

# DALTONIANA

## NEWSLETTER

OF THE INTERNATIONAL RESEARCH GROUP ON COLOUR VISION DEFICIENCIES

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+ THIS ISSUE CONTAINS 1) THE INSCRIPTION FORM  
+ FOR THE DRESDEN REGIONAL SYMPOSIUM  
+ ON SEPT. 25-28, 1986  
+ 2) THE IRGCVD STANDARDIZATION COMMITTEE'S  
+ PRACTICAL GUIDE  
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### LITERATURE SURVEY

Mesopic luminous-efficiency functions for various adapting levels, by H. YAGUCHI and M. IKEDA (Dept. Inform. Processing, Tokyo Inst. Technol. Graduate Sch., Magatsuta Midoriku, Yokohama 227, Japan), J. Opt. Soc. Am. A **1**, 120-123, 1987.

The luminous-efficiency functions for a centrally viewed 10° field were measured by heterochromatic brightness matching for various retinal illuminance levels of a reference field at various adapting levels. The subject was always presented with a 45° white adapting light except when the test field for brightness matching was substituted for the adapting field for 500 msec. In order to investigate the contributions of rods and cones to the brightness sensation, the luminous-efficiency curves obtained from two subjects were analyzed with the Ikeda-Shimozono formula. When the subject was presented with an adapting light above about 100 Td the luminous efficiency function became photopic at any luminance level of the test field; similarly when the test field was at 100 Td the luminous-efficiency function was photopic at any adapting level.  
- The Authors.

Temporal sensitivities related to color theory, by D. VARNER (Dept. Psychol. NI-25, Univ. Washington, Seattle, Wash. 98195, U.S.A.), D. JAMESON and L.M. HURVICH (Dept. Psychol. Univ. Pennsylvania, 3815 Walnut Street, Philadelphia, Pennsylvania 19104, U.S.A.), J. Opt. Soc. Am. A 1, 474-481, 1984

Sensitivities of color-normal observers to temporal variations in stimulus luminance and chromaticity were measured for sine-wave stimuli between 1.5 and 20 Hz. Clear differences were found in observers' sensitivities to iso-chromatic luminance variations and to isoluminous chromaticity variations for wavelength pairs selected to test temporal discriminability along the red-green and yellow-blue dimensions, respectively. Despite interobserver differences in individual red-green functions, a given observer's sensitivity could be described by a single curve shape specific to that observer. Overall sensitivity for yellow-blue was less than that for red-green for all observers. Differences in curve shape between red-green and yellow-blue functions are found for individual observers, but group averages reveal that the differences are not systematic. Red-green temporal sensitivity is largely unaffected by adapting backgrounds in red-green equilibrium but is attenuated at low frequencies by nonequilibrium backgrounds of the same luminance. Isochromatic luminance sensitivity is largely independent of our adapting backgrounds, but heterochromatic luminance modulation functions undergo expected changes in form. - The Authors.

The effects of successive chromatic contrast on spectral hue, by B.R. WOOTEN (Brown University, Providence, R.I., U.S.A.). In L. Spillman and B. Wooten (Eds), Sensory Experience, Adaptation and Perception, Erlbaum Press, New York, 1984.

The effects of unique blue, green, and yellow pre-exposure fields on spectral hue have been determined. The observed changes in hue cannot be easily summarized. They are not completely consistent with a complementary-shift rule. Nor are all shifts in the direction of the adapting wavelength. Neither the von Kries coefficient law nor the Hering opponent-colors model accounts for all of the data. The two-process model of Hurvich and Jameson seems consistent with all of the effects of successive chromatic contrast on spectral hue. - The Authors.

Heterochromatic brightness match variability and transient adaptation, by L.R. RONCHI and R. MEUCCI (Istituto Nazionale di Ottica, 6 Largo E. Fermi, 50125 Florence, Italy) Optica Acta 31, 1061-1068, 1984.

The discrepancy between the relative brightness and the relative luminance of two lights, one much more highly saturated than the other, is found to decrease markedly over a period of 2-3 min of steady fixation. This finding suggests temporal differences in the adaptive characteristics of chromatic and achromatic visual channels. When the eye has become adapted to the test field, the brightness-luminance discrepancy can be relieved to some extent by introducing modest perturbations in the luminance of the relatively unsaturated light. Failure to

control the temporal variable could be a major source of the differences, both from subject to subject and within the same subject, often found in heterochromatic brightness matching. - The Authors.

Peripheral color vision : An annotated bibliography, by L. BARCA and F. PASSANI (I. Cattedra, Clinica Oculistica dell'Università di Firenze, Italia), Atti Fond. G. Ronchi 39, 79-118, 1984.

The research on extrafoveal color vision is reviewed. It represents a baseline for clinical color perimetry, the usefulness of which has been debated since long, and to-day seems confirmed by consistent evidence. - The Authors.

Tafeln zur Prüfung des Farbensinnes (Plates for testing colour vision), by K. VELHAGEN and D. BROSCHMANN, 27th ed. VEB Georg Thieme, Leipzig, hard cover, DM 41.

This newest version of Velhagen's colour vision test contains 24 plates for diagnosing protan, deutan and tritan defects. The principles used are not only pseudoisochromatism, but also pseudoaniso-chromatism, contrast augmentation, colour choice and "Florkontrast". In comparison with the 22nd edition (1966) there are 6 new plates while 10 plates disappeared. By such gradual changes there are now practically no plates more from the old Stilling test which was published by Georg Thieme and which was difficult to read in western countries because of the odd numerals. The "Florkontrast"-test was absent in the 21st edition and has thus been reintroduced. - Guy Verriest.

A comparative analysis of four different editions of the Ishihara test for color deficiencies, by J. PERALES (Dep. Opt. Ciencias, Univ. Granada, Spain), Die Farbe 31, 48-60, 1983/84.

Four different editions of the Ishihara test are analyzed in this work with the aim of evaluating possible differences in their capacity in detecting and classifying color vision anomalies. Observers with normal and defective color vision were used throughout this study. Efficiency indexes have been defined for evaluating detection and diagnosis by the test plates, significant differences being found in the results obtained with the different editions. Advantages of the 1973 edition over the other ones has also been ascertained. - The Authors.

Papillo-macular fiber wasting and color vision impairment in early primary open-angle glaucoma, by R. SEKI, K. IWATA and H. ABE (Dept. Ophthalmol., Niigata Univ.), Acta Soc. Ophthalmol. Jpn. 87, 51-58, 1983.

In a previous report it was confirmed that the earliest objective evidence of primary open-angle glaucoma (POAG) was slit-like gaps or thinning of the retinal nerve fiber layer (NFL) in the Bjerrum area.

In 13 eyes of early glaucomatous patients, the NFL wasting was found not only among the Bjerrum area but also the papillo-macular bundle. No abnormalities could be found in these cases by the Goldmann perimeter. The Friedmann Mark-II showed 0.2 - 0.4 log sensitivity reduction corresponding to the NFL defect. The total 100 Hue error of all eyes ranged within the normal score of age-matched controls. However, the patient's error scores in the blue-green or the blue-yellow region were relatively greater than normally. Therefore, further study is necessary to prove the significance of reduction in the blue-green or blue-yellow discrimination of early glaucomatous eyes with normal scores. - Yasuo Ohta.

Detection of Uhthoff's symptom in disseminated sclerosis by the Farnsworth-Munsell 100 hue test and the Octopus perimetry, by E. ZRENNER (Max Planck Inst. Physiol. Clin., Bad Nauheim, FRG), Dev. Ophthalmol., 9, 182-187, 1984.

An optic neuropathy causing visual impairment can often be revealed only after physical exercise (Uhthoff, 1889). It is demonstrated that <sup>a</sup>Color arrangement test, and especially the Farnsworth-Munsell 100-hue test, provide a simple and sensitive means to detect Uhthoff's symptom. - Guy Verriest.

Some remarks on color discrimination in porphyrias cutanea tarda, by A. SERRA, M. SIOTTO PINTOR and N. ASTE (Catt. Ott. Fisiopatol. e Ist. Clin. Dermatol. Università di Cagliari, Italy), Atti Fond. G. Ronchi 39, 263-267, 1984.

The results of the (monocular) colour vision tests seem abnormal, but the 100 hue results are in fact normal when judged according the 1982 Verriest criteria. - Guy Verriest.

A comparative dose-effect study with cardiac glycosides assessing cardiac and extracardiac responses in normal subjects, by G. ALKEN and G.G. BELZ (Pharmakologie, Klinikum J.W. Goethe-Univ. Frankfurt/Main, B.R.D.), J. Cardiovascular Pharmacology 6, 634-640, 1984.

We tested the hypothesis that differences exist in the pharmacodynamic pattern of different cardiac glycosides. We conducted a randomized, placebo-controlled study in normal volunteers and evaluated the effects of weekly increased oral dosing of digoxin, meproscillarin and placebo. Corrected electromechanical systole (QS<sub>2c</sub>) was used to measure inotropy and the PQ interval to test dromotropy. Red-green discrimination and critical flicker fusion (CFF) assessed visual functions. Subjective complaints were collected. Red-green discrimination was better under meproscillarin and CFF was depressed by digoxin. The results indicate that pharmacodynamic differences exist between cardiac glycosides. - The Authors.

The entrance of color vision defectives to Kagoshima University, by Y. MAEDA, M. TAKIGAWA and S. IWAGUMA (Health Service Center, Kagoshima Univ.) and K. SHINZATO (Kagoshima Prefecture Mental Hosp.), Folia Ophthalmol. Jpn. 34, 2611-2613, 1983.

Several faculties and departments in Kagoshima University have restrictions on the entrance of color vision defectives. The entrance to these faculties and departments of students with

color vision defects was investigated. From 1977 to 1982 the number of color vision defectives who entered these faculties or departments was 84 (1.9% of the total). Thirty one entered these faculties or departments without any checks of color blindness at the time of the entrance examinations because their teachers in senior high school had not mentioned their color blindness in their confidential reports. Six of the 31 who entered without any checks of color blindness did so contrary to the entrance regulations of the respective faculties and departments. It is discussed how to check up on color vision defectives at the time of the entrance examinations. - Yasuo Ohta.

### SIGNAL SYSTEMS

#### IN THE NORMAL AND DEGENERATING RETINA

May 2-3, 1986, Lund, Sweden

The main topic of the conference is given in the title. However presentations will be given also on retinal transplantation. A number of prominent scientists intend to participate and present their most recent results : A. Aguayo (Montreal), G. Aguirre (Philadelphia), J.G. Chader (Bethesda), W. Ernst (London), P. Gouras (New York), J. Hollyfield (Houston), R.D. Lund (Pittsburgh), J. Marshall (London), D. Masland (Boston), G. Niemeyer (Zurich), N. Osborne (Oxford), T. Reuter (Helsinki) and W. Stell (Calgary and Paris). The proceedings of the symposium will be published by Elsevier in the Fernström Symposium Series. The participation fee will be SEK 1600 : - (currently about US\$200) which includes full board and lodging for two nights.

Deadline for final applications : March 1st, 1986.

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### COLOR IN COMPUTER GENERATED DISPLAYS

June 19-20, 1986, Toronto, Canada

The aim of this interim AIC meeting is to bring the color science, technology and graphic communities together to discuss the state of the art in problems related to color and computer generated displays : human factors of color, color transfer between media, benefits and drawbacks of using color, new color display technologies, calibration, graphic design, application of color graphics in vision research.

All papers accepted for the conference will be published in a special issue of Color Research and Application that will be available at the conference.

This conference is sponsored by : the Canadian Society for Color; York University; and the Working Group on Design Education, Ryerson Polytechnical Institute. Information : Dr. Peter K. Kaiser, Department of Psychology, York University, North York, Ontario M3J 1P3, Canada.

