DALTONIANA

NEWSLETTER
OF THE INTERNATIONAL RESEARCH GROUP ON COLOUR VISION DEFICIENCIES

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A HAPPY NEW YEAR TO ALL!

IRGCVD News

Membership Renewal

The call for membership subscriptions was considerably delayed this year (1994!) and, to conserve IRGCVD funds, it was included in the last issue of *Daltoniana* instead of being mailed separately. Even so, the number of renewals already received is very pleasing. But, since it is vital to keep the IRGCVD funds in a healthy state, members who have not yet done so are urged to return their renewal forms. A membership renewal form will be found on the last page of this issue of *Daltoniana*.

Biennial IRGCVD Symposium in Pau, France, 27-30 July, 1995

The organisation of the Pau Symposium is proceeding well. This issue contains a letter from local organiser Dr Jean Leid, a preliminary programme, registration forms and a call for contributions. Kindly note and respect the various datelines which apply!

Literature Survey

The foveal color-match-area effect. C J PICOTTE, C F STROMEYER III and R T ESKEY JR. Vision Res., 1994, 34 (12): 1605-1608.

Rayleigh matches for foveal, temporally alternating fields showed only a small increase in the log green/red matching ratio (0.03 - average of 10 observers) as the field was decreased from 116 to 19 min arc. This is consistent with only a small, 10%, change in photopigment density or lengthening of the cone outer segments in the central fovea. The change in matches with field size is considerably less than reported in several previous studies - The Authors.

Systematic measurement of human neonatal color vision. R J ADAMS, M L COURAGE and M E MERCER. Vision Res., 1994, 34 (13): 1691-1701.

We used a new time-efficient method to evaluate chromatic-achromatic discrimination in newborn (n = 36) and 1-month-old (n = 34) human infants. Results showed that 74% of newborns discriminated a 10.5 x 17.5 deg broadband red patch from all relative luminances of an achromatic background, but only 14% of newborns did so with a blue, 36% with a green, and 25% with a yellow patch. Most infants who "failed" did so at relative luminances very close to the respective photopic luminance match. At 1 month, performance improved somewhat although infants still show clear evidence of discriminating only the red patch. These results, the first to be obtained from individual newborns with a method incorporating a systematic variation of luminance, imply that early color vision is very limited. Possible photoreceptoral and neural bases for these immaturities are discussed - The Authors.

The influence of contrast adaptation on color appearance. M A WEBSTER and J D MOLLON. Vision Res., 1994, 34 (15): 1993-2020.

Most models of color vision assume that signals from the three classes of cone receptor are recoded into only three independent post-receptoral channels: one that encodes luminance and two that encode color. Stimuli that are equated for the effects on two of the channels should be discriminable only to the remaining channel, and are thus assumed to isolate the responses of single channels. We used an asymmetric matching task to examine whether such models can account for changes in color appearance following adaptation to contrast—to temporal variations in luminance and chromaticity around a fixed mean luminance and chromaticity. The experiments extend to suprathreshold color appearance the threshold adaptation paradigm of Krauskopf, Williams and Heeley [(1982) Vision Research, 32: 1123-1131]. Adaptation changes the perceived color of chromatic test stimuli both by reducing their saturation (contrast) and by changing their hue (direction within the equiluminant plane). The saturation losses are largest for test stimuli that lie along the chromatic axis defining the adapting modulation, while the hue changes are rotations away from the adapting direction and toward an orthogonal direction within the S and L - M plane. Similar selective changes in both perceived color and perceived lightness occur following adaptation to stimuli that covary in luminance and chromaticity. The selectivity of the after-effects for multiple directions within color-luminance space is inconsistent with sensitivity changes in only three independent channels. These after-effects suggest instead that color appearance depends on channels that can be selectively tuned to any color-luminance direction, and that there are no directions that invariably isolate responses in only a single channel. We use the perceived color changes to examine the spectral sensitivities of the chromatic channels and to estimate the distribution of channels. We also examine how adaptation alters the contrast-response function, how it affects reaction times for luminance and chromatic contrast, the extent to which the after-effects exhibit interocular transfer, and the way in which the perceived color changes differ from those induced by conventional light adaptation - The Authors.

Surface color naming in dichromats. E D MONTAG. Vision Res., 1994, 34 (16): 2137-2151.

In previous experiments, Montag and Boynton [(1987) Vision Research, 27, 2153-2162] found that many dichromats can categorize colors using color naming in fair agreement with color-normal subjects. The contribution of rods to color vision was suspected as underlying this ability. Here we follow up on these experiments by having dichromats name colors under various conditions. When the stimuli are limited to a brief presentation time (60 msec) the dichromats' categorisation in the three dimensions of the OSA color space is impaired. Using high light levels so that the rods are saturated does not impair performance. The dichromats named colors during the period of the cone plateau following a rod bleach. Contrary to Montag and Boynton (1987) there was no deficit. These results suggest that an anomalous third cone pigment is responsible for the categorisation in three dimensions. It is concluded that the receptors containing the anomalous pigment require greater temporal and spatial summation in order to contribute to the dichromats' color categorisation - The Author.

Absorbance vs transmission spectra: species and age. R A WEALE. Vision Res., 1994, 34 (19): 2503-2504.

Absorbance vs transmission spectra: species and age - a response. R H DOUGLAS and A THORPE. Vision Res., 1994, 34 (19): 2503-2504.

Psychophysical evidence of differential latencies of colour inputs to motion perception. S RASMJOU and K-P HOFFMAN. Vision Res., 1994, 34 (19): 2519-2525.

A novel psychophysical observation allows the determination of the relative latencies with which long, middle, and short cone signals provide input to motion perception. It is known that when two spatially displaced isoluminant stimuli in spectrally different colours are simultaneously presented, any temporal lag between the perception of the two will, due to the spatial displacement, cause the perception of apparent motion. The illusion reported here occurs through the inadvertent production of spatial displacement; peripheral observation of the boundary between two differently-coloured neighbouring areas which alternately interchange colours leads, due to transverse chromatic aberration caused by the eye's optics, to the formation of a double boundary on the retina, the serial perceptions of which create the sensation of motion. By offsetting the relative temporal phases of any two colours we have determined the relative magnitude of the latencies with which they provide input to motion perception. In all subjects motion of blue is perceived after that of red, and green is perceived after that of blue. The origins of these latencies are unclear - The Authors.

What direction of motion do we see if luminance but not colour contrast is reversed during displacement? Psychophysical evidence for a signed-colour input to motion detection. M J MORGAN and G INGLE. Vision Res., 1994, 34 (19): 2527-2535.

To investigate the effects of colour upon motion detection, directional discrimination by human observers was determined using two-frame kinematograms in which the two classes of element composing the pattern could differ either in luminance alone (achromatic condition), or in both colour and luminance (chromatic condition). The elements in the second frame could either have the same colour/luminance as corresponding elements in the first frame, or they could be changed (swapped) in colour and/or luminance. The angular size of the elements was varied by changing the viewing distance. Changing colour between frames disrupted motion detection when the angular size of elements was large (0.9 deg) but not when they were small (0.225 deg), replicating a previous result. Detection of motion with chromatic patterns was generally superior to that with achromatic patterns, particularly with large element size. Luminance swap combined with colour swap produced the "reverse phi" phenomenon: however, when luminance was swapped with colour staying the same between frames, forward motion was seen, suggesting that forward motion based on colour dominated over reversed motion based on luminance. We conclude that signed chromatic information has an input to motion detection at low but less so at high spatial frequencies. Information across colour and luminance is combined in a final common pathway for motion detection, resulting either in enhancement if they are in agreement, or in disruption if they conflict - The Authors.

Partial additivity of rod signals with M- and L-cone signals in increment detection. S L BUCK and R KNIGHT. Vision Res., 1994, 34 (19): 2537-2545.

Test additivity experiments revealed the combination rules for increment detection by rods and either M- or L-cone-dominated mechanisms isolated by means of chromatic adaptation (Stiles' π 4 and π5, respectively). Increment thresholds were measured for single test wavelengths detected by each mechanism. Pairs of test wavelengths were then superimposed, and increment thresholds were measured for simultaneous detection by both rod and cone mechanisms. The observed degree of additivity was corrected (reduced) to compensate for the partial detection by each mechanism of both test wavelengths in the combined stimuli. We find that subthreshold rod signals are partially additive with subthreshold signals from both M- and L-cones. The degree of additivity is high and similar for both M- and L-cones: less than the ideal prediction of linear addition, but greater than that predicted by either probability summation of independent mechanisms or orthogonal vector addition - The Authors.

Relational colour constancy from invariant cone-excitation ratios. D H FOSTER and S M C NASCIMENTO. Proc. Roy. Soc. Lond. B., 1994, 257: 115-121.

Quantitative measurements of perceptual colour constancy show that human observers have a limited and variable ability to match coloured surfaces in scenes illuminated by different light sources. Observers can, however, make fast and reliable discriminations between changes in illuminant and changes in the reflecting properties of scenes, a discriminative ability that might be based on a visual coding of spatial colour relations. This coding could be provided by the ratios of cone-photoreceptor excitations produced by light from different surfaces: for a large class of pigmented surfaces and for surfaces with random spectral reflectances, these ratios are statistically almost invariant under changes in illumination by light from the sun and sky or from a planckian radiator. Cone-excitation ratios offer a possible, although not necessarily unique, basis for perceptual colour constancy in so far as it concerns colour relations - the authors.

The Rayleigh equation as a testing tool. An annotated bibliography. S VILLANI. Atti Fond G Ronchi, 1994, 4: 779-813.

One hundred and ten years ago, Lord Rayleigh proposed a colorimetric match, red + green = yellow, as a test for color vision. In his "matching box" a mixture of variable proportions of monochromatic radiations emitted by Lithium and by Thallium was matched to the yellow of Sodium. The selection of these stimuli was so good (apart from a minor modification of green), in spite that the spectral sensitivities of cones were not known at that time, that those who attempted to depart from it, in subsequent years, failed. The apparatus designed by Nagel in 1907 initiated a wide research to define normals, anomalous (and various subgroups) and dichromats. The "anomaloscope" is a powerful tool. We hope that the present annotated bibliography will be of interest, not least because of the "historical adventure" of an instrument, faced with the progress of knowledge in visual science, during the past decades - the author. (Minor editing corrections).

Il criterio percettivo nella riproduzione dei grigi. (The perceptive criterion for the reproduction of greys). L R RONCHI. Atti Fond G Ronchi, 1994, 5: 903-915.

Comparative analysis of the performance of several color-matching functions proposed for small-size fields. M MELGOSA, J A MARTINEZ, M M PÉREZ and E HITA. Atti Fond G Ronchi, 1994, 5: 917-931.

In this work we shall analyse the performance of four sets of color-matching functions (cmf), proposed for small-size fields. Among these, we include the CIE 1931 Standard Observer and the cmf published by Trezona, based on the pilot research of Stiles-Burch (J. Opt. Soc. Am A, 4, 769-782, 1987). The use of each of these cmf is analysed for its influence on: a) chromaticity coordinates obtained for two groups of metameric reflectances using the CIE 1931 Standard Observer and D65 illuminant; b) chromatic-discrimination thresholds obtained in 12 centres for two observers; and c) large color differences far beyond the threshold. The discrepancies between the CIE 1931 Standard Observer and the results of Stiles-Burch were not significant in the analysis carried for b) or c), but were stronger in a). We think that it might be useful to obtain a Standard Deviate Observer based on experimental results for small fields, such as those of the pilot work of Stiles-Burch - the authors.

Considerazioni sull'uso del colore nei video terminali. (Considerations on the use of colour in video terminals). S VILLANI. Atti Fond G Ronchi, 1994, 5: 933-941.

The widespread use of VDT in various workplaces has allowed a population study, on a wide sample of clerks and operators. Much has been done in matter of optimization of the presentation of information on the display. However, some problems are still open and deserve further consideration. One of these is the proper use of color. A review of the underlying literature is presented in the present report. It is hoped that it will be of help for a better understanding of basic problems - the authors.

Some remarks on heterochromatic brightness matches. L R RONCHI. Atti Fond G Ronchi, 1994, 5: 943-949.

Two test-fields of different color may be matched in brightness. The heterochromatic simultaneous brightness match is known to be "difficult". Among the factors responsible for it, one finds the transient adaptation. Some simple experiments are described, which indicate how long is the time needed to reach the steady state or equilibrium condition - the author.

La psicofisica nella scienza della visione. (Psychophysics in visual science). A M WIRTH. Atti Fond G Ronchi, 1994, 5: 951-954. (An historical note on Weber, Fechner and Riccò).

A study of spectral electroretinogram of color vision defects due to macular diseases. N TIAN, D-Z WU and J LIANG. Eye Science, 1994, 10: 163-167.

Studies of spectral electroretinograms in central serous retinopathy (CSR) and hereditary macular degeneration (HMD) showed that the b-wave amplitudes of most wavelengths in CSR were significantly decreased as compared with normal controls, and those of HMD were obviously lower than the normal values. HMD patients with type-A color vision defects (CVD) had primarily a reduction of b-wave amplitudes in the full spectrum of 480-620 nm, and patients with type-I CVD a reduction of b-wave amplitudes for wavelengths 480-560 nm. These differences might reflect differences in damage to the medium-and long-wave length sensitive cones - the authors. (Minor editing corrections).

Statistical methods for binary outcomes. R C MILTON. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3573-3574.

A simple approximation for the correction of the increase of the type I error when fellow eyes are analyzed. S A GEIER. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3574-3575.

Is vertebrate phototransduction solved? New insights into the molecular mechanism of phototransduction. K PALCZEWSKI. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3577-3581. (A short review of recent developments).

Scotopic threshold response in complete and incomplete types of congenital stationary night blindness. Y MIYAKE, M HORIGUCHI, H TERASAKI and M KONDO. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3770-3775.

Purpose: *To study the function of the rod visual pathway in the complete and incomplete types of congenital stationary night blindness (CSNB), with special reference to the scotopic threshold response (STR) of electroretinograms (ERGs).* **Methods:** *Using full-field stimuli with light intensities ranging from near absolute threshold to bright, ERG intensity series from two patients with complete CSNB, four patients with incomplete CSNB, and four normal subjects were recorded.* **Results:** *Neither the rod b-wave nor the STR was recordable from the patients with complete CSNB. In the patients with incomplete CSNB, the STR was clearly recorded, although the absolute threshold was*

elevated in accordance with elevation of the psychophysical absolute threshold. The b-wave stimulus threshold was not elevated, and the b-wave amplitude near the threshold was normal. The peak time of the STR was delayed by approximately 80 msec, whereas that of the b-wave was normal. **Conclusions:** *These STR results indicate that the rod system abnormality in complete CSNB differs from that in incomplete CSNB. Furthermore, the greatly delayed peak time of STR in the patients with incomplete CSNB made the interaction between b-wave and STR different from that in normal subjects - the authors.*

Noncontact, two-dimensional measurement of retinal microcirculation using laser speckle phenomenon. Y TAMAKI, M ARAIE, E KAWAMOTO, S EGUCHI and H FUJII. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3825-3834.

Decreased rhodopsin regeneration in diabetic mouse eyes. S E OSTROY, S M FREDE, E F WAGNER, C G GAITATZES and E M JANLE. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3905-3909.

Purpose: *To evaluate the effect of diabetes on rhodopsin regeneration in the excised mouse eye.* **Methods:** *a superfused excised mouse eye preparation that exhibits rhodopsin regeneration after moderate bleaches and that is responsive to the composition of the perfusate was used. Diabetes was induced in albino mice 9BALB/c) with the diabetogenic agent streptozotocin. Absorption spectrophotometry of the excised eye was used to monitor rhodopsin concentrations.* **Results:** *Significant reductions in rhodopsin regeneration were observed in diabetic mice. Severely diabetic mice exhibited only 64% and 55% regeneration (at perfusate glucose levels of 5.1 mM and 10 mM, respectively), and moderately diabetic mice exhibited 74% and 73% regeneration, compared to the greater than 100% regeneration observed in nondiabetic mice. Glucose perfusate concentration has a major effect on rhodopsin regeneration. Lower concentrations of perfusate glucose (3 mM) reduced the amount of rhodopsin regeneration in both in both nondiabetic mice and diabetic mice. The diabetic mice seemed to tolerate higher concentrations of perfusate glucose (20 mM) better than the nondiabetic mice. Neither correction for osmolarity nor substitution with a nonglycolytic substrate increased the amount of rhodopsin regeneration in the diabetic mice.* **Conclusions:** *Diabetes reduced the amount of rhodopsin regeneration that followed moderate bleaches in excised mouse eyes. The data suggest that some process or processes associated with rhodopsin regeneration have been affected in the diabetic - the authors.*

Selective development of one cone photoreceptor type in retinal organ culture. A SÖDERPALM, A SZÉL, A R CAFFÉ and T VAN VEEN. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3910-3921.

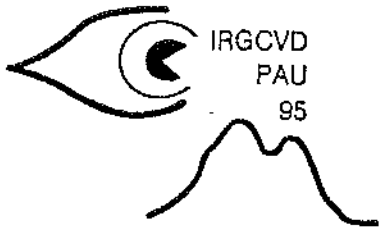
Mechanisms of retinal and choroidal neovascularization. P A D'AMORE. Invest. Ophthalmol. Vis. Sci., 1994, 35: 3974-3979. (A short review of developments).

Rhodopsin accumulation at abnormal sites in retinas of mice with a human P23H rhodopsin transgene. D J ROOF, M ADAMIAN and A HAYES. Invest. Ophthalmol. Vis. Sci., 1994, 35: 4049-4062.

Rescue of photoreceptors from the damaging effects of constant light by Midkine, a retinoic acid-responsive gene product. K UNOKI, N OHBA, H ARIMURA, H MURAMATSU and T MURAMATSU. Invest. Ophthalmol. Vis. Sci., 1994, 35: 4063-4068.

Does color vision deficiency in the endoscopist influence the accuracy of endoscopic diagnosis? An anonymous study with dutch gastrointestinal endoscopists. J C KONINGSBERGER, D VAN NORREN, J C G VAN NIEL and W DEKKER. Endoscopy, 1994, 26: 549-553.

Colors play a major role in the endoscopic diagnosis of many gastrointestinal conditions. Gastrointestinal endoscopists in the Netherlands are predominantly male (>90%), and from population data it is to be expected that approximately 8% will have a color vision deficiency. The present study was designed to assess the prevalence of color vision deficiencies amongst Dutch gastrointestinal endoscopists and to determine whether color vision deficiency affects an endoscopist's diagnostic skill. One hundred and thirty-nine gastroenterologists and physicians of internal medicine took an F_2 color vision test and assessed nine videofragments of endoscopies. color vision deficiencies were detected in 8% of Dutch gastrointestinal endoscopists. In one out of the nine video excerpts of endoscopies, a statistically significant difference was detected between test subjects with and without a color vision deficiency. However, this video excerpt showed a green pea, which could not be mistaken for a polyp at polypectomy. The study therefore does not show any effect of color vision deficiencies on endoscopic skills, nor does it show any deviant prevalence of color vision deficiencies amongst Dutch gastrointestinal endoscopists - the authors.



Dear Colleagues

Last year at TÜBINGEN, you requested that the XIIIth symposium of the IRGCVD be held in PAU.

I have strived with the help of the organizing committee to prepare the best possible arrangements for welcoming you from Thursday through Sunday, July 27-30.

The symposium will take place in the center of PAU, in the superbly designed and very comfortable THEATRE SAINT LOUIS. I have obtained special rates for you in the nearby hotels which are all within walking distance.

PAU is accessible by plane (4 flights daily from PARIS) and by high speed train (TGV). You will be able to obtain fare reductions associated with attendance at the congress on AIR INTER flights (around 40% on flights within France, for example PARIS-PAU, during white and blue periods); it will be necessary to present your travel agent with a voucher that you can request on your registration form.

To preserve the uniform and always convivial nature of our meetings, the registration fee will cover all charges to participants, namely, the scientific organization, all meals and the social program. Transportation to the meeting and hotel expenses will be left to you, as has been customary.

We have been fortunate in attracting first class speakers to the three special topics of the symposium. The session devoted to our first special topic (Variations of colour vision: genotypes and phenotypes) will include four invited papers with a tutorial component as well as a round table discussion.

This is an official call for contributions (oral or poster). It is requested that you send your abstracts to Professor Jack MORELAND and to me as soon as possible. The official language of the meeting will be English. Posters will be given a special location and the poster communications be treated with consideration equal to the oral presentations.

The social program will be, I hope, worthy of the interest that you bring regularly to our meetings. It includes:

- Thursday evening, a reception at the town hall, followed by an informal soirée surprise.
- Friday evening, a visit to the castle of PAU, then a reception in the parliament of NAVARRE.
- Saturday afternoon, an excursion to discover BEARN (in air-conditioned bus), which will finish with a rustic dinner in typical Béarnaise style, in the environs of the sumptuous gardens of the castle of LAAS, and prepared under the direction of the celebrated chef DARROZE.
- Sunday evening, closing dinner in the magnificent abbey of ESCALADIEU.

Accompanying partners will be able to attend all of the events of the social program, except for lunch with the meeting attendees. If their number are sufficient, I will organize on Thursday afternoon a guided tour of "PAU VILLE ANGLAISE" (PAU, English town) and on Friday an excursion "JOURNEE PYRENEENNE" (an exceptional day in the Pyrénées mountains with several visits and a trip in the highest train in Europe: 2000 meters) (guided tours in English).

Only for participants from formerly Eastern Bloc countries and for students, I can offer reduced rate lodging (48 FF per night). Please contact me personally.

I hope that you will do me the honor of coming in numbers to PAU in Béarn, to present the fruits of your most recent research in a pleasant ambiance.

Very cordially

Dr Jean LEID
President of the Organizing Committee

To register for the symposium, send form No. 1 with the appropriate fees to the city tourist bureau of PAU (office municipal du tourisme de PAU).

To submit a communication, register for the symposium (form No. 1) and return form No. 2 to Professor J D MORELAND and to Dr J LEID.

This is a call for contributions to the XIII IRGCVD Symposium which will take place from July 27-30, 1995 in Pau, FRANCE. A preliminary programme, registration forms and information on the format of abstracts follows. Below is a short timetable of critical dates associated with the meeting:

Jan. 30 - copies of Form 2 indicating Intent to attend or submit an abstract to the meeting should be returned to Prof. MORELAND and Dr. LEID. (These will greatly aid in the planning and organization of the meeting, as they will give us a projection of the attendance).

Mar. 15 - deadline for submission of abstracts - (Form 2)
deadline after which late registration rates apply
(return registration Form 1 direct to OFFICE MUNICIPAL DU TOURISME)

Jul. 27-30 - Meeting in Pau, FRANCE

Some cheaper accommodation is available for participants from former Eastern Bloc countries and for students. The supply is limited: first come - first served. Students should include a signed letter verifying their status from their supervisor/department on letterheaded stationery. Contact Dr. LEID directly concerning these possibilities.

PRELIMINARY PROGRAMME

THURSDAY 27 JULY 1995

AM	Registration Directoral Committee Meeting	PM	Scientific Sessions Reception "Hotel de Ville"

FRIDAY 28 JULY 1995

AM	Scientific Sessions	PM	Scientific Sessions Visit to the Castle of PAU Reception in the Parliament of NAVARRE

SATURDAY 29 JULY 1995

AM	Scientific Sessions	PM	Trip: Discovery of BEARN Dinner at the Castle of LAAS

SUNDAY 30 JULY 1995

AM	Scientific Sessions	PM	Scientific Sessions Gala Dinner at ESCALADIEU Abbey

ADDITIONAL ACCOMPANYING PARTNERS PROGRAMME
(only if the number of participants is sufficient)

THURSDAY	AM	PAU, English Town
FRIDAY	AM + PM	JOURNEE PYRENEENNE

PRINCIPAL TOPICS OF THE SYMPOSIUM

1 Variation of Colour Vision: Genotypes and Phenotypes.
2 Structure and Function in Colour Vision.
3 Colour Vision and Field Defects.

ORGANIZATION: Dr. Jean LEID, 4 Place Royale, 64000 PAU.
Tel: + 33 59275896 Fax: + 33 59276736

Co-organizer: Dr. Ken KNOBLAUCH (LYON)
Tel: 33 72 13 15 88 Fax: 33 72 13 15 99
email: ken.knoblauch@cismibm.univ-lyon1.fr

REGISTRATION FORM No. 1: SYMPOSIUM & ACCOMMODATION
BULLETIN D'INSCRIPTION No. 1: SYMPOSIUM & ENREGISTREMENT

To be returned to / A retourner a:
OFFICE MUNICIPAL DU TOURISME, Service Congres
IRGCVD PAU 95, Place Royale, 64000 PAU, FRANCE

Before 15 March 1995 with payment, Avant le 15 Mars 1995 accompagne de votre reglement

Please write in block letters/En caracteres d'imprimerie SVP

ACTIVE PARTICIPANT / CONGRESSISTE

NAME/NOM Prof/Dr/Mr/Ms..... FIRST NAME/PRENOM .....

MAILING ADDRESS/ADRESSE POSTALE.....

.....

.....

CITY/VILLEPOSTAL CODE.....

COUNTRY/PAYS.....PHONE/TELFAX.....

ACCOMPANYING PERSONS/ACCOMPAGNANTS

NAME/NOM..... FIRST NAME/PRENOM .....

NAME/NOM..... FIRST NAME/PRENOM .....

HOTEL ACCOMMODATION / RESERVATION HOTELIERE

RESERVATION DATESFROM/DU ..... EVENING/SOIR TO/AU..... MORNING/MATIN

= ..... NIGHTS/NUITS

Price (in French Francs) includes the room and breakfast. Les prix comprennent la chambre et le(s) petits dejeuners. Deposit /arrhes = 1 night + breakfast / 1 nuit + petit dejeuner

CATEGORY	SINGLE/No. 1 LIT	DOUBLE/No. 1 Gd LIT	TWIN/No. 2 LITS	DEPOSIT/No. ARRHES	TOTAL
***	350	400	400.....	350x.....	
				400x.....	
**	300	350	350.....	300x.....	
				350x.....	
*	150	220	220.....	150x.....	
				220x.....	
				SUB-TOTAL	

Deposits are necessary for room reservation and will be deducted from the hotel bill. Il est indispensable de verser les arrhes pour la reservation hoteliere. Elles seront deduites de la note d'hotel.
Registration fees include: congress kit, admission to scientific sessions, coffee breaks, 4 lunches, 4 dinners, all social events, excursion of Saturday 29, gala dinner.

	Before 15 March 1995 Avant le 15 Mars 1995	After 15 March 1995 Apres le 15 Mars 1995
Full participant	1800 FF x..... = ...	2200 FF x ..... = ...
Accompanying person	800 FF x..... = ...	980 FF x ..... = ...
+ Thursday 27 "PAU, English Town"		100 FF x ..... = ...
+ Friday 28 "JOURNEE PYRENEENNE"		450 FF x ..... = ...

(Note: Includes lunch and tickets for visits, teleferic and Artouste train).

The fees for these two trips will be refunded if there are too few participants.

SUB-TOTAL .....

GRAND-TOTAL .....

METHODS OF PAYMENT / MODALITES DE PAIEMENT

1. Bank transfer in FF (french francs)
   Make the transfer through your bank to "IRGCVD PAU 95", BANQUE COURTOIS, 44, Rue Louis Barthou, 64000 PAU, Account number 10268/02595/3903200200/28, and enclose a copy of the bank transfer with your completed registration and hotel reservation (form No. 1).
   The secretariat will send you a confirmation.

   Total amount = Registration Fees + Hotel Reservation + 150 FF (local Pau bank charge)

2. Eurocheque (in french francs only)
   Please make your cheque out to "IRGCVD PAU 95".
   Total amount = Registration fees + Hotel Reservation + 200 FF (local Pau bank charge)

   Other bank cheques are not acceptable (unless drawn in FF on a French bank).

   POUR LA FRANCE exclusivement, paiement possible par cheque bancaire a l'ordre de "IRGCVD PAU 95", incluant les droits d'inscription + la reservation hoteliere, sans frais.

3. Credit cards
   Only VISA, MASTERCARD or EUROCARD are acceptable. In this instance the local Pau bank charges are 20 FF for an active participant and 10 FF for each accompanying person.

Total amount = Registrations Fees + Hotel Reservation + (20 FF x .....) + (10 FF x .....)

For payment by Credit Card, complete **each item** in the following section

NAME .....

FIRST NAME .....

I authorize "IRGCVD PAU 95" to charge my credit card account ..... FF

☐ MASTERCARD ☐ VISA ☐ EUROCARD

CARD NUMBER ..... EXPIRY DATE.....

SIGNATURE ..... DATE .....

DISCOUNT FARES / FICHETS CONGRESSISTES
Vouchers are available that will allow you to obtain a discount of about 40% for travel within France, if you fly AIR INTER. To obtain these, please indicate the number of vouchers wanted below.

IMPORTANT: The validity of the vouchers (verified on your return flight) requires that your ticket be endorsed by the secretariat during the symposium.

AIR INTER (plane, french lines only) No. of vouchers .....

CANCELLATIONS / DESISTEMENTS
Written notification must be received by the secretariat no later than 25 May 1995. Refunds will be made as follows:

Before 25 May 1995: less 20% for administration charge. After 25 May 1995: no refunds.

All enquiries about the scientific programme should be addressed to Prof. MORELAND. Enquiries about other matters should be addressed to Dr. LEID.
The final programme will be sent to each participant.

Prof. Jack MORELAND
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Keele University
STAFFORDSHIRE ST5 5BG
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REGISTRATION FORM No. 2: CALL FOR CONTRIBUTIONS
BULLETIN D'INSCRIPTION No. 2: APPEL A COMMUNICATION

☐ I would like to attend the symposium. Je souhaite participer au symposium
☐ I would like to submit a contribution/s. Je souhaite soumettre une communication.

Return this form to Prof. MORELAND before 30 January 1995 and a copy to Dr. LEID.
J'adresse ce bulletin d'inscription au Pr. MORELAND avant le 30 Janvier 1995 et une copie au Dr. Jean LEID.

TOPICS OF THE SYMPOSIUM

1. Variation of Colour Vision: Genotypes and Phenotypes. Invited speakers: Samir DEEB, John MOLLON, Maureen NEITZ, Steven SHEVELL. Moderator, round table discussion: Vivianne SMITH.
2. Structure and Function in Colour Vision: Invited speaker: Barry LEE.
3. Colour Vision and Field Defects: Invited speaker: Hermann KRASTEL.
4. Free papers will be accepted (methods of examination of central and peripheral colour vision, congenital and acquired defects, practical aspects, etc ...)

The principal author must be a member of the IRGCVD and is asked

- to request no more than two verbal contributions. Poster presentations are, in principle, unlimited. Posters, which have the same status as papers, will be allocated session time in the programme.
- to send for each contribution, before 15 March 1995, an abstract (maximum 200 words: 2 copies to Professor MORELAND and 2 to Dr. LEID. The document should be written with a good quality printer or type writer, inside a square frame of 18 cm (7") x 18 cm (7"), must include title (in capital letters, bold type), authors (presenting author underlined), institution, city, country, followed by the abstract. All abstracts, will be reviewed and those accepted will be published in the Symposium Abstract booklet. Abstracts will reproduced photographically exactly as received and reduced x 1/2. Late or wrongly formatted abstracts may not be published and may not be included in the programme.
- to submit before the end of the symposium the manuscript/s (in good english) for publication in the proceedings.

THIS PAGE MAY BE PHOTOCOPIED FOR MULTIPLE CONTRIBUTIONS

AUTHOR/S.....
.....

THEME: SPECIAL TOPIC 1 2 3 or FREE (Please mark)

TITLE.....
.....

PREFERENCE ☐ NONE ☐ POSTER ☐ VERBAL ☐ Extended 15 min ☐ Regular 10 min ☐ Short 7 min

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NEW MEMBERS AND MEMBERSHIP RENEWALS: Please use the form on the next page.

INTERNATIONAL RESEARCH GROUP ON COLOUR VISION DEFICIENCIES

Membership Subscription: 1994/95

The subscription for 1994 is UK£40 (full members; payment of the 1994 and 1995 subscriptions will guarantee automatic entitlement to the 1995 Pau Symposium Proceedings. New members joining in 1995 should pay £80 to receive the Proceedings volume) or UK£10 (student and retired members). All members receive the IRGCVD newsletter *Daltoniana*.

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