

DALTONIANA

NEWSLETTER

OF THE INTERNATIONAL RESEARCH GROUP ON COLOUR VISION DEFICIENCIES

President: Prof. Dr. J. FRANÇOIS, Gent (Belgium)

Secretary for the Western Hemisphere:

Dr. R. LAKOWSKI

Department of Psychology, University of British
Columbia, VANCOUVER 8 (Canada)

General Secretary and Editor of the Newsletters:

Dr. G. VERRIEST

Dienst Oogheelkunde, Akademisch Ziekenhuis
De Pintelaan 195 - B-9000 GENT (Belgium)

Secretary for the Socialist Countries:

Dr. M. MARRE

Universitäts-Augenklinik, Fetscherstrasse 74
8019 DRESDEN (D.D.R.)

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ADMINISTRATIVE REPORTS FROM THE INTERNATIONAL RESEARCH GROUP ON COLOUR VISION DEFICIENCIES

At their meetings during the Fourth Symposium of the IRGCVD, held in Parma from 27th to 30th June 1977, the Directorial Committee and the General Assembly decided that :

- 1) Mrs. Ingeborg Schmidt becomes a Member of Honour of our Research Group (by unanimity of voices);
- 2) the list of the officers and of the members of the Directorial Committee is provisorily not modified;
- 3) the amount of the membership fee is also not modified;
- 4) the following (fifth) International Symposium will be held in Vancouver (Canada) in 1979 with as special themes
 - Neuro-anatomy of colour vision processes
 - Colour vision at high luminances, and
 - Colour vision in relation to the other visual functions in clinical ophthalmology(next the usual sessions on the methods of examination, the congenital and acquired defects etc.);
- 5) the next international Symposia could be extended to more than three days, in order that more time should be available for the presentation and for the discussion of the papers;
- 6) the less important papers could be presented as posters;
- 7) the papers of which at least one of the authors is not present at the symposium will be no more presented nor published in the Proceedings. - Guy Verriest.

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INCOME STATEMENT

For the Period May 1, 1975 to December 31, 1975

Revenues :	Membership Fees	\$172.16
	Interest	<u>91.48</u>
	Total Revenues	\$263.64
Expenses :	Publication and Conference Expenses	\$602.00
	Bank Charges	<u>2.00</u>
	Total Expenses	604.00
Net Loss :		<u>\$340.36</u>

For the One Year Period Ending December 31, 1976

Revenues :	Membership Fees	\$1083.15
	Interest	<u>152.44</u>
	Total Revenues	\$1235.59
Expenses :	Publication and Conference Expenses	\$602.00
	Subscription	14.61
	Bad cheques	<u>50.15</u>
	Total Expenses	666.76
Net Income :		<u>\$568.83</u>

Romuald Lakowski

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Mrs. Jennifer Birch, chairman of the Committee on Standardi-
zation of the IRGCVD, will report on the activities of this Com-
mittee in a next issue of Daltoniana.

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On the situation with HRR - A report on behalf of the International Research Group on Colour Vision Deficiencies.

Since a couple of years I have tried to interest the American Optical Company to reedit the HRR-test, this test being, in my opinion and in that of many others, the best color vision test available - or better : not any more available. Alas, AO has never responded to my numerous efforts to get into contact, and the problem is that AO holds the legal rights.

In 1975 the dutch trade company for medical instruments Laméris inc. was asked to help with their international contacts, and that ended with a concrete offer to finance, to a great extent, the reediting, provided they could manage to get the permission of AO. Indeed we have had a number of "near-contacts" with AO since then, but time and again it slipped away at the moment we had the idea that we were near to reaching an agreement. Apparently AO is not very interested in the problem we and you all have, does not like to do the necessary investments in the reediting, nor to give free way to other ones undertakings. The present dead lock situation is moreover complicated by the fact that our contactman with Laméris has left the company, so that we had to start bridge-building again.

We continue our efforts, we got and used the enquiry results of the IRGCVD as a means to carry out pressure, and we eventually hope to be successful. Any additional pressure from your side would be felt as helpful.

Maybe it is good to state here that we realize that the work involved in reediting is considerable, and that we decided to accept this task only because apparently there was a need. That means that we have no objections, whatsoever, if someone else would be more successful in getting the legal rights and starting the reediting procedure. - H. Vos.

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Since Ingeborg Schmidt was not able to attend the Meeting at Parma, Italy, she would like through the "Daltoniana" to express her gratitude to the members of the International Research Group on Colour Vision Deficiencies for electing her as a honorary member of this group.

LITERATURE SURVEY

Color vision in the peripheral retina. I. Spectral sensitivity, by I. ABRAMOV and J. GORDON (The Rockefeller University, New York, New York 10021, USA), J. opt. Soc. Amer. 67/2, 195-202, 1977.

The relative spectral sensitivity (energy basis) was measured foveally using 1.5° and 5' circular fields and peripherally, on the nasal retina, 45° from the fovea using 1.5° and 6.5° circular fields. The general method was heterochromatic flicker photometry. The standard wavelength was 560 nm yielding 1200 trolands, the variable wavelengths ranged from 450 nm to 660 nm in 10 nm steps. The subjects were dark adapted at least 10 min and then given continuous practice at the task for 5 min before data collection. While the foveal functions were normal the peripheral ones showed a large enhancement in sensitivity to short wavelengths relative to long wavelengths. The effect of differential chromatic adaptation was ruled out by additional control experiments including varying luminance and wavelength of the standard light. The possibility of a rod contribution to the peripheral functions could not be eliminated. - Ingeborg Schmidt.

Color vision in the peripheral retina. II. Hue and saturation, by J. GORDON and I. ABRAMOV (The Rockefeller University, New York, New York 10021, USA), J. opt. Soc. Amer. 67/2, 202-207, 1977.

The subjects and the apparatus were the same as in the preceding paper. Hue and saturation of spectral lights of equal photopic retinal illuminance were measured in the fovea and at 45° peripherally. Both, large and small targets were used, 1.5° and 5' in the fovea and 1.5° and 6.5° in the periphery. As shown by previous studies small peripheral targets appear desaturated and of uncertain hue, except long wavelengths which appear red. If target size is increased, saturation increases and a full range of hues is seen. The hue functions for larger peripheral targets are comparable to foveal ones for very small targets.

From matches on a modified anomaloscope it was concluded that color deficiency in the periphery is more tritanlike than deutanlike. This was supported by the observation that the change from one of the two hue categories perceived to the other is at about 580 nm. - Ingeborg Schmidt.

Discounting the background - the missing link in the explanation of chromatic induction, by J. WALRAVEN (Institute for Perception TNO, Soesterberg, The Netherlands), Vision Res. 16, 289-295, 1976.

Using a cancellation technique (maintaining a pure yellow hue) chromatic induction was measured in the configuration of a 30'-90' annular test field fully surrounded by a 7° red inducing field. Analysis of these data revealed the hitherto unrecognized fact that the part of the light that the test stimulus has

in common with the surround does not contribute to its perceived hue. In addition to this, in essence, subtractive effect of the inducing field it was found that the latter also causes a (colour-selective) change of gain, consistent with the much disputed von Kries coefficient law. The often reported invalidity of the latter should be attributed to the fact that in the past no allowance has been made for the aforementioned differencing mechanisms. - The Author.

Colour signals from incremental and decremental light stimuli, by J. WALRAVEN (Institute for Perception TNO, Soesterberg, The Netherlands), Vision Res. 17, 71-76, 1977.

A red stimulus (ΔR) was presented in the centre of a red background (R), either as an increment ($\Delta R > 0$), a decrement ($\Delta R < 0$), or a pseudo-increment ($R = 0$), but surrounded by a narrow decremental border of varying depth. A green cancellation stimulus (ΔG), coincident with ΔR , was adjusted until the test field looked neither reddish nor greenish, and thus yielded a measure for the strength of the red colour signal at the test field locus. The results are consistent with the hypothesis that chromatic vision is subserved by (colour specific) difference signals, which arise from incremental discontinuities in the retinal image profile. Decremental inputs seem to feed only into the achromatic system, generating a blackness signal. - The Author.

Differences between red and green color-mechanism characteristics. Interaction or artifact? by D.H. KELLY (Stanford Research Institute, Menlo Park, California 94025, USA), J. opt. Soc. Amer. 66/12, 1430-1435, 1976.

A review of evidence that the considerably greater overall sensitivity for the green mechanism found when red and green stimuli are superimposed in opposite phases and the threshold characteristics measured under intense chromatic adaptation is probably real, contrary to the explanation by Cavonius and Estevez (see D.H. Kelly, *Daltoniana* No. 17 p.1 and C.R. Cavonius and O. Estevez, *Daltoniana* no. 23 p. 3). - Ingeborg Schmidt.

Modulation sensitivity of human color mechanisms, by O. ESTEVEZ and C.R. CAVONIUS (Laboratory for Medical Physics, Herengracht 196, Amsterdam, The Netherlands) J. opt. Soc. Amer. 66/12, 1436-1438, 1976.

The authors regard Kelly's findings as an adaptive artifact and try to prove their point. - Ingeborg Schmidt.

Possible rod-cone interaction in dark adaptation, by B.R. WOOTEN and T.W. BUTLER (Brown University, Providence, Rhode Island 02912, USA), J. opt. Soc. Amer. 66/12, 1429-1430, 1976.

Dark adaptation tests with a 1° field, 20° nasally on the retina in the horizontal meridian of a flashing long wavelength stimulus (650 nm) show a decline in thresholds to an initial

plateau followed by an abrupt rise to a new plateau about 0.15 log units above the former and not returning to the initial plateau. When preadapting to illuminant C the threshold rise occurs at about 7 min; when preadapting to illuminant A the threshold rise occurs about 3 min earlier. It is obviously due to rod-cone interaction. After the more slowly adapting rods have reached some critical level, both systems remain at about the same level of sensitivity. The rise is not found for short- and middle-wave stimuli. - Ingeborg Schmidt.

Variegated color sensations from rod-cone interactions : flicker-fusion experiments, by J.L. BENTON and J.J. McCANN (Vision Research Laboratories Polaroid Corporation, Cambridge Mass. 02139, USA), J. opt. Soc. Amer. 67/1, 119-121, 1977.

Two different color separation images were combined into a multicolored image, one illuminated with 656 nm light, the other with 500 nm light, the latter flickering, each light variable in intensity. The flicker fusion frequency vs. 500 nm irradiance data show that when taken with the multicolored image the CFF for the green separation record is very nearly the same as that obtained with the 500 nm light alone. When the 500 nm light was below cone threshold in the CFF measurement the multicolored images were shown to be generated by rod and long wave cone interactions. - Ingeborg Schmidt.

Polymorphism of human color vision, by Th. PIANTANIDA (School of Optometry, The Medical Center, University of Alabama, Birmingham, Alabama, USA), Amer. J. Opt. 53/10, 647-657, 1976.

The genetic polymorphism of human color vision is examined within the framework of a photopigment replacement model. The absolute spectral sensitivity of the photopigments obviously limits the range of the colors that an individual can distinguish. Only the X-linked recessive types of color deficiencies are considered. The history of the genetics, psychophysics and photochemistry of defective color vision is shortly reviewed. Research data indicate that the replacement model of dichromacy is a less objectionable explanation than either loss or fusion. The greatest support for the replacement mechanism of alternative forms of color vision is to be found among researches of the anomalous trichromasies (simple and extreme forms). Combinations of photopigments are informative in explaining the heterozygous and hemizygous phenotypes. The manifestations of subtle differences in the color perception of heterozygotes raise the issue of whether there is more than one phenotype of normal color vision including the "pseudo-normal color vision". - Ingeborg Schmidt.

Variables in color perception of young children, by R. GAINES (U. Cal., Neuropsychiat. Inst., L.A., USA), J. exp. Child Psych. 14(2), 196-218, 1972.

Most previous studies of children's color perception use only light saturated focal colors. In the present study with 47 kindergartners, A·Munsell's color matrices were divided into 9 combinations of low, medium and high chroma and value to investigate the effects of varying components of lightness and saturation within hues. Results show that value, chroma, and hue must be specified in order to predict a young child's discrimination ability. While Ss were surprisingly skilled across all color discriminations, discriminations using low saturations and low lightness were the most difficult and slowest, regardless of hue. Discriminations of middle and high saturation and lightness were easy and fastest. Differences in hue discrimination were the least stable, but green and red were generally the most difficult and slowest; orange and yellow were the easiest and fastest. Error rate but not latency was lower under a feedback and correction condition than a reward-alone condition. - Patrice M. Dunn.

The categories of hue in infancy, by M.C. BORNSTEIN, W. KESSEN and S. WEISKOPF (Dept. of Psychology, Yale University, New Haven, Conn. 06520, USA); Science 191, 201-202, 1976.

Infants looking time was monitored during habituation to the repeated presentation of a wavelength stimulus selected from one basic adult hue category and after a change in stimulation. Four month old infants see the physically continuous spectrum as divided into the hue categories of blue, green, yellow and red. The results demonstrate that human infants group visible wavelengths into hue categories much like adults at an earlier age than had been thought in the past and long before the onset of language or formal tuition. The results strongly favor the primacy of perception over language in the organization of hue. - Ingeborg Schmidt.

Congenital colour defects. A ten-year-retrospective survey. Part. I. Clinical evaluation by pseudoisochromatic plates, by Y. ONTA, H. KATO, S. KOGURE, K. OTANI, Y. YAMAGUCHI and K. SHIMIZU (Dept. of Ophthalmology, Tokyo Medical College, Japan), Jap. J. clin. Ophth. 29, 681-688, 1975.

During the past 10 years, 1,411 patients visited our clinic with defective colour vision as chief complaint. The diagnosis of congenital colour defect was given to 1,384 patients based on examinations by anomaloscope, colour vision test charts, hue discrimination test and Ichikawa's lantern test. The present paper reports on the results made by TMC charts, Ishihara's charts, Okuma's charts and H.R.R. test as a part of all the clinical examinations we conducted.

Out of the total 1,384 patients, approximately 33% was diagnosed as protan and 67% as deutan. Out of the protans and deutans diagnosed with anomaloscope, 96% were correctly screened with TMC charts, 98% with Ishihara's charts and 97% with H.R.R. test.

For classification, 56% of the protans were correctly screened with TMC charts, 8% with Ishihara's charts, 65% with Okuma's charts and 90% with H.R.R. test. On the other hand, 86% of the deutans were screened with TMC charts, 64% with Ishihara's charts, 85% with Okuma's charts and 98% with H.R.R. test.

Regarding the degree of colour vision anomaly, most of the protanopes were diagnosed as degree 3 with TMC charts, as "strong" with Okuma's charts and as "medium" with HRR test. Most of the protanomals were diagnosed as degree 1 with TMC charts, "weak" with Okuma's charts and "mild" with HRR test. Most of the deuteranopes were diagnosed as degree 3 with TMC charts, as "strong" with Okuma's charts and "strong" with HRR test. The majority of deuteranomals were diagnosed as degree 2 with TMC charts, "medium" with Okuma's charts and "mild" with HRR test.

Out of the 1,411 patients who visited the clinic with defective colour vision as chief complaint, 27(1.9%) were diagnosed as "normal". In consideration of the fact that most of the subjects visited after having been screened elsewhere, the colour vision tests in current use in Japan may be believed to have good accuracy. - Yasuo Ohta.

The Lanthony desaturated 15 Hue test, (Le test 15 Hue désaturé de Lanthony), by A. PINCKERS, B. NABBE & P. V.D. BOGAARD (Dept. Ophthal., University of Nijmegen, The Netherlands), Ann. Oculist. 209, 731-738, 1976.

The desaturated 15 Hue (D 8/2) is a valuable test. False positive blue-yellow patterns occur; so it is important to study ageing effects. For routine clinical examination test by Panel D-15 and retest by D 8/2 is recommended.

There is some evidence that in a few cases false positive red-green confusions also occur : this is mostly caused by a counterclock start in arranging the D 8/2 caps (sequence : P-cap, 15, 14 etc.; frequency : about 7%).- A. Pinckers.

A report on normal response to F.M.100-hue test, by L. BARCA and G. VACCARI (II. Cattedra Clin. Oculist., Univ. degli Studi, Careggi, Firenze 50100, Italy), Atti Fond. G. Ronchi 32, 273-280, 1977.

Having undertaken a research program in the field of acquired color vision deficiencies, it seemed worthwhile to have at hand the "normal" response to 100-hue test, for a control group, relatively to our experimental conditions. Sixty-one individuals are tested. The age dependence of total score is found in a good agreement with Verriest's classical data. The tritan-like trend, expected for a number of reasons when using such a test, is found for some subjects, but not for others, whatever the age group. - Lucia Rositani-Ronchi.

Illuminance dependence of 100-Hue response for normal subjects of different ages, by L. BARCA and G. VACCARI (II. Cattedra Clin. Oculist., Univ. degli Studi, Carreggi, Firenze 50100, Italy), Atti Fond. G. Renchi 32, 412-418, 1977.

Six normal subjects are tested, with the aid of 100-hue test, at different illuminances covering the mesopic as well as the photopic ranges. The response of the 25-years old subject is found in a good agreement with that produced by Verriest for his sample of normal young population. As age proceeds, the luminance at which color discrimination starts deteriorating increases. At lower levels, the expected tritan-like trend is found, often accompanied by a "scotopic like" trend.- Lucia Rositani-Renchi.

Laboratory measurement of color vision, by F.J.J. CLARKE, in : Symposium on Measurement of Visual Function, National Academy of Sciences, National Research Council, Washington, D.C., pages 86 to 90, 1968.

To a clinical worker in colour defects, this is a fascinating review of techniques which may be available, in situations where time is of lesser significance and accuracy essential.

Anomaloscope, wavelength discrimination, purity discrimination, chromaticity discrimination, color-matching properties, relative luminous efficiency, heterochromatic threshold reduction factor and color-naming are all discussed, including the Farnsworth-Munsell 100-hue test. When discussing the latter, he mentions the error arising from the artificial division of the test in his four boxes and makes suggestions how this may be avoided. - W.O.G. Taylor.

Fluorescence fundus angiography, visually evoked cerebral potential and autocorrelogram of EEG in a case with congenital total color blindness, by K. NAKATSUKA and K. MISHIMA (Dept. of Ophthalmology, Nagasaki University School of Medicine, Japan), K. FUKATA and T. CHIBA (Neuroinformation Laboratory, Second Dept. of Physiology, Nagasaki Univ. School of Medicine, Japan), Jap. J. clin. Ophthal. 29, 15-20, 1975.

Various examinations were carried out on the visual system of an 18 y male with congenital total color blindness (rod-monochromatism). A change suggesting Kohlrausch's cone-rod break was observed in the dark adaptation curve during mydriasis. The oscillatory potential in the ERG of this case was considerably less than normal. The macular dark spot in fluorescence fundus angiography is not necessarily due to normal cones, since it was also observed distinctly in this case like in a normal subject. The primary responses in the visually evoked potential in the occiput were prolonged in their peak latencies or were absent, suggesting a weakness in the specific visual system, whereas the late responses occurred earlier with reduced peak latencies than normal. Autocorrelogram of the occipital EEG did not trace a normal damping oscillation of about 10 Hz with respect to time lag, but decayed, first rapidly and then gradual-

ly, upon which was super-imposed a slight damping oscillation of 7-8 Hz indicating abnormally weak, slow alpha and prominent delta activities. - Yasuo Ohta.

A bibliographical look to the problem of tritanopia, (Sguardo bibliografico al problema della tritanopia) by L. BARCA (II. Cattedra di Clinica Oculistica, Univ. degli Studi di Firenze, Careggi, Firenze 50100, Italy), Atti Fond. G. Ronchi, 32, N° 2 and N° 3, 1977.

An annotated bibliography on congenital, artificial and acquired tritan defects from Holmgren (1881) on. - Lucia Rositani-Ronchi.

An analysis of acquired disorders of color vision with a view to distinction of hereditary ocular anomalies, by A. PINCKERS (Dept. Ophthal. University of Nijmegen, The Netherlands) Ophthalmologica 173, 221-226, 1976.

A review is given which may help to differentiate between congenital and hereditary color vision defects and the acquired color vision defects. - A. Pinckers.

Progressive cone dystrophies, by J. FRANCOIS, A. DE ROUCK & J.J. DE LAEY (Dept. Ophthal., De Pintelaan 135, B-9000 Gent, Belgium), Ophthalmologica 173, 81-101, 1976.

Twenty-nine patients were classified in 4 groups according to their fundus picture : I minimal fundus changes : type I RG defect, concomitant BY defect (1 case); II bull's eye lesion : association of RG and BY color defects; III fundus flavimaculatus (Stargardt) : no BY dyschromatopsia was found; IV peripheral degeneration : color vision was more or less affected. - A. Pinckers.

Hyaloido-tapeto-retinal degeneration of Goldmann and Favre (Retinosis with hemeralopia), by M.F. BLANCK, L. POLLIOT and P. BERNARD, Bull. Mém. Soc. franç. Ophtal., 242-245, 1973.

A case is reported with a retinoschisis in the right eye and in the left eye osteoblasts and constricted retinal vessels in the inferior part of the fundus. Visual acuity of this eye was 20/100. Color vision was normal in the right eye, abnormal in the left eye. - Jean Vola.

Drug groups potentially able to alter color vision. Part 1 and Part 2, by W.M. LYLE (University of Waterloo School of Optometry, Waterloo, Ontario, Canada), Optometric Weekly 67/27, 740-743 and 67/31, 859-862, 1976.

A reference guide to drugs which have been found to affect color vision. The original reports upon which this summary is based have been published by W.M. Lyle in J. Amer. Optom. Assoc. 45, 47-60 and 173-182, 1974 (see Daltoniana No. 16, pp. 4 and 5, 1974). - Ingeborg Schmidt.

Maculopathy and levomepromazine, by F. DEODATI, P. BEC, J.B. LABRO, J.L. ARNE and P. CHAMBON, Bull. Mém. Soc. franç. Ophtal., 191-197, 1973.

One case of severe and bilateral maculopathy after a treatment with levomepromazine (Nozinan) during 15 years, with a daily dose of 25 to 50 mg. Although this drug is considered as non toxic for the eye, the authors found in this patient a bilateral central scotoma, and an acquired bilateral dyschromatopsia with a dominant red-green axis. When the treatment was stopped a slight improvement of the scotoma and of the dyschromatopsia was stated. - Reviewer's note : According to the 100 hue chart published in this paper, the main axis seems to be tritan with a bulge of more than 15 units, whereas the bulge in the deutan axis has only 13 units. Consequently the impairment is B-Y + R-G. - Jean Vola.

Vision in lateral homonymous hemianopsia (La vision au cours de l'hémianopsie latérale homonyme), by A. LARMANDE & P. LARMINDE (Centre Hospitalier Régional Bretonneau, Tours, France), Ann. Oculist. 209, 725-730, 1976.

The authors describe subjective and objective findings in hemianopsia. Hemiachromatopsia is a constant finding. In most cases of partial hemianopsia the chromatic defect is greater than the defect for the white stimulus. Color agnosia is relatively frequent in lesions of the posterior part of the cerebrum. In hemianopic subjects there also exist difficulties in recognition of colors and problems in the verbal identification of colors. - A. Pinckers.

Report of 2 cases of visual agnosia with achromatogno (in french), by G. NOEL and MEYERS (2 rue Ferrer St., Charleroi, Belgium), Acta neurol. Belgica 71/2, 173-184, 1971.

Describes 2 cases of visual agnosia with disability in color perception. Ss were a 33-yr-old male accident victim who had survived an 18-hr coma and a 60-yr-old male with no preceding problems. The classification of symptoms is discussed along with the correlation between the different symptoms and disorder bordering the fields of neurology and psychiatry. - Patrice M. Dunn.

Evidence for X-linkage in the transmission of manic-depressive illness, by J. MENDLEWICZ, J. FLESS and R. FIEVE (722 W. 168 St., New York, N.Y., U.S.A.), JAMA 222/13, 1624-1627, 1972.

Describes 7 families in which manic-depressive illness and either protan or deutan color blindness (X-linked recessive traits) occurred in successive generations. In these 7 families detailed analysis suggests that the genetic loci for manic-depressive illness and the 2 kinds of color blindness may be located on the same chromosome. A dominant X-linked gene may thus be involved in the pathogenesis of manic-depressive illness. - Patrice M. Dunn.

Vision tests as predictors of learning disabilities, by H.F. SASSOON, M. DAVIS and E.M. O'CONNELL (4905 Cedar Lane, Bethesda Md. 20014, USA), Journ. Amer. Optom. Assoc. 48/1, 49-55, 1977.

Children of three regular schools and of two schools for children with learning disabilities were screened for visual skills by using three tests : color matching (Farnsworth Panel D-15 test), visual language field development (LRD - Lillian R. Davis - test) and visual scan speed. The visual problems so measured were found to be associated with poor school achievement. The Farnsworth D-15 test elicited three categories of performances (a) correct performances (b) "red" and "green" mismatches that seemed to identify children with mild to severe color blindness (c) "blue" and "blue-green" mismatches that correlated with LRD test data but not with slow scanning. Proficiency in blue was relatively undeveloped before age 10. The frequency of all tritan-related mismatches was greater at the special schools. - Ingeborg Schmidt.

Stereoscopic vision and color discrimination as typological polarities as related to creative organization (in german), by W. BLASIUS (Justus-Liebig U. Div. of Applied Physiol., Giessen, W. Germany), Archiv fur Psychol. 122, 67-91, 1970.

Investigated the relative importance of form- and color-vision in various personality types. The E. Kretschmer classification was applied to 17 male and 13 female adults and confirmed by Scholl's personality inventory. Stereoscopic acuity was tested conventionally, whereas the capacity to discriminate and combine various colors was assessed with the Ostwald color circle. An inverse relation between form- and color-vision was noted : schizothymic Ss attended more to form than to color and had better stereoscopic but poorer color vision than normal, while cyclothymic Ss showed the reverse patterns. No statistically significant correlations could be established for ixothymic Ss. It is concluded that the body image and personality type are reflected in the particular complementary arrangement of visual qualities and capacities. - Patrice M. Dunn.

The effect of color perception on success in high school biology, by W. DANNEMAIER (Drury Coll.), J. Exp. Educ. 41/2, 15-17, 1972.

Correlated scores on a test of color blindness and intelligence test scores with semester grades in biology for 81 rural high school students. Although no relationship was found between color blindness and intelligence, a significant negative correlation was found between color blindness and success in high school biology. This was interpreted to mean that students suffering a disability in color perception would have greater difficulty in achieving success in biology than would students not so handicapped. - Patrice M. Dunn.

Colour vision defective art students, by R.W. PICKFORD, in Advances in Educational Psychology : I, ed. by W.D. WALL and V.P. VARMA, New York, Barnes & Noble, 1972.

Reviews the literature on the incidence of superior color discrimination and color vision defects among art students. The problems of color-vision defective art students are discussed, along with the inadequacy of tests of color blindness and guidance procedures. - Patrice M. Dunn.

New ocular research on the Everest Mountain, by M. WIEDMAN Bull. Mém. Soc. franç. Ophtal., 201-207, 1973.

Color vision, dark adaptation, visual acuity, and visual fields of 15 alpinists who made the ascension were tested at 1200 m and 4000 m altitudes. Color vision examined with H.R.R., visual acuity, visual field did not change. Rod adaptation decreased of about 0.4 log unit between 1200 m and 4000 m. - Jean Vola.

Long-term observations about the color perception training of selective stimulating, frequency currents for congenital defective color vision (5th Report), by T. IMAMURA (Imamura Physical Clinic, Osaka, Japan), Jap. J. clin. Ophtal. 29, 363-370, 1975.

A long-term follow-up study was made of a possible improvement in congenital defective color vision (dichromatism) in 198 subjects treated by application of electric stimuli with alternating current of the resonating frequency (77 and 42.5 Hz) corresponding to red and green.

This form of treatment is based upon the selective excitability of the human retina induced by alternating currents of suitable frequency that resonates with that of particular colors.

Evolution of the therapeutic effect in 198 subjects with dichromatism who underwent the training during the past 2 to 7 years showed that dichromatism had improved in 84% of all the cases, in 70% of all anomaloscope tests, and in 59% of all pseudoisochromatic plate tests.

The most important factor of the training effect is the form of current and resistance between two electrodes. - Yasuo Ohta (for information purposes).

Protective spectacles for retinitis pigmentosa patients, by R.W. EVERSON and I. SCHMIDT (School of Optometry, Indiana University, Bloomington, Indiana, 47401, USA), Amer. Optom. Assoc. 47/6, 738-744, 1976.

A comparison of ophthalmic filters with light transmission characteristics which may be beneficial in retarding the process of retinal degeneration in early retinitis pigmentosa by blocking the short wavelengths of light to a much greater extent than the long wavelengths. The most suitable lenses by their cone-rod stimulation ratio (defined in W. Adrian and I. Schmidt,

J. Amer. Optom. Assoc. 46/4, 380-386, 1975) were a glass lens, designed by W. Adrian and a plastic NOIR amber 7% lens. These lenses do distort colors of the environment but permit discrimination of traffic signals, - Ingeborg Schilde.

CORRESPONDANCE

Dear Dr. Verriest,

... The X-Chrom lens is not yet available through a European laboratory. However, it can now be ordered from : Young Laboratory, 475, Commonwealth Avenue, BOSTON, Mass., USA... Sincerely,

Harry I. ZELTZER, O.D.

ANNOUNCEMENT

FOOD COLOUR AND APPEARANCE SYMPOSIUM

The Colour Group (Great Britain) is holding a two day symposium on Food Colour and Appearance at The University of Surrey, Guildford on April 4 & 5th 1978. It is planned to include papers dealing with assessment techniques and instrumentation, colour specification applied to raw materials and products, quality control, food colourants and legislation, and psychophysics.

Further details when available may be obtained from : John Hutchings, Unilever Colworth/Welwyn Research Laboratory, Colworth House, Sharnbrook, Bedford, UK.

REGIONAL SYMPOSIUM OF THE INTERNATIONAL RESEARCH GROUP
ON COLOUR VISION DEFICIENCIES

DRESDEN(GERMAN DEMOCRATIC REPUBLIC) 5th - 6th SEPTEMBER 1978

PRELIMINARY INSCRIPTION FORM

(to be detached from one of the 1977 issues of Daltoniana and to be returned before 31st MARCH 1978 to Dr. MARRE, Augenlinik der MAD, Fetscherstr. 74, 8019 DRESDEN, German Democratic Republic)

This regional symposium held additionally to the international symposia of the I.R.G.C.V.D. is especially organized for the members of the socialist countries. It can also be attended by members and guests of other countries.

The main themes of this regional symposium will be :

1. Methods of examination of central and peripheral colour vision.
2. Practical aspects of colour vision.
3. Toxicology and colour vision.
4. Electrophysiological aspects of colour vision.

Free papers will be accepted.

Languages : English preferred, Russian and German possible (according to the practice of the society the authors are asked to insert for there oral presentation slides with English text). Abstracts of the papers have to be given to Dr. MARRE before the end of the symposium. They will be published in DALTONIANA.

PAPER
(one per form)

AUTHOR(S) :
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TITLE :
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Theme 1, 2, 3, 4, free.

Wanted duration of oral presentation : 5, 10, 15 min.

Accomodation wanted for 0, 1, 2 persons

Name

Full address