DALTONIANA

NEWSLETTER
OF THE INTERNATIONAL RESEARCH GROUP ON COLOUR VISION DEFICIENCIES

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LITERATURE SURVEY

Color vision in the peripheral visual field, by B.V. GRAHAM, Ph.D. Thesis, Indiana University, Bloomington, Indiana, 1972, 118 p.

Data on heterochromatic additivity (detection of monochromatic and bichromatic lights), on color naming and on relative spectral luminosity were obtained at selective perimetric locations. If the component radiances in just detectable bichromatic mixtures were greater than predicted from data concerning the detectabilities of the monochromatic components alone, then subadditivity was implied. The findings that all locations tested out to 25° showed red-green and red-blue subadditivity indicated either normal or anomalous trichromacy at these locations. One of 3 subjects tested at 45° showed red-green subadditivity and two subjects showed red-green additivity. The color naming tests demonstrated progressively poorer wavelength discrimination with larger perimetric angles. The results show that at the photopic light level of the experiment, the generalization that the human visual field is red-green dichromatic beyond 20-30°, is not true. Little or no appreciable shift in relative spectral sensitivity to short wavelengths was found at the intermediate (25°) and external periphery (45°) as compared to the inner periphery (10°). The results suggest that the characteristics of peripheral color vision are consistent with the trichromatic-opponent colors theory (S.L. Guth et al., Vision Research 8, 913, 1968) and that the dysfunction which causes defective red-green vision at certain peripheral locations is at or below the neurological level of the opponent systems. - Ingeborg Schmidt.

Spectral sensitivity of the cones measured by means of electroretinography, by D. VAN NORREN (Inst. for Perception T.N.O., Soesterberg, The Netherlands), Ophthalmologica 167, 363-366, 1973.

It proves possible to measure the spectral sensitivity of the three cone systems in a rhesus monkey by means of electroretinography and chromatic adaptation. - A. Pinckers.

Lateral inhibition in human colour mechanisms, by D.H. KELLY (Stanford Research Institute, Menlo Park, Calif. 94025), J. Physiol. 228, 55-72, 1973.

Explored spatial properties of these mechanisms by measurements of contrast thresholds for sine-wave gratings (with adapting colors). Contrast sensitivity decreased at low spatial frequencies, evidencing lateral inhibition. - From the J. sens. Disab.

Two genetic types of normal colour vision? by J.W. METZ and R.F. BALLIET (Dept. of Visual Sciences, University of the Pacific, 2232 Webster St., San Francisco, Calif. 94115), Nature New Biol. 242, 190, 1973.

Reports disparity with previous results in these types, from tests with 26 male subjects. - From. the J. sens. Disab.

Color vision, by C.R. Michael (Dept. of Physiology, Yale University School of Medicine, New Haven, Conn. 06510), New England J. Medicine 288, 724-728, 1973.

A well-rounded articulate paper suitable for introductory reading. - From the J. sens. Disab.

Colour opponent neurones in the human visual system, by J.P.J. RAUSCHECKER, F.W. CAMPBELL and J. ATKINSON, Nature 245, 42-43, sept. 7 1973; Correction, ibid. 226 (Sept. 28, 1973).

Color opponent mechanisms are brought out (that is, on a green-red, blue-yellow system). - From the J. sens. Disab.

Mass examination of color sense using the anomaloscope, by I. IINUMA and Y. HANDA (Department of Ophthalmology, Wakayama Medical College), Acta Soc. ophthal. jap. 76, 548-551, 1972.

Using the Nagel's anomaloscope I, the color sense in 1,585 school children (747 girls and 838 boys) aged 13-15 year was examined in Rayleigh equation.

I. The normal Rayleigh equation. The mean dial setting of normal Rayleigh equation in the red-green scale was 39.9 $\pm$ 1.0 in boys. The incidence of cases for every 0.5 scale reading represented almost normal distribution curve in both girls and boys, respectively. There was no significant difference at any corresponding point between two curves of both sex in the normal range of 36-46 scale reading ($p > 0.05$). But there was a significant difference in the ratio of protc-deviant/deuto-deviant (over m $\pm$ 2s) cases between both sex ($0.01 > p > 0.001$).

II. Dyschromats. 1) An abnormal Rayleigh equation. Two small peaks were found in boys' curve of incidence of every 4 scale reading on both side of the normal equation peak at

about 50-54 and 14-26 in scale readings, which were considered to be of protanomaly and of deuteranomaly. But no peak was found in the girls' curve. 2) Incidence. There were found 50 dyschromats (5.9%) (15 protans and 35 deutans) of various grades in boys, and 10 (1.34%) (3 protans and 7 deutans) in girls. 3) Ratio of the found/expected in girls. The incidence of found cases in girls is larger than that of expected from the boys' q (0,36%). Summarizing from many reports of various with the skin color, in general, with a few exceptions. 4) Incidence of carriers. The number of carrier is calculated as 11-12% from the boys' incidence. But, when calculated from square root of the girls' incidence, it is 16% on 1 locus hypothesis or 29% on 2 loci hypothesis. Otherwise, it is 31% among another 156 female group got from the examination by the "Subtester" (Ichikawa).

III. Hypothesis suggested. It is well known that dyschromats are inherited as X-linked recessive pattern. But the authors suggested some accessory factor which may act on the manifestation of dyschromatopia as an inhibitor (a factor of anti-dysability glare), especially in colored population. The incidence of phenotype is not always equal to genotype in males, because of this factor. - Yasuo Ohta.

Study of chromatic sense in refractive and strabismic amblyopias (Estudo do senso cromatico nos ambliopias refracional e estrabismica), by L. CARVALHO VENTURA, Doctorate Thesis, Fed. Univ. of Minas Gerais, Belo Horizonte (Brazil), 1973.

The author examined 40 amblyopic subjects (20 with and 20 without central fixation) and 40 controls by mean of the AO H-R-R, Panel D-15, Roth 28 hue and Type I Nagel anomaloscope tests. Although the quotient of anomaly was somewhat low in both eyes of three amblyopic subjects (Q=0.59-0.63), no other significant difference where found between both groups of subjects. - Alejandro Gonella.

Classification of dyschromats in the degree by using the Nagel's anomaloscope and neutral density filters, by I. IINUMA, (Department of Ophthalmology, Wakayama Medical College), Folia ophthal. jap. 23, 166-169, 1972.

The grades of dyschromats are considered to be based on the extent of the defectiveness of cone pigments. The defectiveness may lead to a condition of dysability (rather than disability) glare for some color alone, which is not perceived to the normals as dysability glare.

Under such consideration, an easy and detailed classification of dyschromats I-VII is proposed as follows, using Nagel's anomaloscope with neutral density filters.

Grade	Range of Rayleigh equation	Changes of the equation by depressed light source
I	only a small displaced area of equation, and	extended (as normals)
II	no red-yellow and green-yellow equation	no change
III		contracted chiefly from red side in deutans; from green side in protans
IV	larger area, but no red-yellow and green yellow equation.	
V	red-yellow equation in protans, and green yellow in deutans	
VI	both red-yellow and green-yellow equation	
VII		no change

Yasuo Ohta

A case of unilateral retinitis pigmentosa (A propos d'un cas de rétinopathie pigmentaire unilatérale), by G. PALIMENIS, D. ANDREANOS and P. VELISSAROPOULOS (Athens, Greece), Arch. Ophtal. (Paris) 33, 749-756, 1973.

The authors describe a case of unilateral (left eye) retinitis pigmentosa. After a 5-years follow up period the normal right eye is still not involved. Colour vision of both eyes (Ishihara, AO HRR) was normal. - A. Pinckers.

Familial cases of vitelliform cysts (Cas familiaux de disques vitelliformes), by R. DRAN (Centre national d'Ophtalmologie des Quinze-Vingts, Paris, France), Ann. Oculist. 206, 529-544, 1973.

In 3 cases with vitelliform cysts colour vision was examined (Ishihara, Polack, AO HRR, Panel D-15, 100 hue, anomaloscope). Aslong as visual acuity is good, the results of examination by pseudo-isochromatic tests and anomaloscope are normal; the 100 hue reveals a slight disturbance without axis. - A. Pinckers.

Traumatic optic neuritis (Névrite optique traumatique), by H. SARAUX and A. BECHETOILLE (Paris, France), Ann. Oculist. 206, 739-740, 1973.

An 18 year old male had a traffic accident and transitory amaurosis, followed by normal vision for 3 months but developed thereafter a retrobulbar neuritis. Therapy with antibiotics and corticosteroids resulted in VOD = 8/10, visual field restoration, but disturbed VER and 100 hue-test. - A. Pinckers.

Chorio-retinal degenerations of the posterior pole (Dégénérences chorio-rétiniennes du pôle postérieur), by J. BABEL, N. STANIOS, M. SPIRITUS and S. KOROL, Bull. Mém. Soc. franç. Ophtal. 85, 479-494, 1972.

Concerning 6 cases of chorioretinal degenerations whereby the exact diagnosis was difficult to find the authors emphasize the necessity to study visual fonctions : visual field, dark adaptation, electroretinogram, electro-oculogramm, colour vision, evoked cortical potentials.

These different examinations allow a correct diagnosis : 3 achromatopsias were found in inverse pigmentary retinopathy taken previously for Stargardt maculopathy.

In a case of progressive cone degeneration, in a case of pericentral degeneration, and in another similar case, the acquired dyschromatopsia was of red-green axis. In two cases colour vision was normal. - Jean Vola.

The retinopathy in dystrophia myotonica (Steinert) (La rétinopathie de la dystrophie myotonique (Steinert)), by H. REMKY, Bull. Mém. Soc. franç. Ophtal. 85, 500-504, 1972.

The author reports some cases of retinopathy with dystrophia myotonica in a family of 54 members. Some of the retinopathy cases were associated with a tritan or tetartan acquired dyschromatopsia. In one case acquired dyschromatopsia was the only ocular symptom of the disease. - Jean Vola.

Troubles of colour perception after ingestion of nalixidic acid (Troubles de la perception colorée après absorption d'acide nalixidique), by J. HAUT, Ch. HAYE, M. LEGRAS, Ph. DEMAILLY and Cl. CLAY, Bull. Socs Ophtal. Fr. 72, 147-149, 1972.

Nalixidic acid is commercialized in France under the name Negram and is used against urinary infection. 4 patients presented a chromatopsia 15 minutes - 2 hours after absorption of only 500 mg - 1 gr of the drug : blue, rose or violet colour especially for the white objects. The phenomenon lasts two hours and disappears completely. Colour vision tests were normal. The patients suffered from photophobia. No explanation can be given. - Jean Vola.

Toxic optic neuritis. clioquinol ingestion in a child, by J.A. REICH and F.A. BILLSON (Division of Ophthalmology, Royal Children's Hospital, Parkville, 3052, Australia), Med. J. Australia 2, 593-595, 1973.

A case of toxic optic neuritis in a 12 year old schoolgirl is described. There was bilateral optic disc pallor, reduced visual acuity, and centro-caecal scotomata. An acquired colour vision defect was manifest on test with Ishihara tables. - Damien P. Smith.

Toxicity of intermittent ethambutol-medication (Auswertung einer Toxicitätsstudie bei intermittierender Ethambutol-Medikation), by V. GROSS, H. EULE and G. HAGER (Augenklinik Humboldt-Universität Berlin, Bereich Medizin, Charité), Klin. Mbl. Augenheilk. 163, 17-22, 1973.

Two patients showed relative cotomas for green, blue and yellow in both eyes. In one case a selective damage of the optic nerve is questioned and the possibility of a retinal toxic effect of ethambutol is discussed. - M. Marré.

The early results of the intermittent or continuous treatment with the use of ethambutol in previously untreated pulmonary tuberculosis by D. LACHOWICZ, H. NIEMIROWSKA, J. PECYNA-SIEDLEWICZ, J. MADEY, J. STOPCZYK, M. BURACZEWSKA, W. BLASZCZYK, H. GRZYBOWSKA-ROGULSKA, S. HIBL, L. KARCZEWSKA, M. KLOTT, R. MOS, M. PAWLIK, B. PRZSMUCKA, B. STACHOWIAK, L. SZYMCZAK, E. MEYER, S. TROJANEK and W. WANAT-KONDRATOWICZ, Gruźlica I Choroby Pluc 825-835, 1973.

The percentage of the ocular side effects related to ethambutol was low (1%). - Felicia Jakubik.

Damage to the organ of vision following ethambutol treatment, by T. ZYCZYNSKI, W. LICHON, J. KRYCH, A. MATUSIK-RUTKOWSKA and E. GWOZDZ, Gruzlica I Choroby Pluc, 1149-1153, 1973.

In an own material of 160 patients treated with ethambutol not exceeding 25mg/kg of body weight the authors observed 4 cases (2,5%) of ocular complications including 3 cases of permanent damage to the visual organ. In the light of these observations it is concluded that the dose of 25 mg/kg of body weight should be withdrawn immediately when the patient begins to state complaints about visual disturbances, waiting for the results of ophthalmologicalexamination. - Felicie Jakubik.

Bilateral optic neuritis in the course of ethambutol treatment, by E. GWOZDZ, G. GUZOWATA and A. RUTKOWSKA, Klin. Oczna, 827-832, 1971.

A case of bilateral optic neuritis in a 42 years old woman is presented. The patient with tuberculous nephritis of the left kidney was treated by ethambutol during a period

of 4 months. After the ethambutol therapy had been stopped and a ophthalmological treatment had been installed the ocular signs began to recede. The visual acuity, less than 0.1 in the first period of treatment, improved to 0.8 two weeks after dismission from the hospital. - Felicie Jakubik.

Examination of color sense in practice (Zur Prüfung des Farbensinnes in der Praxis), by R.G. FREY, Klin. Mbl. Augenheilk. 162, 80-86, 1973.

A critical evaluation of some pigment tests for examination of color vision is given. By means of pseudoisochromatic tables it is not possible to determine the type and the degree of a dyschromatopsia. Pigment tests permit only to find out if color vision is normal or not. An exact diagnosis can be given only by examination with the anomaloscope. - M. Marx.

Dazzling test in macular disease, by K. CZECHOWICZ and JANICKA, Klin. Oczna, 389-391, 1971.

Results of examination of 25 persons, younger that 40 y, are presented. In these persons the eye fundus showed some delicate changes in the macular area calling many diagnosis doubts. The subjects have been examined by a modified Baillart's test. The author suggests some standards, thinks to which one could differentiate degenerative and inflammatory changes in the macular region. - Felicie Jakubik.

The influence of the radiation energy of welding arc on dark adaptation, by Z. FILIPIAKOWA, Klin. Oczna, 49-55, 1971.

The dark adaptation curves obtained in 25 electric welders and 22 elder assistants during periodical examinations were normal. The determination of dark adaptation during acute electrical conjunctivitis (in 23 workers) showed considerable alterations in 6 subjects and light ones in 1 subject. The changes referred to rod adaptation and disappeared in the course of 7 days. They are ascribed to the action of ultraviolet rays of the welding arc. - Félicie Jakubik.

The transmission properties of some commercial ophthalmic tinted lenses, by L.F. GARNER (Department of Optometry, University of Melbourne, Parkville, 3054, Australia), Austral. J. Optom. 56, 254-261, 1973.

The transmission properties of 54 standard ophthalmic tints are compared to the requirements of Australian Standard AS 1067-1971 Sunglass Lenses. Variations in luminous density for solid ophthalmic tints with back vertex power is considered in relation to this standard. - Author.

The handicap of color blindness, by G.G. HEATH (Division of Optometry, Indiana University, Bloomington, Indiana), J. Amer. optom. Ass. 45/1, 62-69, 1974.

The handicap that color vision abnormalities may impose will depend on the particular type and degree of the color vision defect and also on age, occupational demands and specific viewing

conditions. To provide adequate counseling and advice optometrists should first utilize tests that permit diagnosis of the type of defect and assessment of its degree of severity. The major types of color vision defects commonly encountered in an optometric practice are briefly described together with a discussion of the handicaps in performance they might be expected to cause. Some corrective measures are mentioned including the X-chrom lens. An obvious explanation of the effect of the latter is the creation of "luster" resulting from the brightness difference in the 2 eyes and learning to associate the degree of luster with a particular hue name. Treating and training attempts on color deficiants are mentioned. - Ingeborg Schmidt.

Recommended procedure for fitting the X-chrom lens, by H.I. ZELLER (57 Grant Str. Waltham Mass. 02154) J. amer. optom. Ass. 45/1, 72-75, 1974.

More than 200 persons are now wearing the X-chrom lens (see also Doltoniana 4, 4-5 and 12, 6), many wearing it all day, other part time. As a rule it is contra-indicated for amblyopes and suppressors. Requirements for prescribing the lens are the same as those for conventional contact lenses. The new material used for its fabrication has a defined spectral transmittance and allows sufficient light to enter the eye for maximum acuity. A wearing schedule is determined for each patient based on his need and desire. With increasing wear the colors appear less vived and more realistic. Within a week Pulfrich's phenomenon is overcome. The reeducation of color perception continues for several months. Additional corrective eye wear may be necessary for presbyopia, residual astigmatism or high phorias. Most patients do not object to the appearance of the X-chrom lens. A brown tinted contact lens may be worn over the other eye. The paper concludes with an outline of recommended procedure for fitting the X-chrom lens. Obviously, when prescribing the lens the type of color deficiency is not considered but the suitable total visual transmittance is established by trial and error! - Ingeborg Schmidt.

The X-chrom lens. Case reports, compiled by the AOA, J. amer. optom. Ass. 45/1, 81-87, 1974.

As a result of an invitation of the American Optometric Association to patients and employers to express opinions, optometrists and physicians to submit case reports covering the experience with the X-chrom lens, 13 reports were turned in, including (1) 3 reports from persons who describe their subjective experience when using the lens (2) a letter to a person who's "restriction from automated and semi automated vessels may be removed" from his licence by the US Coast Guard provided he wears the X-chrom lens when under the authority of this license. (3) case reports from 7 optometrists and 2 medical doctors. The type of color vision deficiency is known of 4 of the 13 persons. When wearing the X-chrom lens, some patients passed the HRR and the Ishihara plates and individual vocational tests. A protanope who had a private pilot license limited to daytime flying was able from a control tower to distinguish between flashing light colors when wearing the X-chrom lens, but was

confused by the speed at which the test was given. He ceased to wear the lens because he was not willing to wear it all the time. A mild protanomal found the lens too dim for safe driving at night and too dim for efficiency at work with indoor lighting. - Ingeborg Schmidt.

PREPRINT OF SUMMARY OF PAPER WAITING PUBLICATION

The colour receptors studied by increment threshold measurements during chromatic adaptation in the Goldmann perimeter, by Egill HANSEN (to appear in Acta ophthalmologica).

With a method combining static colour perimetry with the two-colour technique of Stiles measurements of spectral sensitivity during chromatic adaptation were performed. The method is flexible and is used for central as well as for peripheral registration. Characteristic sensitivity curves and static perimetry curves of normally sighted persons were demonstrated showing that each type of cones can be clearly separated and identified. With smaller sized objects the foveal blue blindness was confirmed whilst in the parafoveal region the response of the blue receptor was good.

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

51. Papers of Prof. Dr. W. JAEGER (Universitäts-Augenklinik, Bergheimerstrasse 20, 6900 Heidelberg, D.B.R.).

JAEGER W. - Systematische Untersuchungen über "inkomplette" angeborene totale Farbenblindheit (Eine "Zwischenform" zwischen angeborener totaler Farbenblindheit und Protanopie), v. Graefes Arch. Ophthal. 150, 509, 1950.

JAEGER W. - Über ungewöhnliche Manifestationsformen angeborener Störungen des Farbensinnes, Ber. dtsch. ophthal. Ges. 1950, p. 61.

JAEGER W. - Über das Verhalten der Protanopen und Deuteranopen am kurzwelligen Ende des Spektrums, Ber. dtsch. ophthal. Ges. 1950, p. 350.

JAEGER W. - Gibt es Kombinationsformen der verschiedenen Typen angeborener Farbsinnstörung? (Protanopie, Deuteranomalie und Tritanomalie in einer Familie bei zwei Fällen von Nicht-Allelomorph-Compounds), v. Graefes Arch. Ophthal. 151, 299, 1951.

JAEGER W. - Angeborene totale Farbenblindheit mit Resten von Farbempfindung, Klin. Mbl. Augenheilk. 118, 282, 1951.

JAEGER W. & NOVER A. - Störungen des Lichtsinns und Farbsinns bei Chorioretinitis centralis erosa, v. Graefes Arch. Ophthal. 152, 111, 1951.

JAEGER W. - Beitrag zur Frage der Genlokalisation der Farbensinnstörungen, v. Graefes Arch. Ophthal. 152, 385, 1952.

JAEGER W. & KROKER A. - Über das Verhalten der Protanopen und Deuteranopen bei grossen Reizflächen, Klin. Mbl. Augenheilk. 121, 445, 1952.

JAEGER W. - Typen der inkompletten Achromatopsie, Ber. dtsch. ophthal. Ges. 1953, p. 44.

JAEGER W. - Dominant vererbte Opticusatrophie (Unter besonderer Berücksichtigung der dabei vorhandenen Farbensinnstörung), v. Graefes Arch. Ophthal. 155, 457, 1954.

JAEGER W. - Differentialdiagnose der hereditären Opticusatrophie des Kindesalters, Wiener Med. Wochenschrift 105, 426, 1955.

R JAEGER W. - Tritoformen angeborener und erworbener Farbensinnstörungen, Die Farbe 4, 197, 1955/56.

R JAEGER W. - Defective colour-vision caused by eye-diseases, Trans. Ophthal. Soc. U.K. 76, 477, 1956.

R JAEGER W. & SCHLÄFER R. - Demonstration eines Projektionsanomaloskopes, Ber. dtsch. ophthal. Ges. 1956, p. 288.

JAEGER W., FRANCESCHETTI A., KLEIN D., OHRT V. & RÜCKLI H.- Etude patho-physiologique et génétique de la grande famille d'achromates de l'île de Fur (Danemark), XVII. Concilium Ophthalmologicum 1958, Belgica.

R JAEGER W., LUX P., GRÜTZNER P. & K.-H. JESSEN. - Subjektive und objektive spektrale Helligkeitsverteilung bei angeborenen und erworbenen Farbsinnstörungen. In : "Neurophysiologie und Psychophysik des visuellen Systems" Symposium Freiburg i. Br., 1960.

R JAEGER W., P. GRÜTZNER & OSER A. - Wie erklärt sich der Unterschied der Einstellungen von Protanomalen und Deuteranomalen am Anomaloskop? v. Graefes Arch. Ophthal. 164, 63-71, 1961.

R JAEGER W. & GRÜTZNER P. - Der Funktionsverfall bei progressiver tapeto-chorioidaler Degeneration (Chorioideremie), Ophthalmologica 143, 305-311, 1962.

JAEGER W. - Erworbene Farbsinnstörungen, Augenärtzlicher Fortbildungskurs 1962, Österreich. Ophthal. Gesellschaft, Wien.

JAEGER W. & GRÜTZNER P. - Erworbene Farbsinnstörungen In "Entwicklung und Fortschritt in der Augenheilkunde" Fortbildungskurs für Augenärzte, Hamburg 1962.

JAEGER W. & GRÜTZNER P. - Anleitung zur Untersuchung des Farbensinns. In "Entwicklung und Fortschrifft in der Augenheilkunde" Fortbildungskurs für Augenärzte, Hamburg 1962.

R JAEGER W. - Behinderung durch Deuteranopie im Arztberuf? In "Medizinische Klinik", Fragen und Zuschriften 59, Nr. 5, p. 198, 1964.

R JAEGER W. & GRÜTZNER P. - Le alterazioni del senso cromatico nelle degenerazioni famigliari e nelle atrofie ottiche ereditarie , Boll. Oculist. 45, 784-810, 1966/1967

R JAEGER W. - Hereditary optic atrophies in childhood, J. Génét. hum. 15, 312-320, 1967.

R JAEGER W. - Studien Goethes an "Personen die gewisse Farben nicht unterscheiden können", Doc. ophthal. 26, 264-272, 1969.

JAEGER W. - Die Vererbung der angeborenen Störungen des Farbensinnes, Wiss. Zeitschr. Univ. Halle, 1971.

R JAEGER W., FRÜH D. & LAUER H.J. - Types of acquired colour deficiencies caused by autosomal-dominant infantile optic atrophy, Mod. Probl. Ophthal. 11, 145-147, 1972.

R JAEGER W. - Ist der von F. Lenz beschriebene Typus der Farbensinnstörung wirklich eine neue Variante des Farbensinnes? Humangenetik 15, 75-80, 1972.

JAEGER W. - Genetics of congenital colour deficiencies. In : Handbook of Sensory Physiology VII/4, Visual Psychophysics.

JAEGER W. - Vererbung von Augenleiden und Anomalien des Auges. In : Axenfeld, Lehrbuch der Augenheilkunde. Hrsg. von H. Pau 1972 (in press).

JAEGER W. - Heredodegenerative Erkrankungen des Opticus, Ber. dtsch. Ophthal. Ges., 1972 (in press).

THIRD SYMPOSIUM OF THE INTERNATIONAL RESEARCH GROUP ON COLOUR VISION DEFICIENCIES

AMSTERDAM (THE NETHERLANDS), 25th - 27th JUNE 1975

"RESEARCH IN COLOUR VISION DEFICIENCY"

PRELIMINARY INSCRIPTION FORM

(to be detached from one the 1974 issues of Daltoniana and to be returned before 31st December 1974 to Dr. G. VERRIEST, Dienst Oogheelkunde, Akademisch Ziekenhuis, De Pintelaan 135, B-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 1s April 1975 two copies of a summary of at most 200 words to Prof. Dr. R.A. CRONE, Oogheelkundige Kliniek, Academisch Ziekenhuis, Eerste 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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AO H-R-R ACTION

☐ I the undersigned declare that the AO H-R-R plates are of great importance and an irreplacable means of assessing congenital and acquired colour vision deficiencies. I consider it a necessity that they should be again available commercially.

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