COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

MINUTES

35TH ANNUAL MEETING OF THE CNC/CIE

The 35th annual meeting of the Canadian National Committee of the Commission Internationale de l'Eclairage (CNC/CIE) was held on November 22, 1990 in Room 449, Galbraith Building of the University of Toronto, 35 St.George Street, Toronto, Ontario.

1. Call-to-Order:

The meeting was called to order at 10:15 am by A.R. Robertson, President. Fourteen members and advisory members were in attendance (Appendix A). Regrets were received from S. Mahanti and G. Szeker.

The agenda was accepted as circulated prior to the meeting.

2. Minutes of the 34th Annual Meeting:

Moved by A. Ketvirtis, seconded by M.G. Bassett, that the minutes be accepted as circulated (mailing of 1990-April-05). Passed. The following matters arising were noted:

1. The nomination of 3 our CNC/CIE members for CIE awards was not yet completed.

2. The 1989 financial statement had not been received. Further discussion to be under the following item 5, Treasurer's Report.

3. The items concerning new Division members and advisory members, to be discussed under the following items 3 (President's report), 4 (Secretary's report), and 8 (Nominations and Appointments).

4. The bylaws had not yet been redrafted.

3. President's Report:

A.R. Robertson presented his President's report, enclosed as Appendix B.

Discussion followed, particularly concerning attendance at meetings and payment of travel expenses. B.W. Tansley raised the issue of designated proxies or alternates, and whether these could have their expenses paid if the original member was unable to attend. A.R. Robertson is to pursue this issue with the NRC External Relations Committee on Foreign Science and Technology, which has taken over from CISTA.

Moved by J. Roberge, seconded by P.K. Kaiser, that each member submit in writing a suggested alternate, preferably an advisory member from the member's same geographical area, for the next meeting; to be approved by the executive. Passed unanimously.

Moved by P.K. Kaiser, seconded by J. Roberge, that the President's report be accepted. Passed.

4. Secretary's Report:

A.A. Gaertner presented his Secretary's report, enclosed as Appendix C. Moved by B.W. Tansley, seconded by M.G. Bassett that this report be accepted. Passed. The new advisory members are to be discussed in Item 8 below. The following matters arising were discussed:

1. Mailing list: S. Mahanti should be consulted concerning the address of Mr. Paul Young. J. Roberge will verify the address and interest of Mr. M.M. Discutneau. The remaining names are to be deleted from the mailing list.

2. CIE Circular Letter 02/90: A.R. Robertson presented the contents of this letter and the possibility of additional nominations being made for CIE officers. It was agreed that if there were extra nominations, A.R. Robertson would seek the advice of the members.

5. Treasurer's Report

B.W. Tansley presented his Treasurer's report, enclosed as Appendix D. He noted that the CIE publications are sent to us on consignment and that he sends a statement of his inventory to the Central Bureau each 6 months. It is also the practice of the Central Bureau to try to keep a backup of 5 copies of each publication in his inventory.

He also pointed out the item 'Inventory Discrepancy' of $942.76 as the difference between our inventory records and that of the Central Bureau, possibly due to a loss of publications in the mail between the Central Bureau and Canada. This amount was paid to the Central Bureau anyway as an act of 'good faith'.

It was noted that since the CNC/CIE financial year ended the 30th September, one of the 6 month statements to the Central Bureau should also end at this time to facilitate reporting. This would also enable, and it was requested that, the Treasurer's report to be sent out with the Division reports for the members' consideration prior to the annual meeting.

There was some discussion concerning the fact that few Canadians appear to know that we have these publications available; the Central Bureau seems to receive many orders directly. It was moved by T. Nilsson, seconded by B. Jordan, that we put our address in the publications that we do sell, so that people who see at least these copies, and wish another, may know where to obtain the publications in Canada. Passed.

M.G. Bassett expressed the thanks of the members to B.W. Tansley for his considerable efforts in organizing and distributing our CIE publications.

M.G. Bassett moved, A. Ketvirtis seconded, that the Treasurer's report be accepted. Passed.

6. Reports From Division Members:

The reports of the Division members for divisions 1, 2 and 3 were circulated by mail (90-Nov-08) and hence that part of their report is not reproduced in these minutes.

DIVISION 1: Vision and Colour, P.K. Kaiser

P.K. Kaiser presented his report, noting the following additions:

The numbers for the committees marked ?? in the original report are:

TC1-28(C)	Parameters affecting colour difference evaluation
TC1-29(C)	Industrial colour difference evaluation

There has been a new committee formed. It is:

TC1-30 Luminous Efficiency Functions
Terms of Reference: To approve an ISO/CIE Standard on luminous efficiency functions which classifies and specifies the existing luminous efficiency functions $V_p(\lambda)$, $V(\lambda)$, $V_b(\lambda)$, $V_m(\lambda)$ and $V_{b,10}(\lambda)$and the colour matching function $\bar{y}_{10}(\lambda)$ (if appropriate) in theirphotometric use.

P.K. Kaiser is the Canadian member of this TC.

It was moved by P.K. Kaiser, seconded by B. Jordan, that the CNC/CIE recommend to the CIE that the CIE Technical Committee Chairs should have no conflict of interest with respect to the working program of that technical committee. After considerable debate, the motion was defeated. The majority of members seemed to feel that existing guidelines and practices covered the problem adequately.

E. Wotton noted that TC1-16 (Lighting Needs for the Partially Sighted) did not have a Canadian member, and raised two questions: should we have a Canadian member, and how was the information from this TC going to be disseminated in Canada? He commented that this aspect of lighting was very important, and quite neglected, here in Canada. A.R. Robertson replied to the first question, noting that the committee was almost finished its work so that a Canadian member was not necessary at this time. As to the second question, the immediate decision of the meeting was to wait until the actual document is published. It did, however, raise the question of how we disseminate the information contained in our publications to the audience which would be concerned.

DIVISION 2: Physical Measurement of Light and Radiation, A.R. Robertson

A.R. Robertson presented his report. Discussion followed about the work of several of the TC's.

DIVISION 3: Interior Environment and Lighting Design, I.C. Pasini

I.C. Pasini presented his report. Discussion followed concerning the work of several of the TC's.

DIVISION 4: Lighting and Signalling For Transport, B.W. Tansley

B.W. Tansley gave a verbal report, with assistance from W.K. Adrian who had attended a recent meeting.

DIVISION 5: Exterior and Other Lighting Applications

There was no report. G. Szeker has retired from Philips and as Division 5 member.

M.G. Bassett moved, B.W. Tansley seconded, that J. Roberge be the Canadian member for Division 5. Passed. A.R. Robertson will inform the CIE of this and ask Debbie Takeuchi if she has any of G. Szeker's files which could be passed on to J. Roberge.

D. Trotter and J.A. Chrysler were recommended to J. Roberge as possible members for TC's in this division.

DIVISION 6: Photobiology and Photochemistry

There was no report since we do not have a Canadian member for this division. J. Seggie is unable to undertake this work at this time. A.R. Robertson is attempting to find a suitable candidate in Health and Welfare Canada. S.M. McFadden pointed out that the University of Western Ontario does some work in this field.

DIVISION 7: General Aspects of Lighting, R. White

There was no report.

7. Melbourne 1991:

A.R. Robertson presented recent information concerning the format of the meeting, and initiated the discussion of travel and expenses.

After considerable discussion, it was moved by M.G. Bassett, seconded by J. Roberge, that the CNC/CIE split the available money amoungst the eligible Canadians who wish to attend, and who are active in the CIE divisions and Technical Committees. The allocation is to be made by the president of the CNC/CIE. Passed.

I.C. Pasini pointed out that Energy, Mines and Resources Canada has programs for technology transfer by means of papers at conferences. It was also pointed out by P.K. Kaiser that the requests for money should indicate the number of people who need to go to the conference, rather than requesting a fixed amount of money.

W.K. Adrian presented the results of his research into the cost of various routings and accommodations for the Melbourne Session.

Nine people indicated their interest in attending the Melbourne Session: P.K. Kaiser, J. Roberge, W.K. Adrian, M.G. Bassett, B. Jordan, B.W. Tansley, I.C. Pasini, D.K. Tiller, and A.R. Robertson. Four of these indicated they may be taking someone with them. Several people indicated an interest in the bus tour between Sydney and Melbourne.

A.R. Robertson volunteered to talk with J. Rennilson of the USA delegation to see if there was any advantage to travel with them.

8. Nominations and Appointments:

A.R. Robertson circulated our latest list of members and advisory members, together with the "Guidelines for Membership of NRC Canadian National Committees" from the NRC International Affairs unit which oversees the CNC/CIE.

Members:

A.R. Robertson reported that G. Szeker had resigned as Division 5 member, as noted above under the Division members' reports.

The term of R. El Diasty has expired and he has left Canada. A.R. Robertson is to write him and thank him for his service.

The term of B.W. Tansley has also expired. Moved by P.K. Kaiser, seconded by M.G. Bassett, that the CNC/CIE nominate B.W. Tansley for another term. Passed.

Advisory Members:

The three people requested for nomination in the Secretary's report (Item 4 above) were accepted as Advisory members: B. McArthur will replace R. El Diasty on some of the committees in Division 3 (see Division 3 member's report). Debbie Takeuchi will replace G. Szeker as a representative from Philips. E. Szamosi will replace Z.S. Subotich (who has retired) as the CSA representative. D.K. Tiller was also nominated and accepted to be an Advisory Member.

The committee discussed the remaining members on this list, removing the following members due to death, relocation to another country and/or career, or lack of further interest in the CNC/CIE: J.M. Chorlton, A.W. Levy, G.H. Mulvey, and M. Rea.

There was considerable discussion concerning further nominations to both membership and advisory membership. Concern was expressed that we obtain adequate Canadian representation in all the CIE Divisions both professionally and geographically. It was pointed out that we could seek nominations from specific groups or organization, such as Schools of Architecture (B.C., McGill). J. Roberge and I.C. Pasini volunteered to determine possible candidates from Quebec and Western Canada, respectively. In addition, anyone who knows of a suitable candidate or contact is to convey this information to A.R. Robertson. P.K. Kaiser remarked that our first priority should be to obtain proper Divisional representation, with the geographic and linguistic guidelines as the second priority.

9. Other Business:

E. Wotton raised the concern about the visibility of the CNC/CIE in the Canadian lighting community. He suggested a press release of our meeting and perhaps a video of CIE affairs be made available to interested parties. It was suggested that anyone who has a list of appropriate journals send the same to A.R. Robertson.

Everyone present expressed their appreciation to M.G. Bassett for preparing the meeting place, arranging for the lunch, and baking the excellent desserts!

10. Adjournment:

The meeting was adjourned at approximately 16:30.

APPENDIX A

ATTENDEES TO 35TH ANNUAL MEETING OF THE CNC/CIE

A.R. Robertson	National Research Council (INMS)
A.A. Gaertner	National Research Council (INMS)
S.M. McFadden	Defense and Civil Institute of Environmental Medicine
P.K. Kaiser	York University
T. Nilsson	University of Prince Edward Island
J. Roberge	Infranor Canada Inc.
M.G. Bassett	University of Toronto
A. Ketvirtis	Lavalin Engineering Inc.
B. Jordan	Paprican
B.W. Tansley	Carleton University
D.K. Tiller	National Research Council (IRC)
E. Wotton	Lighting Consultant and Designer
I.C. Pasini	Public Works Canada
W.K. Adrian	University of Waterloo

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National Research Council
Institute for National Measurement Standards
Ottawa, Ontario K1A 0R6

Report to CNC/CIE

A.R.Robertson
President

22 November 1990

1. I have had several discussions with the NRC External Relations office on the subject of CNC/CIE membership. The Committee on International Scientific and Technological Affiliations (CISTA), which formerly was responsible for appointing our members, has been inactive since August 1988. As a result the External Relations office agreed that we should act, for the time being, as if our various nominations had been approved. Recently, I have been informed that a Committee on Foreign Science and Technology has been formed whose mandate encompasses that of CISTA which, presumably, has been disbanded. I have also been provided with some guidelines for Membership of NRC Canadian National Committees. At today's meeting we should review our Membership with these guidelines in mind.

2. I submitted a budget of $4400 for the travel expenses of members for today's meeting. However, the NRC External Relations office was able to allocate only $3000. I wrote to all CNC/CIE members and proposed to reduce each of their claims by the same proportion to stay within the allocation.

3. An invoice for the 1990 annual dues to the CIE was received in March and forwarded to the NRC External Relations office. Due to circumstances beyond their control they were unable to pay at that time and requested a delay until the third quarter of the 1990-91 fiscal year (i.e. the last quarter of calendar year 1990). This delay was accepted by the CIE.

4. Following the last meeting of the CNC/CIE I determined that P.A.Wasney was indeed willing to continue as a Member. I then contacted S.Kaye and explained that as we had no vacancy for a full Member, we would like him to be an Advisory Member.

5. I have been informed that George Szeker has retired from his company (Philips Electronics) and cannot continue as our Division 5 Member.

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CNC/CIE SECRETARY'S REPORT TO THE 35TH ANNUAL MEETING

1990-NOVEMBER-22

During the period from 90-January-18 to 90-November-21 the following items were considered:

CIE MEMBERSHIP - ROMANIA:

The Romanian National Lighting Committee applied for membership in the CIE in March. This required a vote of all member National Committees. Within the CNC/CIE, 35 ballots were sent out to members and advisory members, 14 were returned, all in favor. This result was communicated to the Central Bureau. In August the Central Bureau advised us that 22 positive votes were received from National Committees, and that the Romanian National Committee was therefore received as a member (the 36th) of the CIE.

CIE 22nd SESSION - MELBOURNE 1991:

A call for papers from our membership was issued in February, 1990. Three papers were received, refereed, and submitted to the Central Bureau. All three have been accepted as posters, or presented posters. The papers are:

W. Adrian, Transient adaptation process: A model to predict its effect on vision.

I.C. Pasini and S. Selkowitz, A tool for assessing the impact of daylighting in commercial office buildings.

D.K. Tiller, M.J. Ouellette, and I. Pasini, A method for predicting the economic consequences of changes in visibility.

Preliminary registration forms for the Session were distributed to the complete CNC/CIE mailing list in October. Extra copies are available if needed. These forms should be returned to me, at the address given below, for forwarding to Melbourne.

CIE MATTERS:

The following items received from the Central Bureau were distributed to our members/advisory members/mailing list as appropriate: 1 issue of the CIE JOURNAL (Volume 8, Number 1, June 1989), 4 issues of the CIE NEWS (Numbers 12 to 15), the booklet CIE TECHNICAL ACTIVITIES AND PUBLICATIONS (February 1989), CIE ROSTER (February 1990), information concerning the CIE SEMINAR ON LIGHT MEASUREMENT (1990-Sept.-10 to 14), and Circular Letter 02/90 concerning the Nomination of Officers for the 1991-1995 Term.

Information concerning PRAKASH 1991, International Exhibition on Lighting Technology, to be held in New Delhi, India from October 7-13, 1991 was also circulated.

MEMBERSHIP/MAILING LIST:

During the year, 5 general mailings to our members, advisory members, and general mailing list have been sent. Some of these mailings have been returned undelivered. This has happened for 5 cases for the general mailing list and 1 from the advisory member list. These names will be deleted from the list unless I am informed of their addresses and continued interest. They are:

Mr. Paul Young
Mr. M.L. Brown
Mr. B. Davy
Mr. M.M. Discutneau
Mr. R.F. Hughes
Mr. M.V. McKnight

I have received requests that the following people be added to our advisory members list:

Dr. Bruce McArthur
Environment Canada
4905 Dufferin Street
Downsview, Ontario M3H 5T4

Mr. Eli Szamosi
Canadian Standards Association
Certification and Testing Division
178 Rexdale Boulevard
Rexdale, Ontario M9W 1R3

Ms. Debbie Takeuchi
Philips Electronics Ltd., Lighting Division
601 Milner Avenue
Scarborough, Ontario M1B 1M8

Respectfully submitted,

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
National Research Council of Canada
Ottawa, Ontario K1A 0R6

APPENDIX D

Financial Report November 1990

Financial Report to March 31, 1990						
Credits		**Debits**			**Balance**	
Inventory Sold	**Deposits**	**Expenses Incurred**		**Expenses Paid**		
Sales $7296.67	$7,296.67	Payment to CIE	$4,148.92	$1,814.14		
Inventory Discrepancy		($3528.00, U.S.)				
$942.76		Postage/Courie	$290.72			
		Copying	$692.22			
		Office Supplies	$119.03			
		Graphic Arts/	$437.17			
		Printshop				
		Clerical	$275.00			
		Total Expenses	$1,814.14		**April 1, 1990:**	
					$1,333.60	
Financial Report April 1, 1990 to November 5, 1990						
Credits		**Debits**			**Balance**	
Inventory Sold	**Deposits**	**Expenses Incurred**		**Expenses Paid**		
April 1 - June 30	Carryover Credit	NC Cost of Sales to Jun 30		NC Cost of Sales to Jun	**$888.84**	
$692.00	$1,333.61		$418.12	$418.12	**Balance after Expenses**	
June 30 to Nov. 5	Publications	Inventory Discrepancy		Inventory Discrepancy	**$13.88**	
$198.00	$890.00		$942.76	$942.76		
	Interest	Owing to CIE for sales $118.80				
	$26.11	($99.00 U.S.)		**Total Paid: $1360.88**		
	Total Deposits:	Postage	$27.46			
	$2,249.72	Copying	$142.00			
		Office Supplies	$26.70			
		Clerical (40 hrs @ $14.00)				
			$560.00			
		Total Expenses Incurred				
			$2,235.84			

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CIE Division 1 (Vision and Colour)

Report to Canadian National Committee of CIE, 22 November 1990

P.K. Kaiser

A copy of the Activity Report - CIE Division 1, Vision and Colour, Summer 1990 is attached.

Canada's participation is as follows:

P.K. Kaiser:	TC1-04(V)	Physiologically based system of colour specification
	TC1-20(V)	Judd Modification
	TC1-21(V)	Testing of supplementary system of photometry
	TC1-26(V)	Individual variation of heterochromatic brightness matching
A.R. Robertson:	TC1-09(C)	Standard sources for colorimetry
	TC28(C)	Parameters affecting colour difference evaluation
	TC29(C)	Industrial colour difference evaluation
W.K. Adrian:	TC1-17(E)	Contrast metric of visibility
	TC1-18(E)	Disability glare
	TC1-25(E)	Fundamentals of discomfort glare

Further information is available from:

Dr. P.K. Kaiser
Dept. of Psychology
York University
4700 Keele Street
North York, Ontario
Canada M3J 1P3

Telephone: 416-736-2100; #66335

Activity Report - CIE Division 1 - Vision and Colour
Summer 1990

Director: Dr M Ikeda JPN

Assoc. Director - Vision: Dr P Walraven NLD
Assoc. Director - Colour: Dr A R Robertson CAN
Assoc. Director - Visual Ergonomics: Dr P R Boyce GBR
Secretary: Mr J F Verrill GBR
Editor: Dr M R Pointer GBR

There follows a summary of the status of each of the Committees in Division 1 - Vision and Colour. The record of each Committee is listed using the data fields detailed below. **This report includes only active committees.**

Committee Number (Grouping): V - Vision C - Colour E - Visual Ergonomics
1. Name of Technical Committee
2. Terms of Reference
3. Chairman
4. Members
5. Working Program
6. Publication
7. Comments

TC1-04 (V)
1. Physiologically Based System of Colour Specification
2. Establish a constant-luminance chromaticity diagram based on cone action spectra which is consistent with the best possible set of colour-matching functions. Evaluate available cone action spectra in the literature for use in establishing a constant luminance chromaticity diagram. Basic data needed are: (i) Colour matching functions of normals, (ii) Cone action spectra of normals, (iii) Data for dichromats: spectral sensitivity without blue cone intrusion, confusion points, spectral sensitivity obtained by flicker photometry, ocular media data. These data will be selected from available literature and from these, if necessary, a new set of cone action spectra will be derived.
3. G A Fry USA
4. O Estevez NLD, D I A MacLeod USA, A L Nagy USA, V Smith USA, K Takahama JPN, H Terstiege DEU, A Valberg NOR, F Vienot FRA, H Yaguchi JPN, P K Kaiser CAN (Consultant)
7. The Chairman has met with several members of the committee but there has been no full meeting of the committee since Vienna (1989). The approach being taken is to select fundamental colours for deriving spectral response curves for the red, green and blue cones which can in turn be related to the absorbance of the photopigments. It appears possible to relate the spectral response curves for normals to those for congenital monochromats, dichromats and anomalous trichromats.

TC1-09 (C)
1. Standard Sources for Colorimetry
2. To prepare a technical report listing sources that usefully approximate to Standard Illuminant D65 with particular reference to their suitability for the visual assessment of samples and for the spectrophotometry of luminescent samples and giving their Publication 51 indices.

3. G Gundlach DEU
4. G Bertrand FRA, X Chen CHR, R Griesser CHE, Y Nayatani JPN, A R Robertson CAN, J Schanda HUN, Th Tanneberger DDR, H Terstiege DEU, G Vandermeersch BEL, J Verrill GBR
7. This committee met in Vienna in 1989 and plans to meet in Berlin in September 1990.

TC1-10 (C)
1. Colorimetry of Self-Luminous Displays
2. To study colorimetric measurements and their correlation with colour appearance for self-luminous displays.
3. J J Rennilson USA
7. The work of compiling a annotated bibliography is completed and the document is now with the Editor. Council and Division voting on a sub-section of the bibliography is also completed with a majority in favour of publication as a Technical Report.

TC1-13 (C)
1. Colour Appearance Analysis
2. To derive methods of evaluating the colour rendering properties of illuminants based on colour appearance.
3. M R Pointer GBR
4. A N Chalmers ZAF, M B Halstead GBR, R W G Hunt GBR, L Mori JPN, Y Nayatani JPN, K Richter DEU, Th Seim NOR, W N Sproson GBR, H Terstiege DEU, G Tonnquist SWE
5.1. The acceptance of an appearance model that adequately predicts the appearance of simple coloured stimuli under a light source whose chromaticity is not far from the Planckian locus and with a colour temperature between those of typical daylight and tungsten light.
5.2. The application of the model to the assessment of the colour rendering capabilities of light sources.
5.3. To collect data from experimental determinations of colour appearance.
7. Hunt has submitted a paper to Color Research & Application outlining the latest version of his model. Luo has submitted two papers to the same Journal describing an extensive experimental study, the data from which have been used to verify and optimize the Hunt Model.

TC1-14 (E)
1. Lighting Effects on Vision
2. To produce a report, useable by intelligent laymen, describing the effects of lighting conditions on visual capabilities and demonstrating how this knowledge can be used to determine appropriate lighting conditions for the performance of specific tasks.
3. P R Boyce GBR
4. G Debreczeni HUN, A P Ginsburg USA, H Linder DDR, J J Meyer CHE, I Overington GBR, M S Rea CAN, L R Ronchi ITA, R Seve FRA, T Takeuchi JPN
7. No progress has been made. The report remains in draft form which has been commented on. It is hoped to have the third draft ready for the Melbourne meeting.

TC1-16 (E)
1. Lighting Needs for the Partially Sighted
2. To try to determine lighting needs for the partially sighted not only at the individual level by causal or functional subdivision but also as a group with the view to

accommodating public buildings, nursing homes, schools etc. As the individually needed or preferred (il)luminances are very variable among the partially sighted emphasis will be put on quality, flexibility and safety aspects of lighting rather than on quantitative ones.
3. W G Julian AUS (Secretary)
4. C. Amengual ARG, L Bailey USA, J P Boissin FRA, J P Bonnac FRA, P R Boyce GBR, G Brunnstrom SWE, F Buser CHE, L di Fraia ITA, C Eriksson SWE, E E Faye USA, G E Fonda USA, R Greenhalgh GBR, L Hyvarinen FIN, A Ichikawa JPN, A W Johnston AUS, H Krueger CHE, H Lindner DDR, J E Lovie-Kitchen AUS, H Meire BEL, H E M Melotte NLD, S C Miller USA, L R Ronchi ITA, A Serra ITA, J Silver GBR, P T Stone GBR, D van Norren NLD
7. Dr Warren Julian is editing the final draft of the report and expects to have it ready by Melbourne. It is very large. In addition to considering the technical validity of the report the Division will have to consider the suitability of various methods of publishing this important work.

TC1-17 (E)
1. Contrast Metric of Visibility
2. To develop and prepare a technical report on analytical models of visual functions for the prediction of the effect of lighting on visual performance.
3. A Korn DEU
4. W K Adrian CAN, H R Blackwell USA, H Brettel FRA, A P Ginsburg USA, B Inditsky ISR, I Overington GBR
7. The report has now been submitted to the Division for editing and subsequent voting.

TC1-18 (E)
1. Disability Glare
2.1. To recommend a revised Stiles-Holliday formula which could be named the CIE Standard Disability Glare Formula.
2.2. To recommend a study on the relationship between disability glare and age.
3. J J Vos NLD
4. W K Adrian CAN, T P van den Berg NLD, C Bianchi RUM, H R Blackwell USA, B L Cole AUS, H D Einhorn ZAF, A J Fisher AUS, G A Fry USA, W G Julian AUS, K Poulton AUS, W Stanioch POL, T Takeuchi JPN
7. A draft report of the literature concerning the fundamental mechanisms of discomfort glare is being prepared and will be ready for the Division's consideration in Melbourne.

TC1-19 (E)
1. Specification of Visibility for Real Tasks
2. To prepare a review of all methodologies for evaluating the visibility (threshold or suprathreshold) of real tasks.
3. M S Rea CAN
4. H R Blackwell USA, P R Boyce GBR, A Denieul FRA, H D Einhorn ZAF, B A Inditsky ISR, T Kechlibarov BUL, C Kirschbaum ARG, J A Lynes GBR, A Miyame JPN, A I Slater GBR, W Stanioch POL, N Svendenius SWE
7. A report summarising the various methods of quantifying the visibility of realistic tasks is being prepared. It is expected to be ready by the Melbourne session.

TC1-20 (V)
1. Judd Modification
2. To propose a weighting function based on the Judd modification including name,

symbol, operational definition, tabular definition and areas of application.
3. P K Kaiser CAN
7. The report of this Committee has now been published as CIE Publication No. 86 CIE 1988 2° Spectral Luminous Efficiency Function for Photopic Vision. The work of this committee is now completed.

TC1-21 (V)
1. Testing of Supplementary System of Photometry
2. To test existing methods of photometry to evaluate lights for assessing comparative brightness relationships.
3. K Sagawa JPN
4. S Ashizawa JPN, W B Cowan CAN, M Ikeda JPN, P K Kaiser CAN, J A S Kinney USA, S Kokoschka DEU, H Linder DDR, D A Palmer GBR, V M Petrov SUN, D Piao CHN, P W Trezona GBR, A Valberg NOR, F Vienot FRA, H Yaguchi JPN
7. Testing of models has continued using the newly available sets of data. The Committee is planning to hold a workshop in Melbourne where almost all of the system proposers are to meet together, to demonstrate their systems and to discuss them.

TC1-23 (E)
1. Visual Acuity
2. To write a technical report to investigate the possibilities to standardize a visual acuity function.
3. P L Walraven NLD
4. V S Hazanov SUN, H Ohzu JPN, H W Schlote DDR, E Sheedy USA, E C de Vries-de Mol NLD
7. No report available.

TC1-24 (C)
1. Field Trials of Television Illumination Consistency Index
2. To carry out field-trials of the television illuminant consistency index and to collect data from practical installations.
3. R White GBR (Provisional)
7. Voting is taking place to elect a new chairman following the resignation of P King.

TC1-25 (E)
1. Fundamentals of Discomfort Glare
2.1. To define discomfort glare.
2.2. To identify the origins of discomfort glare.
2.3. To develop and assess methods of measuring discomfort glare.
3. A L Lewis USA
4. W Adrian CAN, S M Berman USA, G V Fedyukina SUN, M J Perry GBR
5. To prepare an annotated bibliography on the physiological basis of discomfort glare and to carry out research on measurement techniques which will improve the quantification of discomfort glare.
7. No report available.

TC1-26 (V)
1. Individual Variation of Heterochromatic Brightness Matching
2.1. To analyze existing data on heterochromatic brightness matching in terms of individual variation.
2.2. To develop a simple set of individual characteristics for brightness matching.

3. H Yaguchi JPN
4. P K Kaiser CAN, Y Nakana JPN, D A Palmer GBR, D Piao CHR, L Ronchi ITA, K Sagawa JPN, F Vienot FRA, A Yujiri JPN, F Zhou CHR

TC1-27 (C)
1. Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparison
2.1. To study and make recommendations for the specification of a colour appearance match between a reflective image and a self-luminous display image.
2.2. To act as official liaison to ISO/IEC JTC1 SC18 in the development of colour standards for text and office systems.
3. Paula J Alessi USA
4. M Fairchild USA, T Fuchida JPN, A Hanson GBR, R Luo GBR, D Rich USA
5.1. Investigate whether the CIELUV and CIELAB colour spaces adequately specify a colour appearance match between a reflective image and a self-luminous display image.
5.2. Investigate whether modifications to the CIELUV and CIELAB equations (such as white object point colour stimulus specification) would be adequate to specify a colour appearance match between a reflective image and a self-luminous display image.
5.3. Investigate the use of the Hunt and Nayatani colour appearance models to specify a colour appearance between a reflective image and a self-luminous display image.
7. This committee held a meeting in Caen, France in June 1990 and plans another meeting in Berlin in September 1990.

TC1-29 (C)
1. Industrial Colour Difference Evaluation
2. To study existing metrics used in industry to evaluate colour differences between object colours in daylight illumination and to develop a recommendation on this subject.
3. D H Alman USA
4. R Berns USA, K McLaren GBR, T Maier USA, C Reilly USA, B Rigg GBR, A R Robertson CAN, R Seve FRA
5.1. Investigate datasets, methods of evaluating metrics, colour difference vision models and existing metrics for industrial colour difference evaluation of object colours.
5.2. Evaluate the performance of existing, modified and new metrics in relation to the available data on visual colour difference perception.
5.3. Report recommendations on industrial colour difference evaluation.
7. The committee met at Williamsburg, USA in November 1989 to organize and initiate the working program. Sub-committees were formed to carry out each item on the work program.

TC1-28 (C)
1. Parameters Affecting Colour Difference Evaluation
2. To study and report on the effect of viewing and sample parameters on the evaluation of colour differences between object colours. Parameters to be studied include, but are not limited to, texture, sample size and separation, illumination level, colour of surround and the effect of specular reflectance.
3. K Witt DEU
4. R Berns USA, K Ikeda JPN, A R Robertson CAN
5.1. Report on existing studies of the effect of sample separation and of the lightness of a grey surround on colour difference evaluation.
5.2. Further studies of parametric effects on colour difference evaluation. The

completion date of this work item is uncertain because it depends on as yet unknown studies which may be planned by researchers in the near future. Progress will be reviewed no later than December 1993 to determine whether a useful report can be produced and, if not, this item will be abandoned.

Reporters

Brightness-Luminance Relation: J A J Roufs NLD

Observer Metamerism: N Ohta JPN

Colour Difference Evaluation: T O Maier USA

Engineering Applications of Brightness Scales: T Takeuchi JPN

Visual Environment for Elders: Fundamental and Practical: Ms S Kanaya JPN

Chromatic Adaptation: Y Nayatani JPN
Dr Nayatani notes two references in the literature that report on field trials testing the CIE recommended chromatic adaptation formula. The first study is by Luo and is to be published in Color Research & Application and the second, by Mori, is to be presented at the CIE Meeting in Australia in 1991.

COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

CIE Division 2 (Physical Measurement of Light and Radiation)

Report to Canadian National Committee of CIE

22 November 1990

A.R.Robertson

The most recent Activity Report of CIE Division 2, dated Winter 1989/1990 is attached. Since publication of the Report, a meeting of the Division was held on 7 September 1990 in Berlin, Germany. Dr.A.R.Robertson and Dr.J.C.Zwinkels of Canada attended. Canadian participation in the activities of the Division is as follows.

Division member:	Dr.A.R.Robertson Institute for National Measurement Standards National Research Council Ottawa, Ontario, K1A 0R6 Telephone: (613)-993-9347
TC 2-05, Chairman:	Dr.A.R.Robertson
TC 2-16:	Dr.A.R.Robertson
TC 2-22:	Dr.A.A.Gaertner Institute for National Measurement Standards National Research Council Ottawa, Ontario, K1A 0R6 Telephone: (613)-993-9344
TC 2-24:	Mr.W.Budde 9 Kindle Court Gloucester, Ontario, K1J 6E1 Telephone: (613)-745-2951
TC 2-25:	Dr.A.R.Robertson Dr.J.C.Zwinkels Institute for National Measurement Standards National Research Council Ottawa, Ontario, K1A 0R6 Telephone: (613)-993-9363
TC 2-28:	Dr.A.R.Robertson Dr.J.C.Zwinkels
TC 2-29:	Mr.W.Budde

CIE ACTIVITY REPORT

DIVISION 2

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Winter 1989/1990

CONTENTS

This report covers the activities of Division 2 since the Summer of 1989. Division members are requested to circulate this Activity Report as widely as possible in their countries, and to ensure also that their National Committees have copies for distribution.

I. CIE MATTERS

The 1989 CIE Board and Council Meetings were held in Vienna, Austria from September 26 to 30, 1989. Some decisions and announcements relevant to Division 2 are described below.

The 22nd Session of the CIE will be held in Melbourne, Australia, from July 2 to 11, 1991 at the University of Melbourne. The Session will be divided into two parts: The Conference from July 2 to 5, 1991 and the Division Meetings from July 8 to 11, 1991. There will be available 20 rooms for TC meetings of all Divisions. Papers for the CIE Sessions should be preselected by each National Committee and forwarded to reach the CIE Central bureau by June 1, 1990.

ISO accepts CIE standards on light and lighting. Some possible ISO/CIE standards are: characteristics of materials, lamps and luminaries, radiometers, photometers, and detectors.

The CIE Executive Committee decided not to continue with the CIE Journal. The outputs of TC's will now be published as CIE reports, articles in outside journals or briefs in the CIE News.

A Division 2 meeting took place in Vienna on October 2, 1989. The activities of TC's are summarized in Section III.

II. LIAISONS OF DIVISION 2

The following are the International Organization with whom CIE Division 2 holds liaison:

CODATA (need liaison)
Comite Consultative de Photometric et Radiometric (CCPR) (Mielenz)
International Commission on Optics (ICO)(Hengstberger)
International Electrotechnical Commission, TC34A On Lamps and TC34D on Luminaries (Vandermeersch)
International Electrotechnical Commission, TC82 on Solar Irradiance (Kaase)
International Measurement Technical Confederation, TC2 on Photonic Measurements (Schanda)
International Organization for Standardization (ISO), TC6 SC2 on Optical Properties of Paper and Pulps (Robertson)
Organisation Internationale de Metrologie Legale, Luminance & Illuminance Meters (Mielenz)

III. TC STATUS

CP: Chairperson; AD: Associate Director; TR: Terms of Reference
ST: Status; ML: Membership List RP: Reporter

Technical Committees

2-01 Measurement of High-Pressure Mercury Vapor Lamps
CP: M. Poppe (Hungary) AD: Hengstberger (SA)
ML: TC to be dissolved
TR: Complete the report on the international intercomparison of luminous flux measurements on high-pressure mercury vapor lamps.
ST: The form of publication is to be decided.

2-02 Measurement of Luminous Flux
CP: J. Krochmann (FRG) AD: Hengstberger (SA)
ML: Dissolved.
TR: Complete the technical report on luminous flux measurements started by TC 1.2.
ST: The Report has been published as CIE Publication #84.

2-03 LED Intercomparison
CP: J. Schanda (Hungary) AD: Moore (UK)
ML: Moore (UK), Muray (USA), Sauter (FRG)
TR: Conduct an international intercomparison of photometric measurements on light-emitting diodes.

ST: The first draft of the report was sent to TC members in August 1989.

2-04 Secondary Standard Sources

CP: J. Moore (UK) AD: Moore (UK)

ML: Berry, deVeer, Gundlach (FRG), Key (UK), Schanda (Hungary)

TR: Produce a technical report on the selection and operation of stable secondary standard sources.

ST: The TC chairman has been closely associated with discussions and negotiations to find a company to take over the manufacture of needed lamps as secondary standard sources. The final draft of the report is planned to be completed before 1991.

2-05 Definitions of Distribution Temperature

CP: A. Robertson (Canada) AD: Moore(UK)

ML: Azaryonok (USSR), Geutler (FRG), Hengstberger (SA), Moore (UK), Saunders (USA), Watarai (Japan)

TR: Formulate precise, technically useful definitions of distribution temperature, ratio temperature, and related quantities, in anticipation of a later intercomparison of measurements.

ST: Copies of the final draft report were passed out to members in Vienna on October 3, 1989.

2-06 Absolute Spectral Responsivity of Detectors

CP: E. F. Zalewski (USA) AD: Hengstberger (SA)

ML: Armatis (USA), Bloembergen, Christy, Corrons (Spain), Crommelynck, deVreede (Netherlands), Duda (USA), Futornick (USA), Goodman, Hughes (USA), Husse, Jean (France), Krochmann (FRG), Mishima (Japan), O'Mongain (Ireland), Ohno (Japan), Palmer (USA), Parr (USA), Scott, Shrode, Snyama (Japan), Sporea (Romania), Voyer (France), Zatkovic (Czechoslovakia)

TR: Undertake an intercomparison of silicon photodiode absolute response measurements at the HeNe wavelength (633nm) in order to test the agreement among various commercial laboratories now using the self-calibration technique.

ST: Parr reported the completion of the measurements. The first draft of the report was sent to TC members in January 1990.

2-10 Photometry and Goniophotometry of Luminaries

CP: Vandermeersch (Belgium) AD: Hengstberger(SA)

ML: Arai (Japan), Almassy (Hungary), Blochouse (Belgium), Cazabat (Argentina), Krochmann (FRG), Levin (USA), Petrov, Price (USA), Procter (UK), Sconieczna (Poland), Soardo (Italy), Vermeulen (Netherlands)

TR: Prepare a report on the photometric characteristics of luminaries and their measurement.

ST: A final proposal was scheduled to be voted by TC members at Vienna in October 1989.

2-11 Gonioreflectometry of Standard Materials

CP: J. J. Hsia (USA) AD: Bastie (France)

ML: Berns (USA), Erb (FRG), Jungmann (Argentina), Li (China), Mashkovskaya (USSR), Nanjo (Japan), Ohno (Japan), Rossi (Italy), Verrill (UK)

TR: Study gonioreflectometric properties of standard white reference materials, including measurements and survey of published data.

ST: TC met at Vienna on October 3, 1989. The TC Chairman indicated that the first phase of the TC is to develop a standard method to prepare and press PTFE samples with the goal of developing an intrinsic standard for 45/0 (or 0/45) reflectance factor.

2-12 Photometry of Thermally Sensitive Lamps

CP: Vandermeersch (Belgium) AD: Hengstberger (SA)

ML: Dissolved

TR: Prepare a joint report on the photometry of thermally sensitive lamps.

ST: This committee has completed its task. The TC chairman will prepare a press release for the CIE News.

2-14 Measurement of Reflectance and Transmittance, including Turbid Media

CP: J. Krochmann (FRG) AD: Bastie (France)

ML: Bianchini (Italy), Bostick (USA), Gundlach (FRG), Hisdal (Norway), Hsia (USA), Mashkovskaya (USSR), Morren (Belgium), Polato (Italy), Terstiege (FRG), Vaillant (France)

TR: Define the standard geometric conditions for the measurement of transmittance and reflectance (CIE Standard)

ST: The 5th draft of the report may be finished soon.

2-16 Characterization of the Performance of Tristimulus Colorimeters

CP: D. Gundlach (FRG) AD: Hengstberger(SA)

ML: Billmeyer (USA), Cogno, Fillinger (Hungary), Geutler (FRG), Hengstberger (SA), Krochmann (FRG), Matveer, McLaren, Moore (UK), Nanjo (Japan), Nielsen (Denmark), Robertson (Canada), Walker

TR: Complete the technical report on tristimulus colorimeters started by TC 2.2.

ST: The TC Chairman reported that the final TC meeting will be in Berlin in September 1990 after the AIC Conference. The report may be a candidate for a standard.

2-17 Recommendation for Integrated Irradiance and Spectral Distribution of Simulated Solar Radiation

CP: C. Kok (SA) AD: Moore (UK)

ML: Aydinli (USA), Ingatyev (USSR), Kaase (FRG), Kasten (FRG), Kockot, Zerlaut (USA)

TR: Revise and update CIE Publication #20 (1972)

ST: The camera-ready original of the report (Part I) has been received by the CIE Executive Secretary in January 1990. This will be published as a CIE report. A paper on the work of TC2-17 entitled "Solar Spectral Irradiance - A Review of Recent Findings" by F. Kasten and C. J. Kok was presented during the Symposium on Daylight and Solar Radiation Measurements in October, 1989 in Berlin. A first draft of Part II of the report on Solar Simulator may be circulated during 1990.

2-19 Measurement of the Spectral Coefficient of Retroreflection

CP: N. Johnson (USA) AD: Bastie (France)

ML: Brekke (Norway), Fisher (USA), Hsia (USA), Hubert (France),

Kurioka (Japan), Price (UK), Rendu (France), Rennilson (USA), Richey (FRG), Schreiber (FRG), Sugiyama (Japan), Terstiege (FRG), Vandermeersch (Belgium)

TR: Identify the critical measurement parameters, tolerances, and requirements for, and conduct an international intercomparison of, the spectral coefficient of retroreflection.

ST: TC 2-19 met in Brussels, Belgium on December 9, 1987 to review the proposed measurement method and propose a tentative timetable for circulation of panels. At that meeting, however, it was decided that some laboratories required 100 x 100 mm panels and that other laboratories had not yet upgraded their instrumentation so that tests could be performed in accordance with the proposed method. In addition, after this meeting, it was found that the "hub" laboratory needed to further upgrade its computer program to handle the data for this intercomparison. Because of the need to revise the schedule, a TC meeting was held in Vienna on October 3, 1989. The plan was to send out test panels to TC members in January 1990. The next meeting will be on September 6, 1990 after the AIC Conference in Berlin. This committee will attempt to complete the intercomparison prior to the quadrennial meeting.

2-20 Visual Gloss

CP: Lozano (Argentina) AD: Bastie (France)

ML: Baba (Japan), Billmeyer (UK), Czepluch (FRG), LaValle (USA), Morse (USA), O'Donnell (USA), Seve (France), Tannenbaum (USA), Taylor (UK)

TR: Study physical surface properties of materials which correlate with the visual appearance attribute "gloss," and report the findings.

ST: No information since June 1989.

2-21 Spectroradiometry of Flashing Lights

CP: H. Kondo (Japan) AD: Moore (UK)

ML: Gavrilova (USSR), Gundlach (FRG), Lehman (UK), Luminello (USA), Sauter (FRG), Vitel (France), Wychorski (USA)

TR: Study and recommend methodology and apparatus for accurate radiometric measurements of flash radiation sources, both of short and long duration.

ST: TC members discussed the 4th draft of the report at the Vienna meeting on October 3, 1989. The next meeting will be held at PTB, in Braunschweig, FRG on October 1, 1990.

2-22 Luminous Flux of High-Pressure Sodium Lamps

CP: B. Garzo (Hungary) AD: Moore (UK)

ML: Azaryonok (USSR), Bastie (France), Bertrand, Burghout (Netherlands), Chen Xiaju (China), Foerste (FRG), Gaertner (Canada), Gale, Juan (Spain), Juntunen (Finland), Moore (UK), Otto, Roempler, Rossi (Italy), Steindl, van Dam,

TR: Conduct an intercomparison of luminous flux measurements on high-pressure sodium lamps.

ST: TC Chairman presented some preliminary measurement results at the Vienna CIE Division 2 meeting on October 2, 1989.

2-23 Photometry of Street-Lighting Luminaries

CP: Vandermeersch (Belgium) AD: Hengstberger (SA)

ML: Almasi (Hungary), Andras (Hungary), Arai (Japan), Blochouse (Belgium), Cazabat (Argentina), Cherouge (Frnace), Collins (UK), Krochmann (FRG), Levin (USA), Petrov, Price (UK), Procter, Skonieczna (Poland), Soardo (Italy), Vermeulen (Netherland)

TR: Prepare a technical report on the photometry of street lighting luminaries.

ST: The draft of the report may be ready for the TC votes in 1990.

2-24 Users Guide for the Selection of Illuminance and Luminance Meters

CP: Rattunde (FRG) AD: Hengstberger (SA)

ML: Budde (Canada), Burghout (Netherland), Corrons (Spain), Goodman (UK), Hubert (France), Krochmann (FRG), Lewin (USA), Lozano (Argentina), Ottosson (Sweden), Sauter (FRG),

TR: Prepare a users' guide for the selection and use of illuminance and luminance meters.

ST: Nielsen resigned as TC Chairman and Rattunde was voted at the Division meeting on October 1, 1989 by CIE Division 2 members to be the new TC Chairman. Dezsi was suggested to be a new TC member.

2-25 Calibration Methods and Photoluminescent Standards for Total Radiance Factor Measurements

CP: D. Gundlach (FRG) AD: Bastie (France)

ML: Erb (FRG), Griesser, Hsia (USA), Nayatani (Japan), Racz, Simon (USA), Verrill (UK)

TR: Prepare a CIE report on methods for measurements of total radiance factors of photoluminescent materials. Recommendations for realizing and calibrating photoluminescent standards by the one and two-monochromator methods will be included.

ST: A TC meeting was held in Vienna on October 3, 1989. The TC Chairman's research work on Photoluminescence has been published as BAM publication MTR-60. He expressed the need of reflectance factor standard as well as standard lamps or detectors from 280 to 800 nm for luminescence measurements. The TC Chairman indicated he was ready to start the TC work. The next TC meeting will be in September 1990 after the AIC Conference in Berlin, FRG.

2-26 Measurement of Color Self-Luminous Displays

CP: R. Berns (USA) AD: Moore (UK)

ML: DeMarsh (USA), Gavanin (USSR), Krystek (FRG), LeGoff (France), Rich (USA), Rochow (FRG), Snyder (US)

TR: Formulate a guide to the various methods of measurement of the radiometric, photometric and colorimetric parameters (properties of color self-luminous displays.

ST: The goal of this TC for the current quadrennium is for CRT displays. The outline and possible contents of the guide have been prepared.

2-27 Interpretations of the Photometric Data of Lamps and Luminaries for Service Use

CP: Vandemeersch (Belgium) AD: Hengstberger (SA)

ML: Dissolved

TR: Prepare a CIE guide for the correct application of photometric data in lighting design calculations.

ST: At the request of the TC Chairman in Vienna on October 2, 1990, Division 2 members voted to dissolve this TC. This TC may be revived in the future.

2-28 Methods of Characterizing Spectrophotometers

CP: J. Verrill (UK) AD: Bastie (France)

ML: Andor (Hungary), Bastie (France), Berns (USA), Eckerle (USA), McCamy (USA), Robertson (Canada), Vlasov (USSR)

TR: Write a CIE report on the characterization of spectrophotometers by means of reference materials and other methods, with particular reference to linearity, wavelength error,stray light, and integrating sphere errors.

ST: This TC met in Vienna on October 3, 1990. The TC Chairman reviewed instrument and sample related errors. Eckerle completed a draft for the section on regular reflectance. The next TC meeting may be held on September 6 or 7, 1990, after the AIC Conference, or on May 8 to 10, 1990, during the US CORM Meeting at RIT.

2-29 Measurement of Detector Linearity

CP: H. Kaase (FRG) AD: Hengstberger (SA)

ML: Bastie (France), Budde (Canada), Dezsi (Hungary), Goodman (UK), Mihailov (USSR), Mostl (FRG)

TR: Prepare a CIE guide on methods for the characterization of the linearity of detectors of optical radiation, including different principles by which the linearity of detectors can be determined and causes of non-linear behavior, to aid users of optical radiation detectors in the selection and use suitable devices for specific applications.

ST: A TC meeting was held in Vienna on October 2, 1898. The terms of reference may be refined.

2-30 Diode-Array Radiometry

CP: P. Wychorski (USA) AD: Bastie (France)

ML: Abasari (Hungary), Goodman (UK), Mihailov (USSR), Mizushima (Japan), Pfleger (Austria), Sauter (FRG)

TR: Prepare an annotated bibliography for the CIE Journal on diode array radiometry. Make appropriate recommendations for future work in diode radiometry.

ST: A first draft has been circulated to all seven members of TC2-30. The draft report contains a proposed outline with the following four sections: Introduction, Recommendations for Future Work, Radiometry Annotated Bibliography and a final section on Spectrophotometry and Colorimetry Annotated Bibliography. Included with the draft report is a proposal for a October 1990 meeting in Austria or Germany and a timeline for 1990 and 1991.

2-31 Methods of Characterizing Actinic Radiometers

CP: J. Krochmann (FRG) AD: Moore (UK)

ML: Bastie (France), Ferenzi (Hungary), Hughes (USA), Kaase (FRG), Kok (SA), McKinlay (UK), Pastiels (Belgium), Poppe (Hungary), Reiter (Austria), Sarytchev (USSR), Steck (FRG), Vaillant

TR: Prepare a CIE Standard on characterizing the performance of actinic radiometers.
ST: A third draft was planned to be completed at the end of 1989.

2-32 Measuring Wet Retroreflectance of Horizontal Road Markings
CP: R. Dejaiffe (USA) AD: Bastie (France)
ML: Johnson (USA), Lundquist (Sweden), Meseberg (FRG), Rennilson (USA), Schmidt-Claussen (FRG), Schreuder (Netherland), Serres (France)
TR: Prepare a guide for the methods of measuring coefficient of retroreflected luminance (specific luminance) of horizontal road markings under wet weather conditions.
ST: This new TC was approved by the CIE Council in Vienna in September 1989.

Reporters

R 2-01 Fiber Optics
RP: F. Hengstberger (SA)
ST: A brief report by the reporter is attached.

R 2-02 Xenon Flash Lamps
RP: P. Wychorski (USA)
ST: A survey of existing xenon flash lamp standards and measurements services at four national standards laboratories (NIST, NCR, NPL and PTB) has been completed. At the present time none of the laboratories offers a xenon flash lamp standard. Information from a United Stated Council for Optical Radiation Measurements (CORM) Fifth Report indicates that a pulsed source of spectral irradiance is needed. At the present time lamp manufacturers and additional national laboratories are being contacted. A recommendation on future work will be made at the CIE Session 1991 in Australia.

R 2-03 IR Reflectance
RP: D. Sheffer (Israel)
ST: The reporter presented a paper on "Absolute reflectance Measurements of Metallic Surfaces in the 0.8-5.5 μm Range" at the SPIE Meeting in San Diego, USA in August 1989. His other paper on "An Absolute Reflectrometer for the Mid-Infrared Region" has been published in the January 1990 issue of Applied Optics. Further work is being done, at the Technion in Israel, concerning possible extension of the measurements to the 7-14 μm region.

R 2-04 LED Measurements
RP: Muray (USA)
ST: The reporter was appointed in Vienna, On October 2, 1989. The goal is to establish a TC in the future to write specifications for LED.

IV. COUNTRY REPORTS

Reports from Hungary, Italy, Japan, and Spain have been received and are attached herewith. Additional reports are welcome.

V. DIVISION 2 ROSTER

Current rosters of CIE Division 2 Country Members, TC Chairmen, and Reporters are attached.

VI. NEXT DIVISION 2 MEETING

Division 2 country members and TC Chairmen will be consulted to decide whether to hold a Division 2 meeting in early September 1990 during the time of the AIC Conference.

VII. OTHER MEETINGS OF INTEREST

Meetings which will be held near the time of the AIC Interim Meeting (September 3 to 5, 1990) are:

CIE Division 1, Berlin, FRG, August 31 and September 1 (half day), 1990.

TC2-16, 2-25, Berlin, FRG, September 1990.

TC2-19, Berlin, FRG, September 6, 1990.

TC2-28 may meet in Berlin, FRG, September 6 or 7, 1990 or in Rochester, USA, on May 8 to 10, 1990, during the US CORM Meeting at RIT.

COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee

CIE Division 3 (Interior Environment and Lighting Design)

Report to Canadian National Committee of CIE, 22 November 1990

I. C. Pasini

The Activity Report for Division 3, for the period July 1989 to March 1990, is attached. The Division has met most recently in Moscow during the recent International Daylighting Conference (October 1990).
Professor Jim Love, University of Calgary, and Professor Robert Besant, University of Saskatchewan, represented the federal government of Canada under sponsorship from the departmnet of Energy, Mines and Natural Resources. They both presented papers which are available through I. Pasini upon written request (all papers are conveniently listed in the attached copy of the Conference Program).

Rumors have that Dr. Ramy El Diasty has moved to the USA. I am not aware of the details except that he has been inactive for the past several months. I recently made contact with Dr. J. B. Mc Arthur, Environment Canada who has declared his availability and his department support to replace Dr. Ramy El Diasty in at least one Technical Committee. This is TC 307 "International Daylighting Measurement Year" (IDMY). Arrangements are currently underway to resolve the issue of Canadian representation on the TC's made vacant by Dr. Ramy El Diasty.

Dr. Mc Arthur is available to install and coordinate all the necessary instrumentation to allow Canada to partecipate in the IDMY, provided the necessary funding can be found. EMR will be contacted to provide most, or at list part, of the required funding.

Institutions who have access to daylighting measurements equipment are encouraged to offer their help in collecting local weather data, under the direction of Dr. Mc Arthur.

Division 3 also met in Budapest on October 6-7, 1989 where the new TC 20 "Lighting and Architecture" was established under the chair of Hans T. von Malotki; unfortunately he has recently died and the CIE is looking for a new chairperson.

Division Member:	Mr. I.C. Pasini, P.Eng. Public Works Canada A&E Services Tupper Bldg. Rm. D-507 Riverside Drive Ottawa, Ontario K1A 0M2 Telephone: (613) 736-2255
TC 3-01	**Discomfort Glare From Small and Large Sources** Dr. W. K Adrian School of Optometry University of Waterloo Waterloo, Ontario, N2L 3G1 Telephone (519) 746-7937
TC 3-05	**Industrial Lighting and Safety at Work** Mr. I. C. Pasini
TC 3-07	**International Collaboration on Daylighting Availability** Dr. Ramy El Diasty Centre for Buiding Studies Concordia University 1455 o., boul. de Maisonneuve, Montreal, quebec, H3G 1M8
TC 3-10	**Maintenance of Lighting Systems** Mr. I. C. Pasini
TC 3-11	**Daylighting Calculation Methods** Dr. R. El Diasty
TC 3-14	**Three-Dimensional Forms of Illuminance** Dr. R. El Diasty
TC 3-16	**Psychological Aspects of Lighting** Dr. Dale Tiller NRC/IRC Montreal Road, Bldg. M-24 Ottawa, Ontario K1A 0R6

CIE ACTIVITY REPORT

DIVISION 3

"INTERIOR ENVIRONMENT AND LIGHTING DESIGN"

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ACTIVITY REPORT 89:2 and 90:1

for the period

JULY 1989 to MARCH 1990

Activities of the various Technical Committees and divisional representatives were reported at the CIE Division 3 meeting held in Budapest, Hungary on 6 and 7 October 1989. A number of TC's held meetings prior to the Division 3 meeting.

What follows is a short activity report representing the major happenings which have occurred since then.

But first, to summarise the main matters discussed in Budapest. An important item considered was a report on member countries views on the need for revision of the Interior Lighting Guide (CIE publication No 29.2). Of particular relevance was the new liaison established between CIE and ISO (International Standards Organisation) and the possibility of producing joint standards. In connection with the proposed revision of this Guide good progress on two short-term committees was reported, namely, that on "Discomfort Glare" under the chairmanship of Kevin Poulton (Australia) and "Three - Dimensional Forms of Illuminance" under the chairmanship of Kit Cuttle (New Zealand).

With regard to the other major guide of Division 3, the Guide on Daylighting of Building Interiors, it was reported by Nancy Ruck, Editor, (Australia) that the editorial committee had met to consider the latest draft and had agreed to means of reducing its size. Thus the document is now very near to its final draft.

At the Budapest Division 3 meeting Hans T von Malotki, presented an illustrated talk on "Lighting and Architecture" and TC 3.20 was established following the enthusiastic reception of his presentation. Since that time however it has been learned with great sadness that Herr von Malotki has died, and although most members of Division 3 had only met him on this one occasion, his loss is deeply felt. Efforts are being made to re-establish the TC with a new chairman who was a friend of his. Perhaps the work of the TC can be used to honour the memory of his all too brief association with us. An obituary will be published in the next issue of CIE News.

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Immediately following the Budapest Division 3 meeting many members travelled onto West Berlin for the "Daylight and Solar Radiation Measurement" symposium jointly organised by CIE liaison with the World Meteorological Organisation (WMO) from 9-11 October 1989. This event was an extension of the work of TC 307 (chairman J Derrick Kendrick) and held through the good offices of the Technical University Berlin by the work of Professor Kaase and the German National Illumination Committee. Division 3 is extremely grateful to the organisers for their efforts. Copies of the Symposium proceedings are available from CIE Central Bureau, Vienna.

Since Budapest a number of further developments have occurred and several TC activities have been reported. These are detailed below:

Joint ISO - CIE Standards:

Arising from the liaison reported earlier the Division 3 Director, Mme Pierrette Chauvel has requested Kunio Matsuura (Japan) and J Derrick Kendrick (Australia) to prepare a draft standard, as one single standard, containing the two already accepted international standard skies: overcast sky (Moon and Spencer) and clear skies (CIE publication No 22 - Kittler and Gusev). (It is recognised that this standard will probably need revision in, say, five years time once the work of TC 3.15 on intermediate skies is completed, and once data from the International Daylight Measurement Programme becomes available, but for the time being these two skies are the only ones that are accepted internationally).

Editor of Division 3:

Mr Kit Cuttle (New Zealand) tendered his resignation as Editor at the Budapest Division 3 meeting but he has kindly agreed to continue with this duty until a replacement is found. Division 3 is currently seeking an experienced Editor.

Revision of Interior Lighting Guide:

The Budapest report above was given by Mark Wood-Robinson (UK). Mr Wood-Robinson has now stepped down from his duty as rapporteur and Division 3 expresses its grateful appreciation for his efforts over several years.

Mr Lou Bedocs was asked to conduct a survey of members views on an ISO Lighting standard.

Guide to Daylighting of Building Interiors: Nancy Ruck (Australia)

As reported at Budapest the final draft of this Guide is currently being produced by excising certain parts and sections to achieve a manageable sized document.

Liaison with CIB: J Derrick Kendrick (Australia)

An International Daylight Conference entitled "Daylighting 90" has been co-sponsored by CIB and CIE through the enterprise of the Soviet National Committees of CIB and CIE. The conference will be held in Moscow from 9 to 12 October 1990. For further details please contact Soviet National Committee of the CIE/VNISI, 106 Prospect Mira, Moscow, 129301, USSR. Dr Alexander Spiridonov, member of Division 3, is the contact person. (See also last page of this Activity Report.)

Following receipt of a letter from Professor Gy Sebestyen, Secretary General of CIB (International Council for Building Research and Documentation) to CIE proposing cooperation in the field of lighting between CIE and CIB, an invitation has been extended to CIB persons to join CIE Technical Committees. In particular it was thought that some members of CIB Working Commission W79 on Control of Building Services could cooperate in the work of CIE Technical Committee No 3.04 (Chairman: Mr T K McGowan, USA.)

TC 3.01: Discomfort Glare from Small and Large Sources: H D Einhorn (South Africa)

Members of this TC have received for consideration a final report from the Chairman on "Glare from Small Sources" following a TC meeting in Budapest. The decision as to whether this report should be published separately or as an Appendix to the report of TC 3.13 was left to the Directorate of Division 3. Amendments to the report were recommendations for future research including field research. Also received was a document from the Chairman as a basis for development of the work plan on "Glare from Large Sources" and details of any information of research done in this area was requested. Details to Dr Heine Einhorn.

TC 3.05: Industrial Lighting and Safety at Work: H J Henschel (FRG)

Some doubts about the editing process were clarified at Budapest and it was agreed by Division 3 to split the draft into two parts. The first will summarize the questionnaire survey including references to national codes on safety at work. The second part will enhance the importance of collecting data, etc relating relevant lighting parameters to accidents. This part will thus be directed to national authorities giving guidelines on how to make such investigations.

An editing committee has completed the final draft and it will be submitted to the Division for balloting. The TC will then be dissolved on completion. The two parts have been handed over to the Editor. It is proposed that part I be published by CIE and that part 2 be handed over to national publishers in the different countries and for translation if necessary.

A new TC has been suggested by Professor Henschel: "Study of lighting and safety at work". The scope of this new TC will be to encourage research on using checklists etc and to collect data leading to better guidelines.

TC 307:: Programme for International Cooperation in Daylight Availability Measurements: J Derrick Kendrick (Australia)

Successful Technical Committee meetings were held in October 1989 in both Budapest and Berlin and the work of the committee was progressed. The third draft of the Daylight Measurement Guide received important detailed comment and a particularly useful contribution on evaluation of cloudiness conditions from the sky image developed by Dr Peter Valko, Switzerland, was described.

Following the "Daylight and Solar Radiation Measurement" Symposium held in Berlin on behalf of TC 307 expressions of gratitude were made to the German National Committee of CIE, the Technical University Berlin (TUB) and to the cooperative sponsorship of the World Meteorological Organisation (WMO) for their assistance. Expressions of interest in the International Daylight Measurement Programme which commences in 1991 were received from researchers in Holland, Greece and Libya, and subsequently enquiries have been received from Columbia and India.

Progress with funding reported so far is most encouraging. Japan will have three research class stations. USSR will share six stations in the European part of USSR. Australia has been successful with two research grant applications and a research class station is in course of establishment in Sydney. Sky luminance scanning equipment has been designed in West Berlin, and USSR are proposing to produce luminance meters.

The next meeting of TC 307 will be held in Moscow, USSR, prior to the joint CIE/CIB International Daylighting Conference.

TC 3.10: Maintenance of Lighting Systems: L Bedocs (UK)

The TC met in Budapest and a number of minor amendments were proposed for the fifth draft of the Guide on the Maintenance of Indoor Electric Lighting Equipment. The amendments have now been made and a cleaned-up draft will be used for discussion with the Vice President publications who agreed to provide editorial support. The draft for balloting should be available during May/ June 1990.

TC 3.15: Standardisation of Intermediate Sky Luminance: K Matsuura (Japan)

This TC was established at the CIE Venice Session in 1987 but the first TC meeting was held in Budapest in October 1989 due to delays in finalising the Technical Report of TC 3.09. In Budapest, Peter Valko (Switzerland) introduced his study on the measurement and analysis of radiance distributions of the various skies. Richard Kittler presented a lecture on "Problems of standardising the daylight climate". After discussion it was concluded that this TC would continue to investigate theoretical and empirical kinds of sky luminance models and to compare these models with available sky luminance measurments as they became available, particularly from the International Daylight Measurement Programme. It is therefore to be expected that this TC will become a long-term committee and should steadily collect sky luminance data as it becomes available. Research class data from the IDMP was particularly relevant.

TC 3.16: Psychological Aspects of Lighting: Review Committee: B Collins (USA)

It is of interest to report that TC 6.16 (of Division 6) under the chairmanship of Rikard Kuller (Sweden) was charged with the responsibility for requesting a Workshop at the Melbourne Session of CIE in July 1991 to permit the three TC's of Division 6 in this general area and TC 3.16 of Division 3 to meet and share their activities. As a result it is expected that clear directions for the progress of work in this important field can be defined. Thus the importance of the literature reviews by TC 3.16 and the indication of research directions for the future. This field promises to be an exciting area of development.

TC 3.18: National Use of Solar Radiation in Designing Energy-Efficient Systems of Daylighting: A V Spiridonov (USSR)

The earlier report of the "Daylighting 90" Conference to be held in Moscow from 9-12 October is of particular significance to the work of this TC.

TC 3.19: Scale Model Photometry for Interior Lighting: M Navvab (USA)

At an earlier meeting it was suggested that the terms of reference for this TC were in need of more precise definition and that a work plan was required. That has now been prepared as follows: For the *Terms of Reference:* To study and establish standards for techniques which have been in practice for many years by lighting and daylighting engineers, architects, engineers, but which have not been well defined.

To improve and develop new methodologies for evaluation of daylight interiors of complex geometry because other calculation methods can not satisfy current lighting designer needs (This was considered in a paper presented in Berlin, October 1989).

As *objectives* the following is proposed: To develop guidelines for the proper use of scale model photometry and simulation techniques (simulators) for indoor and outdoor photometric measurements. The procedures for selection of detectors, model size, materials, etc. would be included. (It is intended that papers on this will be presented at "Daylighting 90", Moscow, October 1990 and at the 22nd CIE Session in Melbourne, Australia in July 1991).

The *Justification* for this TC is as follows: The capability of being able to predict illuminance and luminance distribution in interior spaces is essential for lighting design. The combined use of computerised scale model photometry has become the tool of choice for many lighting designers. The accuracy and proper use of this method should be defined for lighting designers, researchers and educators.

Next Meeting of Division 3

The next meeting of *CIE Division 3: Interior Environment and Lighting Design* will be held in *Moscow, USSR* just before the international daylighting conference "Daylighting 90". It will be held on Monday 8 and Tuesday 9 October *1990*.

Requests for Technical Committee meetings have been sent by the Division Secretary to TC chairman and these may be held before the Division 3 meeting or after the "Daylighting 90" Conference, as required. Details are not to hand at this time.

Other Meetings of Interest

In addition to "Daylighting 90" described elsewhere, the Italian Lighting Association (AIDI) will hold its 4th International Conference at Taormina, Sicily, from 24 to 26 October 1990. The conference theme is "Light for Man: Art, Science, Economy".

For further information contact:

AIDI Secretary Office
Viale Monza 259
20126 Milano
ITALY [Tel 02 257 5255]

An international conference, "Light 90" will be held from 3 to 6 October 1990, at Kurort "Druschba", Varna, Bulgaria. Details available from VIII International Lighting Conference, "Light 90", ul Oborischte 35, 1504 SOFIA, BULGARIA. (Tel No 44 15 90 and Telex 22185).
The conference will be in Bulgarian, Russian, German and English.

Also, advance notice is given of Prakash 91 which is jointly sponsored by the Indian Society of Lighting Engineers and the Trade Fair Authority of India. This Conference will be held in October 1991. More details in later Activity Reports.

J D Kendrick
Associate Director of
CIE Division 3
4 June 1990.

PRELIMINARY PROGRAM

INTERNATIONAL CONFERENCE DAYLIGHTING - 90

PLENARY SESSION

P1. S.Selkowitz (USA) Development and evaluation of a self-aligning multi-storey core daylighting system.
P2. E.Ne'eman (Israel), M.Shukuya (Japan), J.L.Scartezzini (Switzerland), W.Osterhaus (USA) Integrated climate and energy control for the built environment.
P3. M.Oki, Y.Nishi,H.Nakamura (Japan) Relation between global illuminance (irradiance and other quantities of daylight) solar radiation.
P4. E.Borisenkov International daylight measurement year (IDMY) and world radiation data centre (WRDC) activities.
P5. A.Spiridonov, V.Mogutov (USSR) Comfort environment for living and working (about Research Institute for Building Physics).

SESSION A. DAYLIGHTING: THEORY, MEASUREMENTS.

A1. N.Nakamura, M.Oki (Japan) Daylight and solar radiation measurements in Japan.
A2. K.Matsuura, T.Iwata (Japan) A model of daylight source for the daylight illuminance calculations on the all weather conditions.
A3. M.Fontoyont (France), R.Perez (USA) Space-time analysis of daylighting systems.
A4. R.Kittler, L.Pirsel (Czechoslovakia) Lessons to be learned from existing sky radiance / luminance models.
A5. J.Pulpitlova (Czechoslovakia) Climatic aspects for daylight availability determination.
A7. P.Ineichen, O.Guisan (Switzerland) IDMY: first conditions measurements of solar radiation and daylight in the framework of the reference year of the CIE.
A8. J.Krochmann, S.Aydinli, E.Krochmann (FRG) Daylight availability.
A9. J.Krochmann, S.Aydinli, E.Krochmann (FRG) Why daylighting of interior.
A10. C.Benton (USA) Field measurements in an large daylighted office building.
A11. W.Kroner (USA) Dynamic envelopes: integrated daylight, insolation and thermal controls.
A12. P.R.Leslie, S.Hartleb (USA) Windows, variability, and human response.
A13. M.Navvab, J.Jones (USA) Daylighting performance of a public atrium building.

A14. C.Emrich, R.McCluney (USA) Determination of percent cloud cover using electronic imaging.
A15. C.Emrich, R.McCluney (USA) Preparatory research for the IMDY.
A16. J.Love, M.Navvab (USA) Acomparission of daylighting estimation under real skies by full-scale photometry, photometry and computer simulation.
A17. M.Perraudeau, (France) Daylight availability from energetic data.
A18. W. Qikuang, C.Zhonglin (China) The calculation of indoor utilization hours of natural illumination - and its regional distribution in China.
A19. C.Zhonglin, L.Yaozong, X.Huamin, Z.Yanwei (China) Data base measurement system is used to process the daylight data.
A20. Y.Guangxuan (China) Orientation factor for daylighting design in the sunny region of China.
A21. C.Zonglin G.Goanghua, L.Dinggi (China) A new average sky model composed of four types.
A22. M.Navvab, J,Love (USA), E.Ne'eman (Israel) Daylight and solar availability data for Ann Arbor, Michigan.
A23. C.Zonglin, L.Yuhan (china) Zenith luminance conversion factor and modified coefficient of daylighting under average sky.
A24. A.Coulibaly, G.Hug (France) Calculating the shadowband correction from the solar diffuse radiance distribution models.
A25. A.Coulibaly, G.Hug, E.Murzeau (France) Directionality correction in global irradiate measurements. A new method of characterizing directionality effect.
A26. P.Valko (Switzerland) Sky radiance for dondy and overcast days.
A27. Z.Skobareva, L.Teksheva (USSR) Substantiation for the hygienic minimum of the natural illuminance in premises with combined lighting.
A28. Z.Skobareva, L.Teksheva (USSR) hygienic recommendations on the compensation of drawbacks of lighting environment in premises with the deficiency of natural light and their technico-economic substantiation.
A29. D.Rogov (USSR) Universal method of the light field characteristics prediction.
A30. G.Khavaldgy (USSR) Variants of the main formulae of glass dusting
A31. E.Makhotkina (USSR) Estimation of the stability of solar radiation light equivalent.
A32. A. Bychkova, E.Makhotkina (USSR) On the relationship between daylight and photosynthetically active radiation.
A33. U.Radgabov (USSR) Method of creation of optimal light environments is buildings under spatial characteristics of light field.
A34. V.Turulov (USSR) Daylighting of dwellings under clear sky conditions (field research).

A35. A.Galkanov (USSR) Mathematical model of natural darkening of two buildings, being in the field of the direct solar radiation.
A36. A.Bohoniuk (USSR) Daylighting and insolation: optimization in dwellings.
A37. D.Bakharev (USSR) Larises of the reflection systems.
A38. L.Orlova (USSR) Multipurpose radiation model of the clear sky.
A39. S.Zachek, A.Bychkova, S.Sokolenko (USSR) Experimental measurements of twilight.
A40. O.Saveliev (USSR) Method of regional daylight climate aspect in the USSR territory.

SESSION B. DAYLIGHTING: DESIGN AND CALCULATION.

B1. M.Oki, Y.Nishi, H.Nakamura (Japan) An estimation method of daylight illuminance under the classified weather conditions in Japan.
B2. K.Matsuura, Y.Uetani, T.Iwata, M.Saito (Japan) Development of a computer programme of daylight calculation for an open and shut skylight dome.
B3. L.Di Fraia, R.Scognamiglio (Italy) On daylighting of museums under overcast and clear skies.
B4. C.Lindsay (UK) Procedures for recording venetian blind positions.
B5. A.Rutten (Netherlands) More accurate interior daylight illuminance prediction imperative on modern daylighting design and artificial lighting control.
B7. A.York, C.DesBrisay, B.Lee, L.Whitehead (Canada), S.Selkowitz (USA) Development and evaluation of a self-aligning multi-storey core daylighting system.
B8. E.Ne'eman (Israel), S.Selkowitz (USA) Envelope design determinants of daylighting impacts.
B9. T.Martynova, A.Godin (USSR) Daylighting and combined lighting standards for railway industry buildings.
B10. N.Pinskaya, A.Godin (USSR) Calculation of daylighting in buildings with big clearance objects.
B11. Y.Kholmogorov (USSR) Design of atrium and energy efficient buildings in Yakutia.
B12. T.Kopsova (USSR) Daylighting of unique civil buildings.
B13. A.Shapoval (USSR) A technique of natural lighting designing by means of a cad system "FASAD".
B14. V.Molitvin (USSR) Use of daylighting in architecture.
B15. F.Shekhter, A.Shadrin (USSR) New method of calculation of daylighting in industry buildings.
B16. D.Rogov (USSR) One of the ways to determine the daylight factor.
B17. V.Zemtsov, O.Saveliev (USSR) Development factor account in design and calculation daylighting.
B18. N.Semenihin (USSR) Account of dynamic properties of daylighting in building design.
B19. A.Shapoval (USSR) A computer - aided method of natural lighting designing.

B20. D.Privorotsky (USSR) Optimal window geometric dimensions in modern dwellings.
B21. M.Navvab, J.Jones (USA) Daylighting performance of a public atrium building.
B22. V.Cartwright (USA) Daylight with atria: a pule - of thumb.
B23. D.Di Laura, A.Smith (USA) Calculating daylighting effects in geometrically complicated spaces.
B24. G.Ives (USA) Daylighting for public education in northern latitudes.
B25. M.Ubbelohde (USA) Daylighting performance of atrium buildings in cold climate Minnesota.
B26. J.Kim (USA) A micro-computer based daylight illumination model: SUPERLITE PC.
B27. C.Emrich, R.McCluney, T.Wood (USA) Energy performance of daylight buildings in hot humid climates.
B28. S.Treado (USA) Daylighting design for energy and cost efficiency.
B29. C.Francis (USA) Daylighting and other energy conservation measures for a new railroad passenger station.
B30. R.Besant, C.Johnson, G.Schoenau (Canada) The energy performance and economics of daylight and non-daylight office buildings: window orientation and building foot-print effects.
B31. Y.Timokhin (USSR) Illuminating system for the State Tretiakov's picture gallery.
B32. M.Mitnik, A.Spiridonov (USSR) Complex method of calculation of heat and light entry in building under solar radiation.

SESSION C. DAYLIGHTING: NEW MATERIALS, CONSTRUCTIONS, SYSTEMS, DEVICES. COMBINED LIGHTING. RATIONAL USE OF SOLAR RADIATION IN BUILDINGS

C1. N. Ruck (Australia) Intelligent windows for energy efficient buildings.
C2. A.Bychkova, S.Zachek (USSR) Field tests of photometers with silicon photodiodes.
C3. H.Yaroker (USSR) New light-transmission elements of natural lighting systems.
C4. N.Obolensky, M.Glikman (USSR), E.Quashie (Ghana) Principles of selecting types and construction of rational sun protection devices for hot humid climates.
C5. A.Levich (USSR) New sun shading devices for the civil buildings.
C6. V.Mikla, V.Rubish, B.Zabedovsky, D.Semak, P.Shtetz, I.Yurkin V.Fedelesh, I.Turjanitsa (USSR) Vitreous chalcogenides - materials for optical recording.
C7. S.Iljin (USSR) Daylighting constructions easy threw off.
C8. J.Aizenberg, V.Pyatigorsky, A.Korobko, S.Tereshkevich (USSR) Heliostat lighting installations with plane lightguides and their efficiency.

C9. I.Mazurova,A.Spiridonov (USSR) Studies of daylight and solar radiation in the winter greenhouses.
C10. B.Kuleba, A.Spiridonov (USSR) The translucent energy-accumulate enveloping structures for greenhouses.
C11. S.Sokolenko, G.Guschin (USSR) A new indicator for the ultraviolet radiation control.
C12. L.Bortnikova (USSR) The ceramic sun shading devices.
C13. U.Abuev, M.Vulis (USSR) Heliostat lighting system.
C14. J.Halldane (Singapore) Directional daylight transmission and reflection in weathered acrylics polycarbonates and PVC glazing.
C15. J.Halldane (Singapore) Sunshaded mirror daylighting monitors and ceilings.
C16. J.Gutjahr, H.Möller (FRG) Development of transparent building elements with holographic diffractive drips.
C17. G.Willbold-Lohr (FRG) Daylighting in large glazed atrium spaces.
C19. J.Love (Canada), M.Navvab (USA) A new indicator of daylighting performance.
C20. D.DiLaura,M.Jongewaard (USA) A new passive daylight delivery system.
C21. M.Ubbelohde (USA) The university of Minnesota mirror box artificial sky: a daylight teaching tool for architects.
C22. U.Fisher (FRG) Transparent double-skin sheets - a proved glazing material. Double and triple-skin sheets made from PMMA and PC.
C23. H.Nakamura, M.Oki, T.Otsuru, Y.Koga (Japan) Daylight and solar radiation measurement stations newly established in Japan.
C24. V.Nickel (GDR) Materials with holografic coats for the daylighting and artificial lighting systems.

D1. M.Ajzen, A.Fert (USSR) Design and calculation of the passive sun heating systems.
D2. A.Quayum (Bangladesh) Bondings for tubular solar collectors.
D3. A.Quayum (Bangladesh) Performance studies of tubular flat plate solar collectors.
D4. G.Switzer (Sweden) energy-saving potentials for daylighted office work places that include visual display tasks.
D5. M.Ullah, P.Woods (Singapore) User satisfaction and performance in daylight integrated lighting environment of an office.
D6. M.Navvab, E.Vakalo (USA) Efficiency and integration of daylight and electric light in computer work stations.
D7. V.Cartwright, J.Reynolds (USA) Daylight, energy conservation and comfort in an office building.
D8. W.Julian (Australia) Issues in daylight / electric lighting design.

COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

CIE Division 4 (Lighting and Signalling for Transport)

Report to Canadian National Committee of CIE, 22 November 1990

B.W. Tansley

The Canadian member of Division 4, Dr. B.W. Tansley gave a verbal report at the CNC/CIE meeting on 22 November 1990.

Further details are available from:

Dr. B.W. Tansley
Department of Psychology
Carleton University
Ottawa, Ontario K15 5B6

Telephone: 613-564-7531

COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

CIE Division 5 (Exterior and Other Lighting Applications)

The Canadian member of Division 5 is:

Mr. J. Roberge
Infranor Canada Inc.
5650 Trudeau Street
St. Hyacinthe, Quebec J2S 1H4

Telephone: 514-464-0081

Information on the progress of the various Technical Committees of Division is attached.

Progress of Technical Committees

TC 5-01 Underground mine lighting: Mr. Hemp, the new chairman of this committee, has contacted the former members of TC 4.10 and some new candidates for membership. As a result TC 5-01 has again members willing to participate in finalizing the work. Those who have not reacted to the letters of Mr. Hemp have been deleted from the membership list. Mr. Hemp is working on the revision of the report to produce a 9th draft within the next few months.

TC 5-02 Underground mine lighting measurements: The report is still waiting to be combined with the report of TC 5-01. Earlier the TC 5-02 report has already got a positive balloting result of both the Division and the Council. It will be published in the new type of CIE Publication "The 1990 CIE Collection".

TC 5-03 Open cast mine lighting: Mr. Bandyopadhyay, chairman of TC 5-03 has changed jobs and moved from Calcutta to Bombay. Although this caused some delay in his CIE work, he has started correspondence with experts from different places in the world. He has received material but it remains difficult to get active members for this committee. Experts willing to participate actively in the work are invited to contact the Chairman or Division secretary. Mr. Bandyopadhyay has analyzed the situation in open cast mining and made an outline for a first draft report.

TC 5-04 Glare in outdoor areas: The chairman, Mr. Stockmar, has finalized the report "Glare evaluation system for outdoor sports- and area lighting". The chapter that remained to be written, observer positions and viewing directions, now describes the various possibilities for specifying these positions and directions without giving one fixed prescription.

TC 5-06 Floodlighting and decorative lighting: The report has been edited by our editor. To incorporate the changes in a camera-ready copy, the chairman Mr. Prieur had to ask the assistance of the secretariat of the French Lighting Society (AFE). The balloting procedure within the Division and Council will start before long. Anticipating a positive result, the report will be published this year.

TC 5-08 Off shore lighting: Mr. van Malland, the chairman has prepared an extensive first draft of his report, which is a good basis for further work of this committee. For this committee it has been merely impossible to get members. Because of health problems, Mr. van Malland has to give up his chairmanship, but will be available for advice. Suggestions for candidates for chairman and for members are very much welcome.

TC 5-09 Illuminance levels for sports events: Mr. Lemons, chairman of TC 5-09, expects that increased activity is possible. The report to be prepared by this committee can probably be the first Division 5 report directly suitable for a joint ISO/CIE Standard. Also for this reason the prompt finalizing of the work is important.

TC 5-10 Exterior security lighting, chairman Mr. Joye. The committee has quite some members and a reference list of work on the subject has been collected. On the basis of the discussions in Fribourg, the work for drafting text will be distributed among members. Mr. Cahn from Israel invites the committee to Israel for a meeting in October this year. Inspection of various security lighting installations can be arranged.

TC 5-11 Practical design guidelines for sports lighting installations of TV under the chairmanship of Mr. Hargroves, has been very active. Tasks to produce text for the various chapters of the report have been distributed among members.

At its Fribourg meeting in February 1989 Division 5 decided to form a new technical committee on *"Obtrusive light"*. A candidate-chairman was not available at that moment. In the meantime Prof. Warren Julian from Australia has agreed to become chairman. He has approached candidate members and made a working programme. Following the 6 months rule the Council can now confirm this new committee (TC 5-12) with nine members who all are willing to participate actively in the work. Liaison with a new Division 4 committee *"Interference of light of astronomical observations"* is guaranteed because Mr. Julian has become member of the latter committee.

COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

CIE Division 6 (Photobiology and Photochemistry)

There is no Canadian member of this Division.

COMMISSION INTERNATIONALE DE L'ÉCLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

Canadian National Committee Comité National Canadien

CIE Division 7 (General Aspects of Lighting)

Report to Canadian National Committee of CIE, 22nd November 1990

R. White

Information on the activities of Division 7 may be obtained from:

Mr. R. White
2364 Regent Avenue
Montreal, Quebec H4A 2R1

Telephone: 514-931-7501