser beam or let it through, depending on the amount of voltage applied.



SANDIA'S HAERTLING WITH CERAMIC CHIP
Color in the voltage.

It can control the laser beam, much as a telegrapher's key modulates a radio wave, thus transmitting information.

Other scientists see an even more exciting application: color television sets the size of transistor radios. Using a hundred times less voltage than conventional sets, tiny battery-powered ceramic TV screens would show purer colors than conventional sets, without generating hazardous X rays. They could also be used as an animated color transparency. Placed in a light projector, they could flash large TV images against a movie screen or even a plain white wall.

From Time, May 18, 1970

PRINTING INDUSTRIES OF FLORIDA WIN RUDISILL AWARD

The Printing Industries of Florida, Winter Park, Fla., has been named recipient of the James J. Rudisill Outstanding Achievement Award for contributions in the field of graphic communications education and training.

The Council presents the award annually in recognition of printing industry associations' cooperation with local school districts in the development of improved education programs.

Three other associations also received Rudisill Awards this year for their contributions to graphic communications education. They were: the Graphic Arts Association of the Delaware Valley, Philadelphia, Pa.; the Printing Industry of Illinois Association, Chicago, Ill.; and the St. Louis Litho Club, St. Louis, Mo.

BRITISH COLOUR GROUP

MOST RECENTLY REPORTED MEETING

Appearance Measurements of Hair

Mr. Ricketts' concern is with hair colourants. Two heads of hair are distinguished by their colour, style, natural length, curliness, abundance and condition--such condition varying with, for example, greasiness and softness, which are given differing emphasis by individuals. An average head of hair contained some 120,000 hairs of between 50-100 microns diameter and having an average growth of 1 cm/month.

The structure of hair was described with the outer cortex containing the pigment residues and inner medulla sheath running down the axis of the hair follicle.

The predominant natural hair colour in the United Kingdom is brown (84%) with blonde, auburn and black in the minority (7.5 and 4%). Hair colour was determined by the number density and size of the melanin granules, by the degree of melanisation and by the "clumping" of the hair fibres.

Hair colour was measured to determine the effect of hair colourants, cosmetic treatments and to determine the effect of storage on these products.

Hair colour, in the speaker's laboratory, was measured with a spectrophotometer, with the tristimulus co-ordinates converted to Hunter L,a,b scales since these scales were found to correlate better with "colour perception" and were easier to communicate and visualize. The Hunter "a" scale--redness/greenness--was found to correlate well with the attribute of "warmth" of hair colour.

It was noted that sample presentation was critical in the measurement of hair colour in that it was important to reduce specular reflection which would particularly effect the Y (and therefore the L) scale.

For the determination of hair lustre it was found that the measurement of specular reflectance at 20° or 70° was more meaningful than the contrast gloss method normally employed for lustre measurement. Using a goniophotometer, the specular reflectance peak was at 42°.

Optical Texture Recognition

In his opening statement, Dr. Taylor said that anything could be recognised with the appropriate machine, provided the money was available to make the machine. Objects may be classified by combining texture recognition with shape and colour recognition, but, in some cases, accurate classification is possible if a proportion of a number of different textures in an object are recognised.

Texture recognition can be divided into three cascaded stages: preprocessing, function synthesis and decision stages. In shape recognition, one type of preprocessing unit--the "detail filter" (DF)--has been widely used. In the speaker's flying-spot scanner system, the DF's give a null output when the integrated signals over two adjacent receptor fields are equal in magnitude but opposite in sign. All plain texture surfaces give zero output and the largest outputs are obtained from rough textures with a mean grain or detail size matching the size of the focussed spot. An alternative system producing the same result without scanning has also been constructed by Dr. Taylor.

The use of a system for finger print recognition, endoplasmic reticulum in liver cells and newspaper paper recognition was also described.

Malcolm Lloyd

DR. GEORGE E. F. BREWER TO PRESENT F.S.P.T. MATTIELLO LECTURE

Dr. George E. F. Brewer, coating consultant, pioneer in the field of electrodeposition of paint, and world-recognized authority on coatings, will present the Mattiello Memorial Lecture at the Annual Meeting of the Federation of Societies for Paint Technology to be held November 14-17, at the Conrad Hilton Hotel, Chicago. His subject will be "Electrodeposition of Paint: Achievement Through Parallel Efforts."

For further information contact R. W. Matlack, F.S.P.T., 121 S. Broad St., Philadelphia, Pa. 19107.

PAINT RESEARCH INSTITUTE TP TO STUDY CORROSION CONTROL; WILL HOLD ONE-DAY ENCOUNTER SESSION ON MAY 21

The Paint Research Institute will launch a fundamental research effort on corrosion control by holding a one-day encounter session at Kent State University on May 21.

The session will be patterned after the successful April 1971 effort to initiate research in "Mildew Defacement of Organic Coatings."

A selected group of six paint scientists will be brought together with experts selected from the fields of: Metallurgy, Corrosion Engineering, Electrochemistry, Inorganic Chemistry, Surface Chemistry, and Solid State Chemistry. The aim of the meeting is to produce specific research proposals and a list of individuals qualified to carry them out.

Observers will be welcome but must be restricted to two from a given company. A nominal charge of \$25.00 will be made for facilities and meals. Overnight guest accommodations will be available on campus, also at nominal charges.

Contact Dr. Raymond R. Myers, Research Director, Paint Research Institute, Dept. of Chemistry, Kent State University, Kent, Ohio 44240.

SEVERAL COATINGS COURSES SCHEDULED DURING SUMMER MONTHS

According to the number of announcements received it will indeed be a hot summer--"hot" for the person in the coatings industry who wishes to take advantage of the many courses and conferences being offered by educational institutions. Here's the lineup we have:

May 7-June 22--University of Detroit, Polymer Conference Series. Six courses.

June 4-7--North Dakota State University, 13th Annual Coatings Symposium "Metal Toxicology and Coatings."

June 11-15--Lehigh University. "Advances in Emulsion Polymerization and Latex Technology."

June 4-July 20--University of Utah, Polymer Conference Series. Six courses.

July 9-13--Paint Industry Education Bureau and Kent State University, "Dispersion of Pigments and Resins."

July 16-August 3--Rennselaer Polytechnic Institute. Color Technology Program.

August 20-24--Gordon Research Conference on "Chemistry and Physics of Coatings and Films."

September 10-28--University of Missouri--Rolla. Three short courses. (1) For Maintenance Engineers (Sept. 10-14); (2) Fundamental Paint Short Course (Sept. 17-21); (3) Advanced Chemical Coatings Course (Sept. 24-28).

The University of Southern Mississippi has a course or two in the works also but no details yet.

RIT EXHIBIT

Photo Expo '73, Rochester Institute of Technology's annual exhibit of student-produced photography, will be held from May 13 to 27 in RIT's College-Alumni Union at the Institute's Henrietta campus.

Comprising the largest segment of the professional photography show will be the best works of many of the over 850 students enrolled in RIT's internationally-known School of Photographic Arts and Sciences.

Judges for the works to be selected are: Pete Turner, a professional photographer from New York City; Ellie Rogers, a picture editor of National Geographic magazine, and a recipient of several national photography awards; and Professor Harley Parker, the William A. Kern Professor in Communications at RIT.

Photographic works to be exhibited include black and white and color prints, transparencies, and several prints that represent new and experimental techniques in graphic design. Subject matter will encompass nude figure studies, landscapes, and advertising art, to name a few.

About 20 to 30 of the best works accepted for the exhibit, will become part of RIT's permanent collection, which represents the best works of present and former RIT students. The exhibit travels annually to various national photo symposiums, conferences, and trade shows.

The School of Photographic Arts and Sciences, with the School of Printing and the Graphic Arts Research Center, comprise RIT's College of Graphic Arts and Photography.

LETTER TO THE EDITOR

It is said that time heals all wounds. Six months should be ample time for me to recover my aplomb and respond with equanimity to the rather angry communication from Faber Birren regarding the reprint of my "Shades of Meaning" column on the Lüscher Color Test (ISCC Newsletter, July-August 1972). In truth, I had intended to respond immediately, but as usual, I lost track of time.

Nevertheless, I think that Mr. Birren's remarks deserve attention, if only to clarify an apparent misinterpretation of my point of view. To begin with, it would demonstrate extreme ignorance on my part if I did indeed deny biological effects of light. I have long been, I am now, and I expect to continue to be a firm believer in photosynthesis, to cite one example. Also, I have no doubt that color exerts a profound effect on those of us endowed with color vision and some rudimentary powers of observation. The very thought of living in the world of the black and white photo-

graph is abhorrent. And on rainy gray days, I am not fit to live with. The problem here is that my reactions to light and color are personal. They will not and cannot serve as predictors of yours, or, for that matter, my own with time.

I have now read Mr. Birren's articles in the Journal of the American Institute of Architects. I have read several of the references on the affective aspects of color cited by him (unfortunately, no library in my area subscribes to the American Journal of Occupational Therapy, so those references were not available to me) and I find no evidence to set my mind at ease as far as the Lüscher Color Test is concerned.

The Shades of Meaning column reprinted in the ISCC Newsletter was the second of two essays that I had written for Color Engineering, not as book reviews but as statements of my reactions to the test. I was appalled, and continue to be, by the extravagant claims made for the test, for none of which could I find substantiation in the literature. I questioned Lüscher's claim that the red of the test represents an energy expanding physiological condition, speeding the pulse, etc. That's a very extravagant claim for a small coloured card!

Professor Pickford, in his review, also reprinted in the July-August 1972 ISCC Newsletter, has pointed out the inherent weaknesses in the Color Test, and, in fact, offered support, I believe, to my expressions of concern. His remarks did not elicit an angry response from Mr. Birren despite his having criticized Lüscher for his poor documentation, dogmatic approach, and faulty handling and interpretation of data. Professor Pickford further warns of the potential harm in the unskilled application of the test.

My columns were intended to convey much the same message, although in a different style. And I was not being entirely facetious when I ended with "Charades anyone." I consider charades as a parlor game to be fraught with much less danger than Lüscher's Color Test.

Angela C. Little

BOOK REVIEW

Surface Color Perception, Jacob Beck, Cornell University Press, Ithaca and London, 1972, Pp. XIV + 206. Price \$11.50

Dr. Beck stated in his preface that he has "attempted to present experimental results that have not yet received a unified treatment" in order to bridge the gap between the theories that stress the sensory mechanisms in surface color perception, and those

that stress the perceptual mechanisms. In this concise and well-written book he has successfully fulfilled this goal. He also states that "the reader who has no prior knowledge of the subject matter of this book may not find it easy to read." This too is true. Although he has provided a glossary of terms to aid the neophyte, it could have been easily omitted. The complexity of the subject dictates that a glossary is not a sufficient introduction to enable the uninitiated to benefit sufficiently from this book in spite of the talent that Dr. Beck exhibits in integrating the many and various experiments.

That Dr. Beck concentrates on the experiments that are concerned with lightness constancy, adaptation, and contrast, is in no way an adverse criticism because the vast majority of the research on surface color perception has been concerned with achromatic colors.

In summary, Dr. Beck has systematically reviewed much of the literature on the experimental and theoretical research that has attempted to explain surface color perception. The scope of the book is outlined in Chapter 1. He also discusses the various dimensions of achromatic surface colors. In Chapter 2, the film, object, and illuminant modes of color appearance are defined along with the attributive and functional aspects of these modes. Chapter 3 is a discussion of the sensory aspects of color perception. This includes the effects of contrast, assimilation, and adaptation on surface color perception from the early works of Helmholtz and Hering to the more recent research of Kinney, Walls, and Helson. Chapters 4 and 7 cover the gamut of constancy experiments from those in a darkroom to memory color studies. On the other hand, Chapter 5 describes the major theoretical viewpoints of color constancy. Included are explanations of Helson's adaptation level theory and Judd's distinction between the effects of cortical adaptation and retinal adaptation. The cues to the illumination that affect surface color perception are examined in Chapter 6. In this connection the Albedo hypothesis is discussed along with the alternative interpretations of lightness and pronouncedness. For Bartleson and Breneman pronouncedness would be the brightness of surface colors. The importance of surface textures and qualities and their relation to surface color perception are covered in Chapter 8. This includes contour characteristics, highlights, and surface arrangements.

Chapter 9 involves Beck's summary of the first eight chapters and his conclusions. For Beck, an observer perceives surface colors by assimilating sensory signals in terms of various schemata. These schemata involve a coding of the organized sensory signals in terms of central tendencies and deviations from these tendencies. Matching the sensory signals to these schemata involves a rapid and automatic procedure over which the observer has little conscious control. An observer's unconscious experiences are important in assimilating sensory signals to schemata and it

resists modification after having been reinforced a number of times. It is important to note, though, that an observer can consciously override these schemata by attending to the specific color attributes of interest with an objective observational attitude.

In my opinion, this book is a necessary and important addition to the bookshelves of those who are both interested in surface color perception and have had some experience with it. It might be useful to others but would have to be supplemented by much additional background material on color perception in general, and surface color perception in particular.

Ronald F. Witzel
Research Laboratories Bldg. 81
Eastman Kodak Co.
Rochester, N.Y. 14650

MACBETH COLOR EXPANDS SYSTEMS LINE

A newly acquired color formulation and control system, utilizing a Honeywell small digital computer, has been announced by the MACBETH COLOR & PHOTOMETRY DIVISION of Kollmorgen Corp.

Specifically designed for textile manufacturers and called the KCS-18/2200, the system combines the company's automatic "Color-eye" color measuring device with the Honeywell computer and complete color software library.

This expanded combination affords almost instantaneous calculations of formulas for color matching and adjustment for an off-shade batch. Additionally, the system has been programmed for dye formula extensions, inventory control of dyestuffs, the adjustment of overdyed batches to new standards, and quality control.

In technical terms, the new system from the MACBETH COLOR & PHOTOMETRY DIVISION is a combination of proven elements: A Honeywell H-316 computer with double deck cartridge system, KCS-18/D colorimeter and spectrophotometer, ASR-33 Teletype and specialized color programs for the computer including all appropriate interfaces.

For more information, contact: VP Marketing, MACBETH COLOR & PHOTOMETRY DIVISION of Kollmorgen Corp., P.O. Box 950, Newburgh, N.Y. 12550.

PRODUCTS AND SERVICES

Software for Testing Appearance Properties

Many computer programs are available and needed for testing the appearance properties of paper,



Reprinted courtesy American Cyanamid Company, Dyes and Textile Chemicals Dept.

paperboard, and pulp. The people who have these programs available and those who need them, however, often have no direct way of learning of each other. To facilitate the meeting of these parties, the TAPPI Optical Methods Committee, in cooperation with an ASTM subcommittee, is offering its services to act as a clearing house. The committee plans to prepare a list of the programs available and those being sought.

Anyone interested in this project is asked to write to Task Group Chairman Robert F. Hoban, Sandoz, Colors and Chemicals, Optical Laboratory, Hanover, N.J. 07936. Please give details of the program you are interested in (name, operation, input required, language, size) and state whether you wish to (a) buy or sell these programs, (b) obtain or supply them on a no-cost basis, or (c) trade such programs.

RIT Summer Session Program

Twenty-two college credit courses covering a broad spectrum of areas in the photographic arts and sciences will be offered by Rochester Institute of Technology's 1973 Photography Summer Session Program starting June 25 and continuing through Aug. 31.

Most of the courses will be offered during two five-week sessions from June 25 to July 27, and July 30 to Aug. 31.

The program will include workshops, lectures and laboratory courses in the areas of motion picture and television, photo-journalism, photographic and machine printing and processing, and photographic science and instrumentation. In addition, photography courses and workshops that cover the areas of advertising, color, architectural, industrial, publication, and nature photography will be given, along with two European study-travel workshops.

Further information is available by writing: Dr. David E. Hooten, Director, Summer Session Program, Rochester Institute of Technology, One Lomb Memorial Drive, Rochester, N.Y. 14623, or by calling (716) 464-2205.

Thirty-one Graphic Communications Firms Join GATF During First Quarter

Thirty-one graphic communications industries firms became members of the Graphic Arts Technical Foundation, Pittsburgh, Pa., during the first quarter of 1973, William H. Webber, GATF executive director, announced recently.

GATF is a member-supported, non-profit, scientific, technical, and educational organization serving the international graphic communications industries.

The new members include: Bert-Co Enterprises, Los Angeles, Calif.; Cleveland Printing Ink Co., Inc., Cleveland, O.; Graphic Services, Inc., Houston, Tex.; Olsen Press, Inc., Cranford, N.J.; Rayne Industries, Inc., New York, N.Y.; Scott Graphics, Inc., Holyoke, Mass.; Seton Name Plate Corp., New Haven, Conn.; L. R. Allen & Co., Ltd., Auckland, New Zealand; Aspioto Alka Graphic Arts, Inc., Athens, Greece; Epsen Lithographing Co., Omaha, Neb.; Gunthorp-Warren Printing Co., Chicago, Ill.; and Hanson Engraving Co., Inc., Memphis, Tenn.

Also: John H. Harland Co., Atlanta, Ga.; Robert Hart Printing Co., Inc., Rochester, N.Y.; Iconics Control, Inc., Troy, O.; Molenaar Printing Co., Inc., Metairie, La.; Montreal-Magog Printing Co., Magog, Quebec; Packages, Ltd., Lahore, West Pakistan; Printco, Inc., Greenville, Mich.; Satellite Office Service, Inc., San

Diego, Calif.; Smith RPM Corp., Lenexa, Kan.; Tulsa Lithograph Co., Tulsa, Okla.; Varsity Division, Addressograph-Multigraph Corp., East Hanover, N.J.; A. D. Weiss Litho, Hollywood, Fla.; Gospel Publishing House, Springfield, Mo.; Dar Al-Maaref, Cairo, Egypt; Keeler-Morris Printing Co., St. Louis, Mo.; Koppel Colorgraphics, Inc., New Haven, Conn.; Parker & Son, Los Angeles, Calif.; Wrightson Typographers, Boston, Mass.; and Hsing Tai Color Printing Co., Taichung, Taiwan, Republic of China.

Membership in GATF is open to all firms engaged in graphic communications and to all full-time graphic communications teachers and students. For further information concerning GATF, contact: Office for Foundation Advancement, Graphic Arts Technical Foundation, 4615 Forbes Ave., Pittsburgh, Pa. 15213.

Reichhold Launches Major Expansion Plans with Two New Plants Due on Stream Mid-1974

The Board of Directors of Reichhold Chemicals, Inc. has approved plans for major new plant construction at the company's Morris, Ill., and Gulfport, Miss., locations.

The expansion plans include a 50-million-pound-per-year polyester resin plant at Morris and a multi-million-pound-per-year highly specialized rosin-ester unit at Gulfport. Both new plants are scheduled to go on stream by mid-1974.

The Morris polyester facility will operate on a continuous-resin basis, a process used by Reichhold at its Jacksonville, Fla., plant. The extremely successful results of the Jacksonville unit led to the decision to employ the same process at the new Morris location, according to RCI.

The company commenced the manufacture of maleic anhydride at Morris in mid-1972. Maleic anhydride is a major ingredient in polyester resins.

The entirely new specialized rosin-based ester facility approved for Gulfport will provide RCI with additional capacity to serve the ink, lacquer, varnish, and adhesives industries, which represent the principal markets for this product. Gulfport was selected as the site for this facility because of its proximity to the source of essential raw materials, the abundant pine forests of that area.

Reichhold has produced rosin esters at its existing operations in Gulfport for a number of years.

IGC-GII

What is IGC?

The Institute for Graphic Communication (IGC) is a group of scientists, inventors, legal, financial, and marketing specialists internationally recognized for their accomplishments in fields related to visual communications. These specialists are acutely conscious of the rapid rate of technological change and the need for vital technical, marketing and business information required by companies involved with graphic communications.

What is GII?

Gorham International Inc. (GII) is a firm composed of technical and business specialists having the facilities and skills for a wide variety of technical development projects and the business and marketing experience to perform the essential additional services of market searches and market development.

Locations

The GII laboratories, pilot plant and offices are located at Gorham, Maine 04038, USA--nine miles from the international jetport at Portland.

Facilities and equipment in other locations are often leased as project work requires.

IGC maintains offices at 520 Commonwealth Ave., Boston, Mass. 02215, USA.

The IGC conference center is located at Castle Hill, Ipswich, Mass.

Foss Color Order System

GATF Research Progress Report Number 96 is entitled "The Foss Color Order System." This report describes a new color chart with directions for printing the chart, specifying color, and using the chart in color production and communications situations. It is intended for all production, sales, and management personnel involved in the reproduction, specification, or communication of color.

The Foss Color Order System is a pair of printed color charts that represent a significant advance over previously available charts. The major developments include: colors presented in a proper color order, better visual spacing between colors, and an easily interpreted black printer contribution.

RP 96 was written by Carl E. Foss, Munsell Color Division, Kollmorgen Corp., and Gary G. Field, GATF color technologist.

This chart, or parts thereof, may not be reproduced in form without the written permission of the copy-right owners (Kollmorgen Corp.).

Canadian Graphic Arts Scholarship Trust Fund is Established

A Canadian Graphic Arts Scholarship Trust Fund/Fondation Pour L'Attribution de Bourse Aux Arts Graphiques du Canada has been established with the guidance and cooperation of the National Scholarship Trust Fund, an affiliate of the Graphic Arts Technical Foundation, Pittsburgh, Pa.

The purpose of CGASTF is to provide a means of helping students study advanced graphic arts and a means for industry to help them do so.

In general the program hopes to interest young people in considering graphic communications as a possible career; provide recognition and financial assistance to students preparing for a graphic communications career; increase public understanding and interest in graphic communications; and provide a nationally-based organization through which such funds and programs can be most efficiently channeled and managed.

Optical Radiation Measurement System

The Model 740 ORMS combines into one compact measurement system an accurately calibrated spectroradiometer, a broadband radiometer, and a direct reading photometer. The system can be used to measure spectral irradiance over the wavelength range of 300 nm to 1050 nm, radiant power, and illumination. Five sets of slits are included with a single grating monochromator that produce band-passes of 1, 2, 5, 10, and 20 nm. The system can resolve spectral irradiances as low as 10^{-11} W/cm² nm. Accessories are available for measuring spectral radiance, energy of pulsed sources, and luminance. Base price of the Model 740 is \$3395.00.

For further information write to: Optronic Laboratories, Inc., 7676 Fenton Street, Silver Spring, Md. 20910.

Dispersion of Pigments and Resins in Organic and Aqueous Media

A short course, July 9-13, 1973, sponsored by Paint Industry Educational Bureau and presented by the Department of Chemistry and Division of Continuing Education of Kent State University. For further information write to: Division of Continuing Education, Kent State University, Kent, Ohio 44242.

Rensselaer Summer Program

The 1973 Rensselaer color technology program comprises:

- (1) July 16-20--Principles of Color Technology;
- (2) July 26-27--Color Technology for Management; and,
- (3) July 30-Aug. 3--Advances in Color Technology.

For information write: Office of Continuing Studies, Rensselaer Polytechnic Institute, Troy, N.Y. 12181, phone (518) 270-6442.

Plastics and Fibers

Profitable ventures, unfilled technological needs and how to fill them in the area of selected additive compounds for plastics and fibers will be analyzed both from business and technical standpoints in a new multiple client survey now under way at Robert S. First, Inc., Management Consultants, 405 Lexington Avenue, New York, N.Y. 10017 and 19a Avenue Marnix, 1050 Brussels, Belgium.

The survey, scheduled for delivery by Feb. 1974, will consist of a 1,400 page report or 100 pages each on 14 areas ranging from heat stabilizers to adhesion promoters. First will provide such data as size and nature of the market, technology, foreign developments and specific opportunities for profitable ventures in the additive market for plastics and fibers.

Areas covered will include U.S., Europe and Japan, with a market analysis of the U.S. Clients may subscribe to the complete series of 14 surveys or purchase them individually.

GATF Announces Orientation Program Schedule

The Graphic Arts Technical Foundation's Orientation Program, entitled "Methods and Technology of the Graphic Communications Processes," will be presented on four occasions during the first half of 1974.

To obtain a brochure describing the Orientation Program, contact: Special Programs Department, Graphic Arts Technical Foundation, 4615 Forbes Ave., Pittsburgh, Pa. 15213.

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NOTE:

The Council promotes color education by its association with the Cooper-Hewitt Museum. It recommends that intended gifts of historical significance, past or present, related to the artistic or scientific usage of color be brought to the attention of Christian Rohlfing, Cooper-Hewitt Museum, 9 East 90th Street, New York, New York 10028.