

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 135 - B-9000 GENT (Belgium)

Secretary for the Socialist Countries:
Dr. M. MARRE
Universitäts-Augenklinik, Felscherstrasse 74
8019 DRESDEN (D.D.R.)

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= THIS ISSUE CONTAINS THE CALL FOR PAPERS AND THE PRELIMI- =  
+ NARY INSCRIPTION FORM FOR OUR THIRD SYMPOSIUM +  
= (Amsterdam, 1975). =  
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LITERATURE SURVEY

Implications of the minimally distinct border, by R.M. BOYNTON (Center for Visual Science, Univ. Rochester, N.Y. 14627), J. Opt. Soc. Amer. **63**, 9, 1037-1043, 1973.

A brief review of studies concerned with the apparent distinctness of borders that are formed between the two halves of a photometric field, considering the special case where the chromaticities of the two fields are identical, but mainly the general case where the borders are supported by chromaticity differences. Evidence suggests that the minimally distinct border (MDB) is achieved when the two fields being compared produce equal effects upon the achromatic channels of the photopic visual system. Spectral sensitivity evaluated by the MDB is very similar to that obtained by flicker photometry. The rules of additivity and transitivity are obeyed. There exists a definite difference between the relative luminance of two fields that produce the MDB as compared to the setting that produced equal brightness. At the MDB setting, the more saturated of two fields appears brighter than the other one. The MDB criterion provides a new method for saturation scaling. The strength of the border is taken as an index of saturation. The MDB method also shows potential as a new basis for color scaling. - Ingeborg Schmidt.

Chromatic and intensive effects in dot-pattern masking : evidence for different time constants in color vision, by W.R. UTTAL (Univ. of Michigan, Ann Arbor, Mich. 48103), J. opt. Soc. Amer. 63/11, 1490-1494, 1973.

The author examined different degrees of masking of dotted alphabetic characters by random dots of the same color. Each character subtended a visual angle of $2^{\circ}25'$ by $3^{\circ}15'$, at a viewing distance of 76 cm and was plotted in about 300 μ s. The burst of spatially random masking dots was plotted over a region of $4^{\circ}26'$ by $6^{\circ}14'$ for 3 ms. It overlapped and surrounded the character space and always followed the character. Masking of red, green and blue dotted alphabetic characters by 60 random dots of the same colors and luminance (about 0.34 cd/m^2) indicates that masking is greatest with red masking dots and red-dotted target patterns, and least with blue masking dots and targets. Over-all masking increases as stimulus to masking burst time interval decreases (the intervals were varied between 40 and 2 ms) and as the number of masking dots increases (number of dots examined 20, 40, 60, 80 and 100). Varying dot luminances down to about 0.034 cd/m^2 (at an interval of 30 ms, a number of dots of 60 and a reduction of color effect by desaturation) have relatively little effect on the amount of masking. These findings suggest that the color effect is in large part due to a temporal difference between the channels that respond to the three different colored stimuli and that the channel most responsive to the longer wavelengths possesses the longer time constant. - Ingeborg Schmidt.

Bezold-Brücke effect and visual nonlinearity, by R.E. SAVOIE (Stanford Research Institute, Menlo Park, California 94025), J. opt. Soc. Amer. 63/10, 1253-1261, 1973.

Two subjects performed hue-matching experiments using simultaneously presented monochromatic stimuli of unequal corneal irradiance. Each subject dark adapted for five minutes before each experimental session. Each session consisted of one run for each of the seven standard wavelengths between 560 and 620 nm. In every run, the irradiance (quanta/sec.mm^2) of the standard was 2.5 times as great as that of the comparison. The test exposure was a 5 ms flash. Contrary to previous reports of the Bezold-Brücke hue shift, the hue of a given wavelength is not a monotonic function of irradiance, nor is there an invariant wavelength in the spectral regions explored. The author proposes an analytic form for nonlinearities of the red and green color systems and a simple model for the physiological correlate of hue. - Ingeborg Schmidt.

Spectral sensitivity in primates : a comparative study, by M. PITO, B. CARDU and F. LEPORE (Université de Montréal, Départ. de Psychologie, C.P. 6128, Montréal 101, Quebec, Canada) Percept. Motor Skills 36, 1239-1247, 1973.

Photopic and scotopic spectral sensitivity of two South American monkeys not previously studied (Cebus capucinus and Ateles lagothrix) was compared with that of a normal trichromatic and a protanopic humans and an Old World monkey (Macaca mulatta). The testing apparatus for both, animal and human Ss was patterned after that of Balmo (Neuropsychologia 4, 9-26, 1966.) but adapted to the present experiment. A modified method of limits was applied. The spectral sensitivity was identical for all Ss at a scotopic level. At the photopic level the normal human and the Macaca mulatta had a similar sensitivity. Both New World monkeys had a marked deficiency in the long wave length part of the spectrum comparable to that of the human protan- a further proof to the fact that New World monkeys are deficient in the red end of the spectrum. - Ingeborg Schmidt.

Absence of binocular interaction between spatial and color attributes of visual stimuli, by R. OVER, N. LONG, W. LOVE-GROVE (Univ. of Queensland, St. Lucia, Australia 4067), Perception and Psychophysics 13/3, 534-540. 1973.

The McCollough effect (spatially selective color after-effects) could not be generated by displaying contour information to one eye and color information to the other eye during inspection. It was impossible to induce depth-specific color aftereffects following an inspection period during which random-dot stereograms were viewed with crossed and uncrossed disparity seen in different colored light. These and other experiments suggest that binocularly driven spatial detectors in human vision are insensitive to wavelength. - Ingeborg Schmidt.

Focal and nonfocal processing of color and form, by S.C. PEEKE and G.C. STONE (Langley Porter Neuropsychiatr. Inst., Univ. of California, San Francisco, Cal. 94122), Perception and Psychophysics 14/1, 71-80, 1973.

Response latencies to color and to form were studied in 3 experiments. The color stimulus consisted of a circular patch 27 mm in diameter (red, green, blue or yellow); the form stimulus consisted of a white geometrical outline (square, triangle, circle or plus sign), approximately 20 mm in its largest dimension on a dark background. On simultaneous presentation stimuli were spaced 7.6 cm apart from center to center. Observation distance was 40 cm. Experiment I showed shorter mean reaction times to color than to form when the two stimuli were presented simultaneously. The op-

posite result was obtained when the two stimuli appeared sequentially. Experiment II : When using a multistimulus matching task color stimuli produced shorter latencies than did form stimuli. The differences were minimally at the center and increased peripherally. Experiment III : Eye movements were more frequent in matching forms than colors. - The results are considered in relation to a theory of distributed attention. - Ingeborg Schmidt.

Curvature as a feature of pattern vision, by L.A. RIGGS, Science 181, 1070-1072, 1973.

Cites curvature-dependant (colored) aftereffects, not due to tilt or orientation. - From the "Review of Sensory Disability".

On a possible coalescence of rods with cones at absolute threshold, by L. RONCHI, G. MOLESINI and M. CETICA, Atti Fond. G. Ronchi 28, 956-963, 1973.

The luminance-area relation at absolute threshold in the peripheral retina is found to depend on the spectral composition of the stimulus. This finding is unexpected, since, according to current ideas, low scotopic vision is due exclusively to the rods. The question is set whether the cones may take part in the temporal process of the visual input, by virtue of a sort of coalescence, mediated through the coexistence of direct and indirect paths, in the same receptive field. In addition, the relation between the data recorded with white light and those obtained with monochromatic light is discussed. - Lucia Rositani-Ronchi.

Color blindness and gene flow in Alaskans, by A. ADAM (Department of Human Genetics, Sheba Medical Center, Tel Hashomer, Israel), Amer. J. human. Genet. 25, 564-566, 1973.

A total of 604 boys from regional high schools in Alaska were tested with the Ishihara plates. Those who failed or hesitated were further tested with the portable Pickford-Nicolson anamaleoscope. A total of 12 boys were found to have defects of red-green vision. Of 453 boys of whom both maternal grandparents were considered indigenous five (1.1%) were defective - one was a protanope and four deuteranopes; whereas of 151 boys with some white admixture among the maternal grandparents seven (4.6%) were defective. Of this second group one was a protanomalous, 3 were deuteranomalous and 3 were deuteranopes. These findings are further evidence against the selection-relaxation hypothesis of Post (Humangenetik 15, 253-284, 1971). - L.N. Went.

Chromosomic aberrations and congenital dyschromatopsias (Aberrations chromosomiques et dyschromatopsies congénitales), by J. FRANCOIS, Bull. Mém. Soc. franc. Ophthal. 85, 17-33, 1962.

The study of the abnormalities of the human sex-chromosomes and of colour blindness can be used for constructing the map of the human X chromosome..

In Turner's syndrome (XO) the patients, who have a female appearance, have the same percentage of colour blindness as in normal male population (8%) and in Klinefelter's syndrome (XXY or XXXY), where the patients have a male appearance, the percentage of colour blindness should be the same as in female normal population: in fact, it is higher (3,5%).

The study of cases of deletion of the short or of the long arm of the X chromosome, or the case of iso-long X chromosome, mosaicism etc... and dyschromatopsias can suggest loci of colour blindness on the X chromosome.

Unfortunately, in most observations the type of colour blindness is not well specified and it is now difficult to assert the reliability of this mapping on the human X chromosome. - Jean Vola.

Anatomic and functional correlations in active central serous chorio-retinopathy (Corrélations anatomiques et fonctionnelles dans les chorioretinopathies sereuses centrales en période d'activité), by P. METGE, G.E. JAYLE, J. VOLA, D. FORTA and Y. AURRAN, Bull. Mém. Soc. franç. Ophtal. 85, 251-268, 1972.

In 24 cases of central serous chorioretinopathy, the authors found 13 cases with acquired dyschromatopsias: 9 had a blue-yellow defect and 4 a blue-yellow defect associated with another defect.

When the macular edema is fairly important the error score is -112 and + 92 when oedema is less important. There are no significant correlations between the diameter of the lesion and the dyschromatopsia. During the discussion, Coscas points out the early appearance of the dyschromatopsia, which is the last sign to disappear. Zanen observed an increase of the chromatic threshold in spite of a good visual acuity. - Jean Vola.

Familial choroideremia (Choroidéremie familiale), by F. DEODATI, P. BEC, M. CAZEMIND and J.B. LABRO, Bull. Mém. Soc. franç. Ophtal. 86, 321-334, 1973.

Seven cases of choroideremia where colour vision was found normal at the 100 Hue Test. - Jean Vola.

A case of congenital achromatopsia, by D.P. SMITH (Department of Optometry, University of Melbourne, Parkville, 3054, Australia), Austral. Optom. 56, 3-12, 1973.

The recent literature on inherited achromatopsia is reviewed, and some clinical findings in a case of complete colour blindness reported. The patient exhibited nystagmus, painless photophobia, reduced visual acuity. There was no obvious ophthalmoscopic abnormality of the fundus or optic disc. The mode of inheritance of his condition appears to have been autosomal recessive. He is tentatively diagnosed as a rod (II) monochromat. - Damien P. Smith.

The Farnsworth dichotomous test - the Panel D-15, by K.J. BOWMAN (Department of Optometry, University of Melbourne, Parkville, 3054, Australia), Austral. Optom. 56, 13-24, 1973.

The Panel D-15, the conditions for its use and the rationale for its performance are reviewed and new information in the form of colour difference data is presented. Prediction of colour defective performance using standard response functions is explained. Studies on the qualitative and quantitative value of the test for diagnosis of congenital colour vision defects are reported while the unique aspects of the test for examination of acquired defects are discussed. - Damien P. Smith.

Examination of colour vision by the Farnsworth-100-Hue Test in patients with squint amblyopia and alternating squint (Farbsinnuntersuchungen mit dem Farnsworth-100-Hue Test bei Patienten mit Schielamblyopie und alternierendem Strabismus), by A. FRUHAUF, S. KLEIN and A. RITTER, Ophthalmologica 167, 66-76, 1973.

Patients with squint amblyopia were examined with Farnsworth-Munsell 100-Hue-Test. In binocular and monocular tests the hue discrimination was lowered without any special axis.

The number of errors increased with the eccentricity of the fixation. In the "normal" eyes with full visual acuity in concomitant squint with amblyopia the number of errors in hue discrimination was also increased. Also in patients with alternating squint in monocular and binocular 100 Hue tests a higher number of errors was noted than in normal control groups. The results may be explained by the binocularity of visual inhibitions in squint. - Marion Harré.

Investigations of colour discrimination by eyes cured of amblyopia and eccentric fixation, by R. GOTZOWA and J. OTTO, Klin. Oczna, n° 10, p. 1141-45, 1973.

Fifty-six children aged 5 to 12 years treated successfully for amblyopia and eccentric fixation were divided into three groups according to visual acuity obtained after cure and the duration of occlusion of the fixing eye. During the investigations the child gazed through red and green glasses simultaneously: successively on the chart with optotypes, on a white surface without optotypes, and on the sky. Reductors of visual acuity were placed before the fixing eye. It was found that despite a good visual acuity of the previously amblyopic eye a considerable reduction of the visual acuity of the fixing eye is necessary to obtain its predominance. The type of the reductor which should be used depends of the visual acuity of the previously treated eye and of the duration of previous occlusion. It was most difficult to obtain predominance of this eye while the child was gazing on a homogenous surface. - Félicie Jakubik.

Colour discrimination in prognosis of amblyopia treatment in squinting children, by W.A. LASZCZYK and H. SZUBINSKA, Klin. Oczna, n° 10, p. 1147-50, 1973.

Ishihara's cards were used for testing colour discrimination in 100 children aged from 6 to 14 years before and after conservative or surgical treatment. The observations confirmed the results obtained by Payor and Roth showing that colour discrimination by the amblyopic eye depends on fixation and on visual acuity; in the personal investigations this ability changed during treatment together with these determining factors. Periodic examinations of colour discrimination in squint are an additional evaluation of the therapeutic effects. - Félicie Jakubik.

Diagnostic criteria of defective color vision - 2nd Report: Lantern test with Ichikawa's color perception lantern, by A. MAJIMA (Department of Ophthalmology, Nagoya City University Medical School), Folia ophthal. Jap. 23, 83-87, 1972.

Although the lantern test is a pass-fail examination and can't be used to distinguish degrees of color vision defect, the author attempted to set up a diagnostic criterion for separating mild color vision defectives from moderate and strong ones with Ichikawa's Color Perception Lantern. For the purpose of this study, lantern test was carried out on 164 color vision defective students consisting of 24 protanomalias, 16 protanopias, 72 deuteranomalias and 52 deuteranopias. Number of errors in lantern test was compared with the results of H-R-R plates, Okuma's Plates, TMC Plates and Panel D-15 Test. According to this clinical experiment, the author concludes that color vision defectives who make 3 or less errors in lantern test are considered as mild color vision defectives and those who make 4 or more errors as moderate and strong ones. Furthermore, the author emphasizes to adopt Ichikawa's Color Perception Lantern in routine color vision test, especially in social adaptability tests. - Yasuo Ohta.

Diagnostic criteria of defective color vision - 3rd Report: Majima's classification for social adaptability, by A. MAJIMA (Department of Ophthalmology, Nagoya City University Medical School), Folia ophthal. Jap. 23, 170-175, 1972.

Majima's classification for social adaptability of color vision defectives was established by modifying the Farnsworth's classification in industry in which Farnsworth Dichotomous Test Panel D-15, Farnsworth Lantern and H-R-R plates are used. In Majima's classification, color vision defectives were classified into 4 groups - strong, moderate, mild and very mild. The Panel D-15 Test was also applied to distinguish a strong group from mild and very mild ones. The very mild group consisted of these color vision defectives who were diagnosed as normal by 2 kinds of pseudoisochromatic plates among H-R-R plates, Okuma's plates and TMC plates.

The following results were obtained by this classification. 1) 389 color vision defectives examined at the Color Vision Clinic, Nagoya City University Hospital, were classified as follows strong 47.04%, moderate 31.62%, mild 17.74% and very mild 2.31%. 2) 196 color vision defectives detected among an unselected population were classified as follows : strong 48.47%, moderate 28.57%, mild 18.37% and very mild 4.08%. 3) Protans were generally diagnosed more severely than deutans. This was a very rational result for the classification from the view point of social adaptability. 4) 168 of 183 strong defectives by Majima's classification were diagnosed as " the 3rd grade, i.e. strong" by TMC plates, while 60 of 69 mild defectives by this classification were classified as "mild defect" by H-R-R plates. 5) Majima's classification established by using test of hue discrimination (Panel D-15) and that for color lights perception (Ichikawa's Lantern) was not always consistent with the summarized result obtained by 3 kinds of pseudoisochromatic plates. Yasuo Ohta.

Detection and recognition of colored signal lights, by R.L. RLYWOLDS, R.L. WHITE jr. and R.L. HILGENDORF (Acrospace Medical Research Laboratory Wright-Patterson AFB, OHIO) , Human Factors 14/3, 227-236, 1972.

Responses to four stimulus lights as measured by speed of detection and accuracy of identification, viz. red, green, yellow and white, were evaluated against four colored backgrounds viz. copper, tan, blue and green, which were reasonably good simulations of various natural terrains, under two levels of ambient illumination, a bright and a dark one. Nine stimuli produced by Wratten Kodak filters approximately matched in transmittance were arranged within each of the 4ft square backgrounds. From 4 meters distance the size of the stimulus lights was approximately 2' of arc. The subject had to respond as quickly as possible by pressing a switch on a response panel which corresponded to the location of the stimulus light and then to the describe its color. The overall ordering of stimulus colors as measured by speed of responding was, from fastest to slowest, red, green, yellow and white. For errors in color naming the order from least to most was green, red, white and yellow. Detection and identification were more difficult under bright ambient illumination. - Ingeborg Schmidt.

Inherited color deficiency and the X-chrom lens, by R.L. ZEMPEL, Optometric Weekly 64/41, 388-391, 1975.

Aside of reviewing genetics of red-green color deficiency and presenting data on the X-chrom lens, already described in earlier publications (see Baltonians n° 4, p. 4 and N° 12 p. 6) the author reports some more details on prescription, fitting, and wear of the lens. The X-chrom lens does not violate binocularity as long as visual acuity is not reduced below 20/40. Since it is not available in toric curves or

prism, spectacles are recommended as a supplement in certain cases. Due to chromatic aberration the lens power should be 25 more in plus. Aside of the trial and home training periods regular post-examinations are necessary as with ordinary contact lenses. The X-chrom lens is now patented. -Ingeborg Schmidt.

U.S. Patent 3, 731, 993 (Hritz Artur PIRINGER, to National Patent Development Corp. , New York) May 8, 1973 : Lens material for reducing (i.e., ameliorating for persons with deficient color vision) effective color vision. - From the "Review of Sensory Disability".

OBITUARY

Ilmari RENDAHN, member of the International Research Group on Colour Vision Deficiencies.

Dr. Ilmari Rendahl, 48, Associate Professor at the Eye Clinic, Karolinska Sjukhuset, Stockholm, Sweden, died on the 17th January 1974. Dr. Rendahl was an originator to the Research Group on Colour Vision Deficiencies. He held important posts in Swedish Ophthalmology and was a respected member of the International Societies for Clinical Electroretinography and Ergophthalmology. His many papers dealt with electroretinography, colour vision and other fields of visual physiology.

Dr. Rendahl was highly estimated as scientist, ophthalmologist and lecturer. He is badly missed by his colleagues and many friends. - A. Redin.

COMMERCIALLY AVAILABLE COLOUR VISION TESTS AND ACCESSORIES UNITED KINGDOM: (february 1974)

Ishihara.

- 1) Keeler Optical Instruments, 21-7 Marylebone Lane, London, W.1, 2nd ed. 24 plates
10th ed. 38 plates
- 2) Curry and Paxton Ltd. (Instruments Dept.), Princeswood Road, Marlstreet Industrial Estate, Corby, Northamptonshire.
2nd ed. 24 plates £6.20
10th ed. 38 plates *8
- 3) H.K. Lewis and Sons (Medical Booksupplies), Gower St. London W.C.1.

A-O HRA plates : now discontinued.

A-O 13375 test. British American Optical Co., Radlett Rd, Hatfield, Herts. £15.10

Dvoznine Plates. Harcourt Brace, Jovanovich Ltd. , 24-8 Oval Rd. N.W.1.

Guys Colour Vision Test for Children. Ishihara colours with cut outs for identification. Keeler Optical Instruments, 21-7 Marylebone Lane, W. 1.

Farnsworth-Munsell 100 Hue Test. Tintometer Ltd.,
Waterloo Road, Salisbury, Wiltshire £ 90
F.-M. D-15 test. Tintometer Ltd. Waterloo Road, Salisbury
Wiltshire.
Giles-Archer Colour Perception Lantern. Archer-Elliott
Ltd., 57-63, Wharfedale Road, London N.1. £ 11
Edridge-Green Lantern. Clement-Clarke Ltd., 16, Wigmore
St. London W.1. £ 42.30, 3-4 weeks delivery. Also from T.
Hamblin Ltd. (Langham Place, London W.1.).
Nasel-Anomaloscope. Clement-Clarke Ltd. 16, Wigmore St.,
London W.1. £ 1,485 includes duty, 2-3 months delivery.
Pickford-Niclosou Anomaloscope. Rayner, Sheraton House,
Lower Road, Chorleywood, Herts. £ 250.
Lovibond Colour Vision Analyser. Tintometer Ltd.
Waterloo Road, Salisbury, Wiltshire. £ 350. - Janet Voka.

LISTS OF THE PUBLICATIONS ON COLOUR VISION DEFICIENCIES
OF MEMBERS OF THE RESEARCH GROUP

50. Papers of Dr. Kaitiro HUKAMI (Dept. of Ophthal.,
Kyoto Prefectural Univ. Med., Kawara-machi Hirokoji, Kamigyoku,
KYOTO, Japan).

- R HUKAMI, K. - Results of a color discrimination test for
choriorctinitis centralis serosa (Nasuda). Folia ophthal.
 jap. 10, 675-678, 1959.
- R HUKAMI, K. - Studies on Tokyo Keioji College color vi-
sion test for school children. Folia ophthal. jap. 11,
 842-845, 1960.
- R HUKAMI, K. - Misreading of pseudoisochromatic plates and
its figures. Acta Soc. ophthal. jap. 64, 2836- 2847,
 1960.
- R HUKAMI, K. - Evaluation of "Kojima-Matsubara's pseudoiso-
chromatic plates for children". Folia ophthal. jap. 12,
 392-396, 1961.
- R HUKAMI, K. - Color vision test for children under 6 years
of age. Folia ophthal. jap. 12, 590-594, 1961.
- R HUKAMI, K., - INAMOTO, I. and ADACHI, K. - Stereoscopic
vision by complementarily coloured targets. Folia
 ophthal. jap. 12, 686-687, 1961.
- HUKAMI, K. - Studies on "special clinic for color defi-
ciencies" during 1964-1965. Folia ophthal. jap. 16,
 896-898, 1965.
- R HUKAMI, K. -An attempt to indicate the results of the
color discrimination test. Folia ophthal. jap. 17,
 192-199, 1966.

- HUKAMI, K. - An attempt for training the color vision defectives with S. VISTA (M-1001). Acta Soc. ophthalm. jap. 70, 589-592, 1966.
- R HUKAMI, K. - Confusion of protan with deutan in color vision test charts. Folia ophthalm. jap. 17, 764-767, 1966.
- R HUKAMI, K. - Relationship between the results of color discrimination test and lantern test. Folia ophthalm. jap. 18, 263-266, 1967.
- R HUKAMI, and IWATA, C. - Color discrimination test for children aged from 4 to 7 years. Folia ophthalm. jap. 18, 1067-1069, 1967.
- R HUKAMI, K. - Results of color discrimination test of protan. Folia ophthalm. jap. 19, 228-231, 1968.
- R ICHIKAWA, H., HUKAMI, K. and MAJIMA, A. - Evaluation of color discrimination test (modified Farnsworth Munsell 100-Hue test) for occupational aptitude. Acta Soc. ophthalm. jap. 72, 1561-1571, 1968.
- R HUKAMI, K. and ICHIKAWA, H. - Evaluation of 100 Hue test (Color discrimination test) (1) Jap. J. clin. Ophthalm. 23, 203-204, 1969.
- R HUKAMI, K. and ICHIKAWA, H. - Evaluation of 100 Hue test (Color discrimination test) (2) Relations between the results of test and degrees obtained by color vision test plates. Folia ophthalm. jap. 20, 161-162, 1969.
- R HUKAMI, K., IKEDA, A. and FUJII, T. - Color vision tester devised on the principle of the two-color threshold method. Report II: clinical experiment. Jap. J. clin. Ophthalm. 23, 887-891, 1969.
- R ICHIKAWA, H., HUKAMI, K. and MAJIMA, A. - Defective color vision and occupational adaptability. Ophthalmologica Addit. ad 158 428-433, 1966.
- HUKAMI, K. and ICHIKAWA, H. - Evaluation of 100 Hue test (Color discrimination test) (3) Relations between the results of this test and the Panel D-15. Folia ophthalm. jap. 21, 115-116, 1970.
- HUKAMI, K. - Studies on "special clinic for color deficiency" during five years. Jap. J. clin. Ophthalm. 24, 696-698, 1970.
- HUKAMI, K. and ICHIKAWA, H. - Evaluation of 100 Hue test (Color discrimination test) (4) Comparison with the scores of this test and the lantern test. Folia ophthalm. jap. 22, 227-230, 1971.

R HUKAMI, K., IKEDA, M. and URAKUBO, M. - Studies on color vision using color flicker vision tester. Jap. J. clin. Ophthalm. 25, 1709-1713, 1971.

R IKEDA, M., HUKAMI, K. and URAKUBO, M. - Flicker photometry with chromatic adaptation and defective color vision. Amer. J. Ophthalm. 73, 270-277, 1972.

(The papers without English abstracts are omitted).

PROGRAM OF THE SESSION ON COLOUR PERIMETRY (21th May 1974 a.m.) OF THE FIRST INTERNATIONAL VISUAL FIELD SYMPOSIUM (Marseille, 20th - 22th may 1974).

Chairman: VERRIEST

- E. MARRE : The evidence of the blue mechanism in visual evoked potential
- NOLTE : The achromatic difference threshold for monochromatic objects in three different levels of adaptation
- VERRIEST : Perimetric determination of the spectral curve of relative luminous efficiency
- LANTHONY : Perimetry by means of multiple colour stimuli
- LIUZZI : Red monochromatic light perimeter, use and results
- ISRAËL : Cinetic colour perimetry in ocular pathology
- CRONE and VERDUYN-LUNEL : Static perimetry with purely chromatic stimuli
- FRISEN : Informal testing of color saturation in the visual field, clinical experience
- MATSUO, OHTA, LINDO and KATO : New scotometric plates using acquired confusion colours
- MAIONE : Colour perimetry in chromatic adaptation
- VOLA : Clinical applications of the study of the Stiles mechanisms
- HANSEN : Visual field studies in cone dystrophies
- HANSEN : Resochin retinopathy evaluated with colour perimetry
- RUDDOCK : Off-axis threshold responses of dichromats
- LAKOWSKI and DRANGL : Relation between perimetric and colour mixture data in glaucoma and ocular hypertensive patients.

All correspondance (inscriptions, accommodation, papers) musts be sent to the secretary of the symposium: Prof. G.E. JAYLE, Institut Jacques Daviel, Hôtel-Dieu, Marseille, France.

THIRD SYMPOSIUM OF THE INTERNATIONAL RESEARCH GROUP OF COLOUR
VISION DEFICIENCIES
AMSTERDAM (THE NETHERLANDS), 25th - 27th JUNI 1975
"RESEARCH IN COLOUR VISION DEFICIENCY"

PRELIMINARY INSCRIPTION FORM

(to be detached and returned before 31st December 1974
to Dr. G. VERRIEST, Dienst Oogheelkunde, Akademisch Ziekenhuis,
De Pintelaan 135, 9000-Ghent, Belgium).

The main themes of this symposium will be:

1. Basic mechanisms of defective colour vision.
2. Peripheral colour vision.
3. Genetics of colour vision.

Free papers relating to other subjects will be accepted.
All papers must be read and written in good English.

Furthermore the authors are asked:

- a) to send before the 1st April 1975 two copies of a summary of
at most 200 words to Prof. Dr. R.A. CRONE, Oogheelkundige
Kliniek, Akademisch Ziekenhuis, Berste Helmersstraat 104,
Amsterdam-W, The Netherlands;
- b) to insert for their oral presentation slides with (English)
text intended to render the subject more understandable for
the non-English-speaking people;
- c) to give to Dr. VERRIEST and before the end of the symposium
the manuscript to be printed in the Proceedings (taking
into account the instructions made by KARGER).

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