



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

Canadian National Committee Comité National Canadien



MINUTES OF THE 39TH ANNUAL CNC/CIE MEETING

1994-November-28

The 39th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Monday, November 28, 1994 in the Reception Room of the Defence and Civil Institute of Environmental Medicine, 1133 Sheppard Avenue West, North York, Ontario.

1. Call-to-Order:

The meeting was called to order at 9:25 A.M. by J. Roberge, President. Eighteen Members and Advisory Members and one guest were in attendance (Appendix A). Four of the attendees participated in the meeting via telephone, the three Ottawa NRC(INMS) attendees being detained by inclement weather.

Since the Secretary (A.A. Gaertner) was one of the "telephone attendees", S.M. McFadden volunteered to take notes for the Minutes of the meeting. The President accepted her offer, and the Committee agreed, with thanks.

The agenda, as circulated by mail, was accepted.

The President asked who among the attendees had attended CIE Division or Technical Committee meetings during the past year. J. Roberge, R.B. Gibbons, A.R. Robertson and J.C. Zwinkels responded in the affirmative. They were asked to contribute information on the meetings that they had attended during Agenda Item 6 - the reports from Division Members.

2. Minutes of the 38th Annual CNC/CIE Meeting:

Moved by R.B. Gibbons and seconded by D.K. Tiller to dispense with the reading of the Minutes of the 38th annual CNC/CIE meeting. Passed. Moved by M.G. Bassett and seconded by R.B. Gibbons that the Minutes be accepted as circulated (mailing of 1994-January-10). Passed. There was no discussion arising out of the Minutes.

3. President's Report:

J. Roberge presented his report, enclosed as Appendix B.

4. Secretary / Treasurer's Report:

A.A. Gaertner presented his report, enclosed as Appendix C. Discussion followed concerning a letter to Ontario Hydro soliciting their support in sponsoring CNC/CIE Members to attend important CIE meetings. It was felt that such support was unlikely given the current climate of restraint. There was also considerable discussion over the CIE's decision to issue, for sale, Draft Standards. A.R. Robertson suggested that the CNC/CIE might issue a complimentary copy to individuals willing to review the Draft Standard and send in comments. J.B. McArthur wanted to



know if one had to pay for the formal Standard if one had previously purchased the Draft Standard. M.G. Bassett suggested that purchasers of the Draft Standard might be sent an Addendum sheet with the corrections/ modifications. If people required the formal report (e.g. libraries) they would have to purchase it. A.R. Robertson said that he would discuss this issue with representatives from other nations at the meeting he was going to attend next week at the Central Bureau and report back on what policy other nations were considering. Moved by P.K. Kaiser and seconded by R.B. Gibbons that the Secretary's Report be accepted. Passed.

A.A. Gaertner indicated that since all the activity in the CNC/CIE bank account was related to the activity in the sales of CIE Publications (other than \$2.18 in interest earned), the Treasurer's report would be given as part of the Publications Report.

5. Publications Report:

A.R. Robertson presented his report, enclosed as Appendix D. It was noted that we would have had a profit of \$3600 if our debt to the CIE had not been paid down. As is we will have a balance of \$700 after \$1000 in inventory are returned to the Central Bureau. B.W. Tansley had forwarded a request that libraries be given a special rate when purchasing CIE documents. P.K. Kaiser noted that many societies charge libraries more than their members for journals etc. A.R. Robertson noted that many of the CIE publications are purchased by libraries so giving them a special rate would affect our profits. It was decided to keep the selling price the same for all customers. M.G. Bassett requested that the price of new publications be put on the flyers announcing the publication. A.A. Gaertner indicated that he usually tried to do this but that the information was not available for the most recent release(#111) at the time of mailing. Moved by R.B. Gibbons and seconded by M.G. Bassett that the Publications Report be accepted. Passed.

6. Reports from Division Members:

The President hoped that everyone had read the reports that had been circulated prior to the meeting and were prepared to discuss points of interest.

(Secretary's Note: The Division Members' Reports are attached as a separate document, i.e. they are not labelled with an Appendix number. This has been done to enable separate use of this information for those who wish only these reports, independent of the Minutes of the Annual Meeting.)

DIVISION 1 Vision and Colour

S. M. McFadden

S. M. McFadden presented her report, as had been circulated by mail to all Members and Advisory Members prior to the meeting. She noted that 13 of the 25 Technical Committees had a Canadian representative. However, there were only six representatives - W. K. Adrian, W.B. Cowan, P.K. Kaiser, A.R. Robertson, R. Lakowski and J.C. Zwinkels. She enquired whether these participants felt that they had the time to participate actively in their Committees. A.R. Robertson indicated that his participation was largely because of his position as CIE Associate Director(Colour) of Division 1. It was noted that the term of the Director of Division 1 was nearing completion and they were looking for a replacement. An inquiry was made about nominating a Canadian. However, it was agreed that there was no one available. A.R. Robertson mentioned a letter sent to the CIE by W. Thornton criticizing the CIE for ignoring the work of W. Thornton. The President asked how many of the attendees were familiar with the work of W. Thornton and what was their opinion of same. P.K. Kaiser, K.F. Lin, and J.A. Chrysler responded in the affirmative. They all indicated that his research was methodologically sound, but that it was too big a step from his results to his theories. K.F. Lin said that Thornton and S. Berman seemed to be in agreement that V-lambda did not measure brightness. P.K. Kaiser noted that everyone agreed on that, — what people could not agree on was what to replace it with.

DIVISION 2 Physical Measurement of Light and Radiation

J. C. Zwinkels

J. C. Zwinkels presented the report for Division 2, as had been circulated by mail to all Members

and Advisory Members prior to the meeting. S.M. McFadden and T. Nilsson requested copies of the draft report on Colorimetry of Computer Controlled CRTs. B. Jordan expressed interest in participating in the new TC on geometric tolerances for colorimetry. A comment was made by J. Roberge that the report from TC2-01 was not of much use because people no longer use high-pressure mercury vapour lamps. J. Roberge requested a copy of a recent draft of the report from TC2-10. J.C. Zwinkels agreed to send out the requested documents. There was some discussion of Publication 114 which contains reports from a number of TCs(2-01, 2-05, 2-09, 2-12, R2-10). A.R. Robertson announced that a copy of CIE Publication Number 114/1994 *CIE Collection in Photometry and Radiometry* had just been received and was now available for sale at a price of \$97 Cdn.

DIVISION 3

Interior Environment and Lighting Design

I. C. Pasini

I. C. Pasini presented an updated report for Division 3, based on the Minutes of the recent Division 3 meeting which were not available before the deadline for submission of Division reports to the CNC/CIE Secretary for mailing to the Members and Advisory Members prior to the meeting. (A copy of the updated report is included in the Division Members' reports.) There was considerable discussion concerning TC 3-07. The Canadian representative on this is J. Bruce McArthur, who indicated that there is considerable discrepancy in the measurements that were recorded with different illuminometers: They had two instruments. When aimed at the sun they would be within 1% but when aimed away from the sun they could differ by as much as 25%. He said that every country is using their own instruments. Thus it is almost impossible to compare measurements between countries and the results of this large data collection effort are effectively useless. The problem stems largely from the decision to use an averaging device instead of a spectroradiometer. The filters on most devices do not accurately represent the V-lambda curve especially in the far blue and red. J. Roberge recommended that a letter be written to the CIE indicating how the CIE had orphaned this work and the need to set up a new committee to salvage the data. It was decided that J. Roberge, A.A. Gaertner and J.B. McArthur should get together and discuss this issue. There was also an extensive discussion on a proposal by L.A. Whitehead for a workshop on Hollow Light Guides for Roadway Lighting (TC3-30). Some thought that the proposal was too narrow for a workshop. Finally it was agreed to support the proposal and A.R. Robertson agreed to submit it to a meeting of the Division Directors of the CIE to be held in Vienna 1994-December-05. The justification was that there were a number of Canadian companies manufacturing hollow light guides and such a workshop could expand their market. It was recommended that these companies be informed about the workshop if it was accepted. I.C. Pasini is to contact J.A. Chrysler for a list of companies that produce hollow light guides. J. Roberge suggested that L.A. Whitehead should be invited to be an Advisory Member of the CNC/CIE.

DIVISION 4

Lighting and Signalling for Transport

B. W. Tansley

B.W. Tansley sent his regrets that he was unable to attend the meeting. He had sent a report to the Secretary but not in time for distribution prior to the meeting. R.B. Gibbons gave a verbal report on the annual Division 4 meeting held in Liege, Belgium, 1994 September 23 to 28, which he had attended. W.K. Adrian, A. Ketvirtis, and B.W. Tansley had also been in attendance. A.A. Gaertner presented some of the material which B.W. Tansley had written in his covering letter to his report on Division 4. (A copy of B.W. Tansley's Division 4 report is included with the Division Member's Reports.) There followed a considerable discussion on roadway lighting. J. Roberge asked whether there was going to be an update of the RTAC(Road Transport Association of Canada) manual which he used extensively and was available from MOT. M.G. Bassett said that the University of Toronto had prepared the data on reflectances of different surfaces and that the data were specifically Canadian. R.B. Gibbons agreed to contact A. Ketvirtis about the status of this book, as well as contact RTAC for the purpose of maintaining contact with them concerning transport lighting.

A.R. Robertson reported that Jim White of Transport Canada had some concerns about the Draft Standard DS 004, *Colours of Signal Lights*. He noted that he had sent him a copy of the DS with the request that any comments be sent to the Secretary by 1994 December 01, for inclusion in a

CNC/CIE comment to the Central Bureau. T. Nilsson asked about the status of adapting transportation signal light standards to encourage the use of light emitting diodes (LEDs). There was an extensive discussion on the use of LEDs for signal lights with some favouring it and others more reluctant. J. Roberge stated that he thought LEDs were being tested for traffic lights in Québec. K.F. Lin said that several studies up until the end of 1993 had concluded that LEDs were not bright enough for most signalling requirements. However, in the past year Hewlett Packard had announced a new generation of LEDs with double the output. Byron Jordan commented that he found that LED output was only stable after a 100 hour burn-in period.

DIVISION 5

Exterior and Other Lighting Applications

J. Roberge

J. Roberge presented his report, as had been circulated by mail to all Members and Advisory Members prior to the meeting. He discussed some of the issues that had arisen in the meetings he had attended. One was the accuracy of computer programs used in light measurement. In North America, most people use one of a small number of commercially available programs, all of which provide similar and accurate results. In Europe, there are a wide range of programs of questionable validity. However, he feels that in general the computer program is a minor source of errors compared with errors that can arise during the measurement process. He also commented that it is possible to end up with totally inadequate lighting levels even with all the components within specifications, largely due to all the components being produced at the minimum of their specifications. He hoped to be able to address this issue as a member of TC5-15 Tolerances and Accuracy in Lighting Design. In reply to the suggestions from T. Nilsson concerning the formulas for the uniformity of illuminance (TC 5-13), he noted that the Standard had progressed far enough now that it would be very difficult to consider any changes. A.A. Gaertner indicated that S.W. McKnight had expressed an interest in the Obtrusive Light draft of TC 5-12.

DIVISION 6

Photobiology and Photochemistry

E. Wotton

E. Wotton sent his regrets that he was unable to be present at the meeting and that no report had been prepared because he was unable to make contact with the Division. A.A. Gaertner agreed to e-mail CIE headquarters to see if an Activity report on Division 6 was available. J.B. McArthur requested information on the work being carried out in Division 6. He thought that there were some colleagues at AES (Atmospheric Environment Service) who were working in this area and who might be prepared to participate in Division 6. (Secretary's Note: Enclosed with the Division Reports is a copy of the Minutes of the latest Division 6 meeting held in Paris, France 16 May 1994, which I was able to obtain from the Central Bureau.)

DIVISION 7

General Aspects of Lighting

R. W. White

R. W. White sent his regrets that he was unable to be present at the meeting. There was a brief discussion on his report which had been circulated by mail to all Members and Advisory Members prior to the meeting. G.Woo, the Canadian representative on TC 7-06 (Lighting Terminology), indicated that he had not yet received any information concerning TC7-06. He requested the address of H. Maglock, the Chairman of TC7-06, so that he could write to her. A.A. Gaertner promised to send this to him.

7. Nominations and Appointments:

This item was carried out prior to the reports from Divisions 5 to 7 so that it would be completed prior to the departure of A.R. Robertson.
The current list of Members and Advisory Members was circulated (Appendix E).

Members:

The Secretary noted that S. M. Kaye had not formally responded to his appointment. He had inquired of A.R. Robertson about the benefits of being a Member of CNC/CIE. A.R. Robertson

said that he had responded to this query and that he had heard nothing from Kaye since then. I.C. Pasini suggested that financial support might be a factor in his delay in responding to the appointment. It was agreed that the Secretary contact him once more to state that he was wanted on the Committee and that we would try to cover at least the telephone costs for attending the meeting. The terms of six of the Members will expire 31 December 1994. S.M. McFadden, I.C. Pasini, and J.C. Zwinkels agreed to serve for another term. R.B. Gibbons indicated that W. K. Adrian would be willing to serve for another term. E. Wotton was contacted by phone and said that he would prefer to step down as a full Member but would like to remain as an Advisory Member. It was also decided to replace B.W. Tansley as a full Member in order to allow some new Members to join. I.C. Pasini moved and G. Woo seconded that the Committee recommend the appointment of R.B. Gibbons as a full Member of the CNC/CIE. Passed. M.G. Bassett moved and D.K. Tiller seconded that J. Love be recommended for appointment as a full Member of the CNC/CIE. Passed. M.G. Bassett and J.B. McArthur seconded that B. Jordan be recommended for appointment as a full Member of the CNC/CIE. Passed. The first two nominees would be the first choice of the Committee. B. Jordan was included to provide the INMS with an alternative in case one of the appointees declined. A.R. Robertson stated that B.W. Tansley had indicated that he would consider resigning as Canadian Member for Division 4 if a suitable replacement could be found. R.B. Gibbons moved and K.F. Lin seconded that W. K. Adrian be appointed Canadian Member of Division 4. Passed. E. Wotton had tendered his resignation as Canadian Member for Division 6 in a letter to the President. M.G. Bassett moved and R.B. Gibbons seconded that K.F. Lin be appointed as Canadian Member of Division 6. Passed.

Advisory Members:

A.A. Gaertner noted that Biman Das, H.H. Mikaelian, M.J. Ouellette and M.K. Timmings had all accepted their nomination as Advisory Members of the CNC/CIE. The Committee recommended that he follow-up on the invitation given to R.J. Adams after last year's annual meeting. He recommended the nomination of I. Ashdown and C.M. Henville as Advisory Members. This recommendation was accepted by the Committee. As well it was moved by K.F. Lin and seconded by D.K. Tiller that V. Cimino be appointed as an Advisory Member of CNC/CIE. Passed. Mr. Cimino was in attendance and indicated his willingness to accept this appointment. J.B. McArthur indicated that he might be able to make contact with people working in the areas covered by Division 6, who might be interested in becoming Advisory Members. He would let the Secretary know, and also K.F. Lin, who is to be the Division 6 Member.

8. Other Business:

8.1 Revision of CNC/CIE Code of Procedure:

This item was handled prior to presentation of the reports for Divisions 5-7 and Item 7 because A.R. Robertson had to leave the meeting early. J. Roberge pointed out that Code of Procedure Item 5 'Officers' should be changed to include a Treasurer. It was moved by I.C. Pasini and seconded by T. Nilsson that the Code of Procedure dated 11.11.93 and corrected by A.R. Robertson as above (to include a Treasurer) be accepted. Passed. A.R. Robertson indicated that he had drafted some clarifications following last year's annual meeting and would circulate them as a proposed revision to the version just approved.

8.2 CIE Awards:

A. Ketvirtis and G. Woo had prepared a recommendation for submission to the Central Bureau that Marion Bassett be awarded a CIE Certificate for her outstanding contributions to CIE activity. It was moved by G. Woo and seconded by E. Szamosi that the CNC/CIE nominate M.G. Bassett for this award. Passed. A.A. Gaertner is to inform the Central Bureau.

8.3 Correspondence:

J. Roberge brought forward ten items of correspondence which he had received during the year:

1. A letter from E. Wotton of 1993-November-23 concerning, among other things, the dissemination of information about CIE and CNC/CIE activities, and the (in)adequate representation of Canadians at CIE meetings. J. Roberge recommended that attendees at Technical Committee meetings forward summaries of these meetings to all interested Members of CNC/CIE. He also recommended that Division Members forward all information that they receive in that capacity (including draft reports from TCs) to the Secretary of CNC/CIE who could then compile a list of the available information and disseminate it to all Members of the CNC/CIE as part of regular mailings. The main idea is to let the Members know that certain information is available. If Members were interested in any of the information from any of the Divisions they could request the information from the Division Member.
2. Correspondence between A.R. Robertson and S.M. Kaye concerning CNC/CIE Membership.
3. Correspondence between J. Roberge and D.K. Tiller concerning the demonstration at the last annual meeting by D.K. Tiller concerning an Electronic Information System.
4. Correspondence concerning potential funding from Ontario Hydro.
5. Letter from A. Ketvirtis concerning CIE Certificates for distinguished service awards.
6. Letter from J. Schanda concerning the circulation of CIE Draft Standards.
7. Correspondence as a result of the recommendation from the 1994-May-03 meeting of Division 5 in Newark, NJ, that the CIE 23rd Session be compressed to one week.
8. Correspondence from A.R. Robertson to the Standards Council of Canada concerning the cutting of funding for Canadian Membership in ISO TC 187.
9. Correspondence from T. Nilsson to A.A. Gaertner (November 22, 1994) concerning telephone attendance at the annual meeting, with comments about some aspects of the division reports. This is enclosed as Appendix F. J. Roberge will reply. R.B. Gibbons will contact T. Nilsson concerning T. Nilsson's facility to measure visibility in terms of distance.
10. E. Wotton's letter submitted to J. Roberge at today's meeting. This is enclosed as Appendix G. In this letter, E. Wotton moves that the annual meeting of the CNC/CIE be dispensed with and the funds used to provide lending libraries with copies of the CIE Publications. M.G. Bassett pointed out that the Code of Procedures specifies that a meeting of the CNC/CIE must be held annually. On that basis the motion was not seconded. J. Roberge agreed to respond to that letter.

8.4 23rd Session of the CIE:

J. Roberge asked who was planning to attend the 23rd Session of the CIE. D.K. Tiller and J. Roberge indicated that they planned to attend. It was assumed that A.R. Robertson would also attend. J.C. Zwinkels and I.C. Pasini indicated that they might attend. R.B. Gibbons said that if funding were available either he or W. K. Adrian would attend. It was moved by M.G. Bassett and seconded by J.A. Chrysler that J. Roberge be nominated as the official delegate of the CNC/CIE to the 23rd Session of the CIE, with A.R. Robertson to act as alternate. Passed.

8.6 CORM '95

J.C. Zwinkels reported on the plans for CORM '95 (Appendix H) and solicited names for invited speakers and submitted papers. It was recommended that she forward her request specifically to J. Love and J.B. McArthur, along with detailed information about the meeting.

8.7 Interdivisional Communications:

This section was concerned with improving communication amongst Members about the activities in the various Divisions. J. Roberge pointed out that we had considered several aspects of this item in our discussions above (Item 8.3-1). It was also pointed out that the Division Members should maintain their own mailing lists of people who should receive the Divisional information which the Division Members receive. J. Roberge stated that the decision by the Central Bureau to distribute Draft Standards and the recommendation to have Division Members forward information concerning their Division to the Secretary should enhance interdivisional communication.

8.5 Date and Place for next meeting.

E. Szamosi invited the CNC/CIE to hold its annual meeting at CSA next year. It was agreed to hold the meeting on Friday, December 1, 1995. It was hoped that a meeting at this date would allow for reports to be available from the 23rd Session of the CIE to be held in India from November 1-8, 1995. It was also agreed that telephone conferencing facilities and e-mail facilities should be available for communication with Members unable to attend the meeting in person. E. Szamosi indicated that those facilities were available at CSA.

9. Adjournment:

J. Roberge extended the appreciation of the attendees to M.G. Bassett for her generous gift of delicious desserts, and to S.M. McFadden for her efforts in arranging the meeting locale. The meeting was adjourned at approximately 16:15.

I would like to express my gratitude to Sharon M. McFadden for her excellent work in recording most of these Minutes during the meeting.



A.A. Gaertner
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1995-January-20

LIST OF APPENDIXES

Appendix A: Attendees to the 39th Annual Meeting of the CNC/CIE

Appendix B: President's Report

Appendix C: Secretary / Treasurer's Report

Appendix D: Publications Report

Appendix E: List of CNC/CIE Members and Advisory Members

Appendix F: E-mail letter from T. Nilsson to A.A. Gaertner concerning this annual meeting.

Appendix G: Letter of 1994-November-20 from E. Wotton to J. Roberge, submitted at this annual meeting.

Appendix H: CORM '95 information from J.C. Zwinkels.

APPENDIX A

ATTENDEES TO THE 39TH ANNUAL MEETING OF THE CNC/CIE

Marion G. Bassett	Lighting Consultant
J. Allyson Chrysler	Lighting Consultant
† Vince Cimino	Ontario Ministry of Transportation
* Arnold A. Gaertner	National Research Council (INMS)
Ronald B. Gibbons	University of Waterloo
Byron Jordan	Paprican
Peter K. Kaiser	York University
Barbara Kolesnik	UMA Engineering Ltd.
K. Frank Lin	Lighting Sciences Canada Ltd.
J. Bruce McArthur	Environment Canada
Sharon M. McFadden	Defence and Civil Institute of Environmental Medicine
* Thomy Nilsson	University of Prince Edward Island
Ivan C. Pasini	Public Works Canada
Jacques Roberge	Infranor Canada Inc.
* Alan R. Robertson	National Research Council (INMS)
Eli Szamosi	Canadian Standards Association
Dale K. Tiller	National Research Council (IRC)
George Woo	University of Waterloo
* Joanne C. Zwinkels	National Research Council (INMS)
* attended via telephone conference call.	
† visitor	

REGRETS

Werner K. Adrian	University of Waterloo
Ian Ashdown	Ledalite Architectural Products, Inc.
Andrée Bichon	National Research Council (International Affairs)
H.W. Budde	NRC (retired)
W.B. Cowan	University of Waterloo
S.M. McKnight	Lighting Consultant
M.J. Ouellette	National Research Council (IRC)
R.A. Smith	Ralph Smith Engineering Inc.
Brian W. Tansley	Carleton University
Robert W. White	Environmental Lighting
Ernest Wotton	Lighting Consultant



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CNC/CIE PRESIDENT'S REPORT TO THE 39TH ANNUAL MEETING

NOVEMBER 28, 1994

The year 1994 being neither a Session or Mid-Quadranium year, no meeting of the General Assembly took place. Such meetings normally generate much informations to be communicated to National Committee members, as a result of:

- 1- situation reports presented by the offices of the Commission,
- 2- discussions on subjects of general interest on the agenda,
- 3- matters brought-up by the representatives of member countries.

There was however a Board of Administration meeting taking place in Vienna at the time when I attended a Finance Committee meeting there in April 1994, and the following general information came to my attention:

- 23rd Session organization on track for New Delhi.
- The idea of renting a smaller space for Central Bureau would have resulted in negligible savings, and was abandoned.
- Our Executive Director will help editing technical committee reports in their final phases.
- He plans on retiring at some time within the next two years, possibly in a progressive phase-out.
- Dr. Julian of Australia is to work on a CIE historical collection on Light and Lighting topics of continued interest over the years.
- CIE finances have stabilized, and the drain on our reserves that resulted from the opening of the Central Bureau in Vienna appears to have come to an end.
- Congratulations to Mr. Timmings and Ouellette whose acceptance of our invitation resulted in them being officially appointed as Associate Members of CNC/CIE.

A new dues system proposed by the Finance Committee and approved for voting by the General Assembly in 1993 appears to have been accepted by a majority of voting member countries. It will be put into effect following the 23rd Session.

Regarding my personal CIE activities during 1994, aside from attending a Finance Committee meeting in Vienna in April, I participated in a Division 5 meeting and TC work in New York in May, and more TC work in Lancaster, UK, in September, as reported with Div.5 activities.

I was also invited by the IESNA National Capital Section as a luncheon speaker at the end of September, to inform their members on CIE activities. Finally I had the opportunity to represent the CNC/CIE at the sixth meeting of the Committee on International Science, Engineering and Technology (CISSET) on Oct 24: the CIE appears to be very different in its organization and operations from most of the other 23 or so scientific societies represented at the meeting, and as far as I could determine, does not have much influence in, or expect to receive much benefits from, its association with this very learned group.

Most CIE activity in 1994 was centered on committee work, which is covered in the individual reports of Division Members. Their reports were forwarded in advance of our annual meeting, as requested in the past by most attendees at previous annual meetings, and an effort will be made this year to allow somewhat more time for technical discussions pertaining to T.C. activities, and a little less to "housekeeping" matters. It is regrettable that the time available in one day may prove insufficient for in-depth coverage, but the two-day meeting format mentioned last year as desirable for such purpose did not seem to meet with the approval of a sufficient number member of Members and Associate Members to warrant its implementation.

We are looking forward to more excitement in 1995, since our 40th meeting will follow the 23rd session of the CIE, with plenty of "hot" new subjects to report on and debate about.

Respectfully submitted by:

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CNC/CIE SECRETARY'S REPORT TO THE 39TH ANNUAL MEETING

1994-NOVEMBER-28

This report covers the period from 1993-November-13 to 1994-November-27

CIE MATTERS:

1. CIE Membership of Indonesian Illuminating Engineering Society: The result of the international ballot was to approve the membership of the Indonesian National Committee of the CIE.

2. Draft Standards: The CIE has issued two draft standards this year:

CIE Draft Standards DS 003.2, "*Spatial Distribution of Daylight - CIE Standard Overcast Sky and Clear Sky*".

CIE Draft Standards DS 004, "*Colours of Signal Lights*".

A preliminary version of DS 003 was mailed to all CNC/CIE Members and Advisory Members for their comments. The comments received were forwarded to the Central Bureau. The version DS 003.2 contains modifications suggested by all National Committees.

The publication of Standards requires approval of the National Committees. Both of the above two Draft Standards are published under the six months rule: i.e., the last date for comments is in December 1994. If you wish to make comments please send to me by December 01, 1994, so that I may collate the comments and send them to the Central Bureau.

Because of the CIE agreements with ISO and IEC on publishing joint standards, the CIE Board of Administration initiated a streamlining of the CIE standards production procedure. Details were mailed to all Members and Advisory Members on 1994-July-19. The Draft Standards are now for sale in the same manner as the CIE Publications. At this time, we have decided that we will make a copy available to any Member or Advisory Member who would like to review it and send their comments to the CNC/CIE secretary for collation in a CNC/CIE comment to the Central Bureau.

3. New Technical Committees: As part of the Central Bureau's correspondence with the National Committees, I often receive a list of new TC's which have been established. I usually assume that the Division Members have already received this information. Also, these are usually published in the *CIE News*.

4. Annual Membership Fee: The annual membership fee of the CNC/CIE as a member of the CIE for 1994 is 75077.00 Austrian Schillings. This is approximately \$8018.00 Cdn. The NRC International Affairs Branch is responsible for making this payment.

The CIE Board of Administration has proposed a new formula for defining the annual fees of each National Committee. Since the NRC International Affairs pay our dues, this was forwarded to them for their consideration. After careful review, and expressing their concern over strict financial control, they indicated to the Central Bureau their approval.

5. Mailings: Amongst others, the following CIE materials have been received and mailed to the membership as appropriate:

CIE NEWS # 28, December 1993
CIE NEWS # 29, March 1994
CIE NEWS # 30, June 1994
CIE NEWS # 31, September 1994

CIE Press Releases:

CIE Publication 102 (1993), *Recommended File Format for Electronic Transfer of Luminaire Photometric Data*.
CIE Publication 104 (1993), *Automobile Daytime Running Lights (DRL)*.
CIE Publication 106 (1993), *CIE Collection in Photobiology and Photochemistry*.
CIE Publication 107 (1994), *Review of the Official Recommendations of the CIE for the Colours of Signal Lights*.
CIE Publication 108 (1994), *Guide to Recommended Practice of Daylight Measurement*.
CIE Publication 109 (1994) and CIE D007-1994, *A Method of Predicting Corresponding Colours under Different Chromatic and Illuminance Adaptations*.
CIE Publication 110 (1994), *Spatial Distribution of Daylight - Luminance Distributions of Various Reference Skies*.
CIE Publication 111 (1994), CIE Technical Report, *Variable Message Signs*.

CIE Publication x007 (1993), *Proceedings of the CIE Symposium '93 on Advanced Colorimetry*.
CIE Publication No. x008(1994), *"Urban Sky Glow, a Worry for Astronomy"*.

CIE Disk D004 Rel. 1.1, *CIE Publications (1993)*.
CIE Disk D005, Rel. 1.0, *A Method for Assessing the Quality of D65 Daylight Simulators for Colorimetry*.

CIE Draft Standards DS 003.2, *"Spatial Distribution of Daylight - CIE Standard Overcast Sky and Clear Sky"*.
CIE Draft Standards DS 004, *"Colours of Signal Lights"*.

AIC Colour '93 Proceedings.

CNC/CIE MATTERS:

1. 23rd Session of the CIE 1-8 November 1995 New Delhi, India: The call for papers was sent on January 28, 1994 to all Members, Advisory Members, our general mailing list, and our journals mailing list. Included was a request for suggested subject areas for Invited Papers and the Workshops. The mailing to the journals contained a press release concerning the Session.

Six papers were received, and each of these was sent to two reviewers for their comments on the suitability of the paper for presentation in New Delhi. All papers were accepted and they have been sent, with CNC/CIE recommendation, to the Central Bureau for review by the "Papers Selection Committee". Authors will be informed on their decision by mid December 1994.

I would like to thank all the reviewers for their assistance in this process.

I received no suggestions for subject areas for the Invited Papers and the Workshops.

2. Membership: The following items have taken place:

i. **Members:** At last years annual meeting (38th), A.A. Gaertner was nominated as Secretary/Treasurer, and T. Nilsson was nominated for a further term as Member. Letters of appointment were sent to them by A.L. VanKoughnett, Director-General of INMS. Both of them

have accepted their appointment. Acceptances have now been received from all members except S.M. Kaye. A list of our Members and Advisory Members is available and will be discussed later in the agenda.

ii. **Advisory Members:** Letters inviting the three nominees for Advisory Membership made at the last annual meeting were sent. Replies have been received from two of them accepting the nomination. In addition two of the nominees from the previous (37th) annual meeting have also replied in the affirmative. The new advisory members are:

Biman Das,	Technical University of Nova Scotia, Halifax
H.H. Mikaelian,	University of New Brunswick, Fredericton
M.J. Ouellette,	NRC Institute for Research in Construction, Ottawa
M.K. Timmings,	The Lighting Concept Centre, Toronto

We welcome their presence and look forward to working with them.

The following two people have expressed an interest in the CNC/CIE, and I recommend their nomination for Advisory Membership:

Mr. Ian Ashdown, P.Eng.	C.M. Henville, P.Eng.
Research and Development Manager	Senior Technical Advisor
Ledalite Architectural Products Inc.	Ontario Hydro
Langley, B.C.	Toronto, Ontario.

4. Publicity: A suggestion was received that we add the journal *Éclairage Plus*, based in Ville St-Laurent, Québec, to our mailing list. I have done so, and I am exploring the possibility of obtaining in French some of the literature which we receive from the Central Bureau.

5. Mailing Lists: At present I maintain 4 mailing lists: Members(12), Advisory Members(30+2), General Interest(34), and the list of Journals/Associations(21) sent to me by E.Wotton. In general, the difference between the first two and the 3rd is that the 3rd list tends to receive only CIE material(press releases of CIE publications, *CIE NEWS*) and notices of international conferences. Members and Advisory Members receive more CNC information such as various ballots, and the Minutes of the annual meeting and related information. The two journals *Éclairage Plus* and *Lighting Magazine* are also on the General Interest mailing list.

6. Sponsorships: Allyson Chrysler has made some inquiries to Ontario Hydro to determine their interest in sponsoring CNC/CIE members in attending important CIE meetings. I have contacted Ontario Hydro and determined that at present their funds are very limited, but that it may be possible to put in requests in advance of their budgeting process.

Respectfully submitted,



A.A. Gaertner
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CNC/CIE Publications Report, November 1994*A.R. Robertson*

During the past year, I have sold 48 publications for a total income of \$5465.00. I have paid \$4894.63 to the CIE Central Bureau (CB) towards our debt and have purchased 32 new publications for a total of ATS 13169 (approximately \$1700 at an exchange rate of 0.130). Our current balance is \$5211.20 with a debt to the CB of ATS 42258 (approximately \$5500). Our current stock of 286 publications cost ATS 48978 (approximately \$6400). I propose to return part of our pre-1992 consignment to the CB for a credit of about \$1000 and to pay the remainder of our debt. This will leave the CNC/CIE with a balance of about \$700.

Bank Account	Income	Expense	Balance
	\$	\$	\$
Forward 1993-11-05			4016.23
Sales	5465.00		9481.23
Paid to CB		4894.63	4586.60
Interest	2.18		4588.78
From old account (B. Tansley)	395.42		4984.20
From pre 1993 sale	227.00		5211.20

Account with Central Bureau	Income	Expense	Balance
	ATS	ATS	ATS
Forward 1993-11-05			(74591.25)
Write-offs	3204.50		(71387.00)
Payments	42298.25		(29088.75)
New purchases		13169.00	(42257.75)

(at an exchange rate of 0.13, ATS 42257.75 is \$5493.51)

STOCK.XLS

	CIE Publications							
	Stock list							
	1994-11-25							
	Exchange rate=	0.13						
	Price in CDN\$ = Cost in ATS x 0.114 x 1.1 / (1-0.49)							
No.	Title	Year	Cost (ATS)	Price (CDN\$)	Stock 931105	Purchases since 931105	Sales since 931105	Current stock
1	Urban sky glow	1980	0.00	\$74.00	5			5
2.2	Signal colours	1975	0.00	\$120.00	4			4
12.2	Road Lighting	1977	0.00	\$94.00	4			4
13.2	Colour rendering	1988	487.50	\$120.00	1			1
13.2	Colour rendering	1988	0.00	\$120.00	3			3
15.2	Colorimetry	1986	435.50	\$107.00	0			0
15.2	Colorimetry	1986	481.00	\$107.00	0	1	1	0
15.2	Colorimetry	1986	481.00	\$118.00	0	2	2	0
16	Daylight	1972	0.00	\$120.00	5			5
17.4	Vocabulary	1987	2515.50	\$619.00	2			2
18.2	Physical photometry	1983	0.00	\$88.00	4			4
19.21	Visual performance -	1981	0.00	\$152.00	4			4
19.22	Visual performance -	1981	0.00	\$120.00	4			4
22	Sky luminance	1972	0.00	\$82.00	4			4
23	Motorway lighting	1973	0.00	\$101.00	5			5
24	Luminaire phot. (ind)	1973	0.00	\$101.00	5			5
27	Luminaire phot. (street)	1973	0.00	\$107.00	4			4
29.2	Interior lighting	1986	539.50	\$133.00	2			2
30.2	Calc.&meas. (road lit)	1982	0.00	\$184.00	2			2
31	Glare (road lighting)	1976	0.00	\$74.00	2			2
32A	Special road litg (French)	1977	0.00	\$101.00	4			4
32B	Special road litg (English)	1977	0.00	\$101.00	5			5
33A	Road litg depn (French)	1977	0.00	\$94.00	4			4
33B	Road litg depn (English)	1977	0.00	\$94.00	5			5
34	Road litg installn data	1977	0.00	\$88.00	4			4
38	Char. of materials	1977	0.00	\$184.00	5		1	4
39.2	Surf.colours for signal	1983	0.00	\$120.00	5			5
40	Interior lighting calcs	1978	0.00	\$101.00	4			4
41	Light as true vis.quan	1978	344.50	\$88.00	5			5
42	Lighting for tennis	1978	0.00	\$74.00	6			6
43	Phot. of floodlights	1979	0.00	\$94.00	5			5
44	Absolute reflection	1979	0.00	\$107.00	5		2	3
45	Lighting for ice sports	1979	0.00	\$74.00	5			5
46	Material refl. stds.	1979	0.00	\$133.00	5		1	4
47	Lighting for wet road	1979	0.00	\$120.00	4			4
48	Road traffic signals	1980	0.00	\$88.00	3			3
49	Emergency lighting	1981	0.00	\$62.00	4			4
51	Daylight simulators	1981	0.00	\$82.00	5		2	3

STOCK.XLS

No.	Title	Year	Cost (ATS)	Price (CDN\$)	Stock 931105	Purchases since 931105	Sales since 931105	Current stock
52	Interior lighting calcs	1982	0.00	\$184.00	4			4
53	Radiometers & photo	1982	0.00	\$82.00	4			4
54	Retroreflection	1982	0.00	\$82.00	2			2
55	Discomfort glare	1983	0.00	\$94.00	3			3
56	Proceedings 1983	1983	0.00	\$184.00	5			5
57	Lighting for football	1983	0.00	\$62.00	4			4
58	Lighting for sports ha	1983	0.00	\$48.00	4			4
59	Polarization	1984	0.00	\$82.00	5		1	4
60	Vision & the vdu	1984	0.00	\$82.00	2			2
61	Tunnel entrance light	1984	0.00	\$120.00	3			3
62	Lighting for swimming	1984	0.00	\$74.00	2			2
63	Spectroradiometry	1984	0.00	\$101.00	3			3
64	Spectral responsivity	1984	0.00	\$107.00	4			4
65	Absolute radiometer	1985	0.00	\$82.00	4			4
66	Road surfaces	1984	0.00	\$107.00	2			2
67	Photometry of sports	1986	195.00	\$48.00	5			5
68	Exterior lighting	1986	435.50	\$107.00	1			1
68	Exterior lighting	1986	0.00	\$107.00	4			4
69	Illuminance meters	1987	357.50	\$88.00	2		1	1
70	Meas. of luminous int	1987	383.50	\$94.00	4			4
71	Proceedings 1987	1987	1898.00	\$467.00	3		1	2
72	Retroreflectors	1987	396.50	\$101.00	3			3
73	Road markings	1988	396.50	\$101.00	0			0
74	Road signs	1988	617.50	\$152.00	1			1
75	Spec. luminous effici	1988	299.00	\$74.00	5		1	4
76	Meas. of luminescen	1988	435.50	\$107.00	5		2	3
77	Electric light sources	1988	617.50	\$152.00	5		1	4
78	Brightness-luminance	1988	812.50	\$217.00	5			5
79	Road traffic lights	1988	273.00	\$74.00	2			2
80	Observer metamerism	1989	273.00	\$74.00	5			5
81	Mesopic photometry	1989	318.50	\$82.00	4		1	3
82	CIE history	1989	884.00	\$217.00	2		1	1
83	Lighting for tv sports	1989	273.00	\$74.00	5			5
84	Luminous flux	1989	383.50	\$94.00	3		1	2
85	Solar spec. irradiance	1989	383.50	\$94.00	3		1	2
86	1988 spec.lum.eff.fur	1990	253.50	\$62.00	4		1	3
87	Self-luminous displays	1990	357.50	\$88.00	2		1	1
88	Lighting for road tunn	1990	364.00	\$94.00	1			1
89	Collection 1990	1990	422.50	\$104.00	0			0
90	Sunscreen testing	1991	279.50	\$69.00	0			0
91	Proceedings 1991	1992	1170.00	\$288.00	3		1	2
92	Lighting of urban are	1992	331.50	\$82.00	2			2
93	Road lighting / accid	1992	539.50	\$133.00	2			2
94	Floodlighting	1993	435.50	\$107.00	1			1
95	Contrast & visibility	1992	383.50	\$94.00	1		1	0
96	Electric light sources	1992	299.00	\$74.00	3		1	2
97	Maintenance/indoor	1992	299.00	\$74.00	3		1	2

STOCK.XLS

No.	Title	Year	Cost (ATS)	Price (CDN\$)	Stock 931105	Purchases since 931105	Sales since 931105	Current stock
98	Personal uv dosimeter	1992	299.00	\$74.00	3		1	2
99	Lighting education	1992	253.50	\$62.00	1		1	0
99	Lighting education	1992	279.50	\$62.00	0	1	1	0
99	Lighting education	1992	279.50	\$69.00	0	1		1
100	Night driving	1992	409.50	\$101.00	2		2	0
101	Parameters/colour d	1993	253.50	\$62.00	3		1	2
102	File format-photome	1993	299.00	\$74.00	0	3	3	0
103	CIE Collection 1993	1993	435.50	\$101.00	0	1	1	0
103	CIE Collection 1993	1993	435.50	\$107.00	0	1		1
104	Daytime running ligh	1993	253.50	\$62.00	0	3	2	1
105	Spectroradiometry	1993	299.00	\$74.00	3		1	2
106	CIE Collection/Photo	1993	422.50	\$104.00	0	3	1	2
107	Signal colours	1994	396.50	\$97.00	0	2	1	1
108	Daylight measureme	1994	422.50	\$104.00	0	2		2
109	Corresponding colou	1994	279.50	\$69.00	0	2		2
110	Spatial dist. daylight	1994	364.00	\$90.00	0	2		2
111	Variable message sig	1994	422.50	\$104.00	0	2		2
D001	Phot. & colorim. data	1988	331.50	\$82.00	0			0
D002	Colour rend. data	1991	598.00	\$147.00	0			0
D003	CIE Roster		331.50	\$82.00	0			0
D004	CIE Publications	1993	598.00	\$147.00	0	1	1	0
D006	Daylight AQC	1994	400.00	NA	0			
ISO104	Standard illuminants	1991	208.00	\$62.00	3		1	2
ISO104	Standard observers	1991	390.00	\$101.00	4		1	3
DS003	Daylight	1994	165.00	\$28.00	0			0
DS004	Signal colours	1994	215.00	\$37.00	0			0
x001	SLG-Div.5 Symposium	1989	279.50	\$69.00	0			0
x002	SLG-Div.4 Symposium	1989	422.50	\$104.00	0			0
x003	CIE-WMO Symposium	1989	598.00	\$147.00	0			0
x005	Proc.sem.computer	1992	598.00	\$147.00	0			0
x006	Japan CIE / Prakash	1991	279.50	\$69.00	0			0
x007	Proc.Symp.Colorime	1993	617.50	\$152.00	0	2	2	0
x008	Urban Sky Glow	1994	396.50	\$97.00	0	2	1	1
AIC1	AIC Proc 93	1993	975.00	\$288.00	0	1	1	0
	AIC Proc 93 A+B	1993	975.00	\$188.00	0			0
	AIC Proc 93 A+C	1993	975.00	\$188.00	0			0
	AIC Proc 93 A+B+C	1993	1495.00	\$288.00	0			0
	Total				302	32	48	286
	Total (ATS)				54691	13169		48977.5
	Total (CDNS)				\$7 109.83	\$1 711.97	\$5 465.00	\$6 367.08

CIE Publications							
94-11-25							
Cash Flow							
Date	Client	Item	Revenue (Expense)	Cheques in hand	Deposit	Balance in Bank	Total
93-11-05	Forward			\$416.00		\$3 600.23	\$4 016.23
93-10-30		Interest	\$2.12	\$416.00	\$2.12	\$3 602.35	\$4 018.35
93-11-03	Govt. Services	#97	\$74.00	\$490.00		\$3 602.35	\$4 092.35
		#99	\$62.00	\$552.00		\$3 602.35	\$4 154.35
		#101	\$62.00	\$614.00		\$3 602.35	\$4 216.35
93-11-15	Noranda	#15.2	\$107.00	\$721.00		\$3 602.35	\$4 323.35
		#51	\$82.00	\$803.00		\$3 602.35	\$4 405.35
93-12-08		Deposit		\$184.00	\$619.00	\$4 221.35	\$4 405.35
93-12-08	U. of Waterloo	Old order	\$227.00	\$411.00		\$4 221.35	\$4 632.35
93-12-14	Brian Tansley	Transfer	\$395.42	\$806.42		\$4 221.35	\$5 027.77
93-12-23	byHeart Software	#102	\$74.00	\$880.42		\$4 221.35	\$5 101.77
94-02-18		Deposit		\$184.00	\$696.42	\$4 917.77	\$5 101.77
94-02-18	CIE CB (ATS 42298)	Draft	(\$4 894.63)		(\$4 894.63)	\$23.14	\$23.14
94-02-24	Lighting Sciences	x007	\$152.00	\$336.00		\$23.14	\$359.14
94-03-28	Canadian Standards A	#102	\$74.00	\$410.00		\$23.14	\$433.14
		#104	\$62.00	\$472.00		\$23.14	\$495.14
		AIC93	\$288.00	\$760.00		\$23.14	\$783.14
		D004	\$147.00	\$907.00		\$23.14	\$930.14
94-05-05	Transport Canada	#100	\$101.00	\$1 008.00		\$23.14	\$1 031.14
94-05-06	DCIEM	#x007	\$152.00	\$1 160.00		\$23.14	\$1 183.14
94-05-13	NRC	#71	\$467.00	\$1 627.00		\$23.14	\$1 650.14
		#75	\$74.00	\$1 701.00		\$23.14	\$1 724.14
		#76	\$107.00	\$1 808.00		\$23.14	\$1 831.14
		#77	\$152.00	\$1 960.00		\$23.14	\$1 983.14
		#81	\$82.00	\$2 042.00		\$23.14	\$2 065.14
		#82	\$217.00	\$2 259.00		\$23.14	\$2 282.14
		#85	\$94.00	\$2 353.00		\$23.14	\$2 376.14
		#86	\$62.00	\$2 415.00		\$23.14	\$2 438.14
		#91	\$288.00	\$2 703.00		\$23.14	\$2 726.14
		#96	\$74.00	\$2 777.00		\$23.14	\$2 800.14
		#98	\$74.00	\$2 851.00		\$23.14	\$2 874.14
		#99	\$62.00	\$2 913.00		\$23.14	\$2 936.14
		#102	\$74.00	\$2 987.00		\$23.14	\$3 010.14
		#103	\$101.00	\$3 088.00		\$23.14	\$3 111.14
		#104	\$62.00	\$3 150.00		\$23.14	\$3 173.14
		#105	\$74.00	\$3 224.00		\$23.14	\$3 247.14
		#106	\$104.00	\$3 328.00		\$23.14	\$3 351.14
94-04-30		Interest	\$0.03	\$3 328.00	\$0.03	\$23.17	\$3 351.17
94-05-14		Deposit		\$152.00	\$3 176.00	\$3 199.17	\$3 351.17
94-09-19	Carleton University	#69	\$88.00	\$240.00		\$3 199.17	\$3 439.17
		#84	\$94.00	\$334.00		\$3 199.17	\$3 533.17

		#87	\$88.00	\$422.00		\$3 199.17	\$3 621.17
		#95	\$94.00	\$516.00		\$3 199.17	\$3 715.17
		#100	\$101.00	\$617.00		\$3 199.17	\$3 816.17
94-10-12	NRC/CISTI	#x008	\$97.00	\$714.00		\$3 199.17	\$3 913.17
94-10-31		Interest	\$0.03		\$0.03	\$3 199.20	\$3 199.20
94-11-07	Univ. of Waterloo	#107	\$97.00	\$811.00		\$3 199.20	\$4 010.20
94-11-10	CENAM (Mexico)	#15.2	\$118.00	\$929.00		\$3 199.20	\$4 128.20
		#38	\$184.00	\$1 113.00		\$3 199.20	\$4 312.20
		#44	\$107.00	\$1 220.00		\$3 199.20	\$4 419.20
		#46	\$133.00	\$1 353.00		\$3 199.20	\$4 552.20
		#59	\$82.00	\$1 435.00		\$3 199.20	\$4 634.20
		#10526	\$62.00	\$1 497.00		\$3 199.20	\$4 696.20
		#10527	\$101.00	\$1 598.00		\$3 199.20	\$4 797.20
94-11-24		Deposit		\$0.00	\$1 598.00	\$4 797.20	\$4 797.20
94-11-24	NRC	#15.2	\$118.00	\$118.00		\$4 797.20	\$4 915.20
		#44	\$107.00	\$225.00		\$4 797.20	\$5 022.20
		#76	\$107.00	\$332.00		\$4 797.20	\$5 129.20
		#51	\$82.00	\$414.00		\$4 797.20	\$5 211.20

CIE Publications					
1994-11-25					
Exchange rate for ATS:		0.13			
Outstanding Invoices					
Date	Invoice	Details	ATS	Total	CDN\$
1993-04-30	Misc.	B.Tansley	17 969.25	17 969.25	
1993-05-27	#173	1 of D002	507.00	18 476.25	
1993-08-18	#240	3 of #105	897.00	19 373.25	
1993-11-03	#310	3 of #104	760.50	20 133.75	
1993-11-16	#330	3 of #102	897.00	21 030.75	
1993-12-02	#365	3 of #106	1 267.50	22 298.25	
1994-02-18	Payment		-22 298.25	0.00	
1994-02-17	#031	15.2 & x007	2 197.00	2 197.00	
1994-03-30	#062	99,103,D004,aic1	3 003.00	5 200.00	
1994-07-14	#144	2 of #109	559.00	5 759.00	
1994-07-25	#167	2 of #107	793.00	6 552.00	
1994-08-09	#193	2 of #108 & #110	1 573.00	8 125.00	
1994-09-02	#222	2 of x008	793.00	8 918.00	
1994-09-19	#237	2 of #111	845.00	9 763.00	
1994-11-21	#313	1 of #15.2	481.00	10 244.00	\$1 331.72
Consignment					
1992-01-01			55 218.00	55 218.00	
1994-02-17	Write off	3 of #13.2	-1 462.50	53 755.50	
	Write off	4 of #68	-1 742.00	52 013.50	
1994-02-18	Partial payment		-20 000.00	32 013.50	\$4 161.76
Total					
				42 257.50	\$5 493.48

APPENDIX E



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

Canadian National Committee Comité National Canadien



CNC/CIE MEMBERS

<u>CNC/CIE</u>			<u>TERM (expiry)</u>	<u>CIE</u>
President	J. Roberge	Québec	1995-12-31	Division 5, Finance Com.
Vice President	W.K. Adrian	Ontario	1994-12-31	
Secretary/Treasurer	A.A. Gaertner	Ontario	1997-12-31	
	B.W. Tansley	Ontario	1994-12-31	Division 4
	S.M. Kaye	Manitoba	1996-12-31(?)	
	K.F. Lin	Ontario	1996-12-31	
	S.M. McFadden	Ontario	1994-12-31	Division 1
	T. Nilsson	P.E.I.	1997-12-31	
	I.C. Pasini	Ontario	1994-12-31	Division 3
	R.W. White	Québec	1996-12-31	Division 7
	E. Wotton	Ontario	1994-12-31	Division 6
	J.C. Zwinkels	Ontario	1994-12-31	Division 2
<i>ex officio</i>	A.R. Robertson	Ontario		Division 1 (Assoc.Dir.) NRC/INMS Member

(?) = have not returned letters of acceptance.

CNC/CIE ADVISORY MEMBERS

* Ian Ashdown	British Columbia	J. Love	Alberta
M.G. Bassett	Ontario	P. Manning	Nova Scotia
H.W. Budde	Ontario	J. Bruce McArthur	Ontario
J. Allyson Chrysler	Ontario	Donald B. McIntyre	Ontario
W.B. Cowan	Ontario	S.W. McKnight	Ontario
Biman Das	Nova Scotia	Arthur H. Mendel	Québec
R.V. Day	Ontario	H. H. Mikaelian	New Brunswick
Ronald B. Gibbons	Ontario	M.J. Ouellette	Ontario
* C.M. Henville	Ontario	Ralph A. Smith	New Brunswick
Byron Jordan	Québec	Eli Szamosi	Ontario
P.K. Kaiser	Ontario	Debbie Takeuchi	Ontario
Roy Kaufmann	British Columbia	D.K. Tiller	Ontario
A. Ketvirtis	Ontario	M.K. Timmings	Ontario
Barbara Kolesnik	Ontario	D. Trotter	Ontario
Jacques Lacasse	Québec	George Woo	Ontario
R. Lakowski	British Columbia		

* = require CNC/CIE appointment at annual meeting of 1994-November-28.

November 26, 1994



APPENDIX F

Message 1/1 From Thomy Nilsson

Nov 22 '94 at 12:13 pm -240

Date: Tue, 22 Nov 1994 12:13:34 -0400 (AST)

Subject: Re: CNC/CIE

To: arnold@gold.sao.nrc.ca (Arnold Gaertner)

Reply-To: nilsson@upei.ca

Hi Arnold,

I've looked into the possibility of a telephone connection to the meeting. The cost would be about \$15/hour for the connection. Thus 4-6 hours of live connection during the actual meeting would cost \$60-90. Far cheaper than travel costs, though certainly not as good as being there. To do this would require renting a speaker phone that can pick up voices from all around the meeting table and that would enable everyone at the table to hear me. I have been told by our phone company that this is not a problem. Such a phone can be rented for about \$15/month. It was not clear whether it can be rented for only 2 days, but making the arrangements would really be the bigger issue. This would also require a phone line in the meeting room. If that were not available, Radio Shack can supply an extension line from an adjacent room at little cost. I've suggested this to Sharon, but it may be too late to arrange for this year's meeting. Could the desirability of such arrangements be discussed when plans are made for the next meeting? (Conference calling would make it possible for several remote members to share the speaker phone at a meeting.)

I have over the agenda and reports you sent and have a few comments:

1. Uniformity of Illuminance

The Emin/Eavg formula makes a certain amount of sense in that it gives a number which approaches unity as Emin equals Eavg. It tacitly assumes that Emax is as much above Eavg as Emin is below it. That may not always be the case with spot sources of illumination arising from reflections or active sources, while dark surrounding areas would seem generally more diffuse in nature. While the prevailing idea may be that of ensuring sufficient illumination, "bright spots" and glare can have adverse effects for certain tasks such as those involving color matching.

There are ways to take both into Emin and Emax into account, and still keep the basic idea. For example:

$$(Eavg - 1/2(E_{max} - E_{min})) / Eavg$$

Granted this is more complicated, but it is also more honest.

The Committee's contention that the proposed formulas make it easy to calculate the actual values from the index are spurious. Given the average illumination in addition to the index, Emin could be calculated for either of the definitions that were considered.

The other index, Emax/Emin does not make sense as an index of uniformity since it produces larger numbers the greater the difference between Emax and Emin. It should be called an index of "non-uniformity" or perhaps an index of "illuminance variability". Emin/Emax makes more sense as a measure of uniformity.

The contention that one can find either Emax or Emin from the Emax/Emin index and Eavg is wrong. You can only estimate either by assuming that $(E_{max} - E_{avg}) = (E_{avg} - E_{min})$. The formula on the bottom of page A-4 is wrong. It requires knowing Emin, but if one knew Emin in such a situation, one would probably also know Emax.

2. I am curious to know what is happening in adapting transportation signal light standards to encourage the use of light-emitting diodes.

3. I have this unique lab which measure visibilty in terms of distance. Are there any applications in terms of visibility of reflecting surfaces or color contrast that the CIE could use?

Regards,
Thomy

MS. SHARON

McFADDEN
DCIEM

Toronto, November 20, 1994

M. Jacques Roby
CNC/CIE

Dear Jacques,

I am afraid that I will not be able to take part in your meeting in a week's time. I had one of my kidneys cut out a little while ago. I am still in some pain and weak. I lost so much weight that if you look at me sideways I'm not there. So please accept my apology and give my kind regards to our colleagues.

Now to your most thoughtful letter (October 28, 1994).

1. I will not continue to dwell on the impossibility, under the present set-up of Canada being adequately represented on Division 6. May I ask you kindly to accept my resignation as the CNC/CIE representative to this Division.

2. re spreading the news of the work of the CIE

As we have discussed, the work of the CIE is almost unknown among lighting practitioners in Canada and where the work is known it is not used. For example, among all the reports arriving from and written on the recent Toronto streetlighting programme I have seen not a single reference to the CIE report on urban lighting. I suggest that one reason for this undesirable state of affairs is that CIE publications are not available at lending libraries across Canada, probably because they are so expensive.

May I move, as a basis for discussion, the motion

That the annual meeting of the CNC/CIE be discontinued and the money saved be used to set up a lending library (or libraries) of CIE publications in Canada.

2 cont'd.

I assume that someone will second my motion.

3 re Your letter "Your idea that a civil servant writing reports"

I suggest that we must ask ourselves if there is any merit in representing Canada at CIE meetings if Canadians are unaware that they are being represented or what resulted from that representation. Unless those taking part in CIE meetings pass on what has transpired to other Canadians then the only people to benefit from those meetings are those taking part.

Please excuse scrawl: I have not put quill to paper for weeks.

Kind regards,

Ernest

ERNEST WATSON

November 21, 1994

4 We must ask ourselves if supporting "ticket paper" is the most useful way of spending limited federal funding

5 re Your letter "It is difficult writing reports"

If a report is requested then, volunteer or not, a report must be written.

I was asked by CESA to be lighting consultant to the Laikakoto Cultural Centre in La Paz. This will be the most significant complex of its kind in South America - two museums + theatre + ... On this project I spent 4 days

5 cont'd.

at a briefing in Ottawa; a week before I left for Bolivia; three weeks in La Paz; three weeks on my return to Toronto. I have more work to do on the project. I was promoting Canadian expertise abroad. For this I received not a penny. In fact I am out of pocket since in order to undertake the C&EO project I had to turn down two money-earning projects in Canada. *

6 May I ask you to take at the meeting my letter (November 23, 1993) ~~dismissing~~ I do so because your letter (October 28, 1994) does not appear to address one of my major concerns namely, does the support given to the C&EO/C&E allow it to discharge its responsibilities?

Amest

* I know a number of other working professionals who volunteer their expertise in this sort of way.



COUNCIL FOR OPTICAL RADIATION MEASUREMENTS

CORM 95**First Announcement****RECENT ADVANCES IN ATMOSPHERIC RADIOMETRY**

**May 16-18, 1995
Westin Hotel, Ottawa, Canada**

The 1995 annual meeting and conference of the Council for Optical Radiation Measurements (CORM 95) will be held at the Westin Hotel in Ottawa, Canada on Tuesday, Wednesday and Thursday, May 16, 17 & 18, 1995. This conference will be the first held outside the United States and is being organized in cooperation with the National Research, Canada (Conseil national de recherches, Canada NRC-CNRC). The preliminary agenda includes presentations by NRC-CNRC staff, a tour of the NRC-CNRC Montreal Road laboratories, invited and contributed papers.

For further information about attending and/or participating in this conference, please contact any of the conference coordinators listed below:

Dr. Ronald Daubach
Osram Sylvania Inc.
Test & Measurements
100 Endicott Street
Danvers, MA 01923
Tel: 508 750 2613
FAX: 508 750 2152

Justin J. Rennilson
Advanced Retro
Technology Inc.
27333 Via Orange Way
Suite 104
Spring Valley, CA
91978
Tel: 619 670 5105
FAX: 619 670 5107

Richard L. Austin
EG&G Instruments
Gamma Scientific
8581 Aero Drive
San Diego, Ca 92123
Tel: 619 279 8034
FAX: 619 576 9286

WHAT IS CORM?

The Council for Optical Radiation Measurements (CORM) is a non-profit organization composed of individual members interested in measurements of optical radiation including; UV, Visible, and Infra-red. CORM's aim is to establish a consensus among interested parties on industrial and academic requirements for physical standards, calibration services, and interlaboratory collaboration programs in the field of optical radiation measurements. This includes setting priorities, liaison with NIST (formerly NBS), dissemination of information, response to inquiries, and cooperating with other organizations for the benefit of the public at large.

WHY WAS CORM FORMED?

CORM was organized on February 10, 1972 at a conference of industrial and governmental representatives. This meeting was held at the National Bureau of Standards under the title "Second Conference on the Definition of Pressing Problems and Projected National Needs in Radiometry and Photometry." The formation of CORM resulted from the recognition that the definition of measurement problems must be followed by an action program, and for this purpose a permanent organization was necessary.

In 1978, CORM objectives were broadened to encompass needs relative to organizations and parties other than NIST.

HOW IS CORM ORGANIZED?

CORM is governed by a board of directors elected by the members. Board members for 1989-90 are:

William E. Schneider, Optronix Laboratories (President)
Bruce Guenther, NASA (Vice President)
Norbert L. Johnson, 3M Company (Sec./Treasurer)
Roy S. Berns, RIT
Robert H. James, FDA
Dianna Jones, EG&G Reticon
Theodore W. Cannon, SERI
David J. Porter, Macbeth
Robert B. Watson, LMT
Philip Wychorski, Eastman Kodak Company

WHEN DOES CORM MEET?

CORM hosts a conference and annual meeting each year, which includes symposia, invited papers, and the annual business meeting.

Meetings are scheduled as follows:

CORM 90: May 8-10, 1990, Rochester
Institute of Technology
CORM 91: May 21-22, 1991, NIST
Gaithersburg, MD
CORM 92: May 19-20, 1992
Gaithersburg, MD

WHAT ARE CORM REPORTS?

CORM issues reports on problems and national needs in optical radiation measurements. A fifth report is now being prepared.

WHAT IS *OPTICAL RADIATION NEWS*?

Optical Radiation News (ORN) is a newsletter published by CORM about twice annually. ORN's purpose is to disseminate news of interest to CORM members including information about new physical standards, measurement services, NIST programs, and meeting announcements.

HOW CAN I JOIN CORM?

Membership is open to individuals with an interest in optical radiation measurements. There are five membership categories.

Regular membership for individuals who reside in the US, Canada and Mexico.

International Membership is for those individuals in countries other than US, Canada or Mexico.

NIST Members are individuals members employed at NIST.

Member Emeritus category is for retirees.

Student membership is available to students pursuing studies related to optical radiation measurements.

WHAT ARE THE BENEFITS OF CORM MEMBERSHIP?

Membership in CORM provides you with increased opportunities to interact with others in optical radiation measurements, includes a subscription to the ORN newsletter, gives you voting privileges, insures being mailed announcements, provides opportunities for you to express your concerns through reports, questionnaires and presentations and can increase your interaction with NIST.

AS

CNC/CIE DIVISION MEMBERS'

REPORTS

for the

39th Annual CNC/CIE Meeting

1994-November-28

CIE Activity Report for Division 1: Vision and Colour

Sharon M. McFadden

Based on the reports that I have received, Division 1 had a productive year. Alan Robertson represented Canada for me at the Division 1 meeting in Japan. Several of the Technical Committees held formal meetings during the year and several draft reports have been produced. Two technical reports were distributed to the Division members for approval. However, as in the past, there were a number of inactive Technical Committees (TCs). Fortunately, the Division is dealing with this problem and some TCs will be disbanded.

There appears to be an increased effort within the CIE to develop standards especially in cooperation with ISO. This effort is seen as critical to increasing the visibility of the CIE and hence ensuring its long term survivability. On the other hand, many of the reports of the Technical Committees indicate a different agenda. They emphasize the establishment of research programmes, the need for more data and the lack of knowledge on certain topics. All of these would suggest that standardization on many issues is far off. As a researcher, I respect the desire of the committee members to publish reliable, thoroughly researched information. As a consultant trying to provide advice on the use and specification of colours I would welcome some guidelines now, instead of having to wait 10 years for the definitive answer. By then, the systems will be in place and the CIE will have been passed by.

The following summary is based on the Annual Report of Division 1 published in March 1994 and the draft minutes of the Annual Meeting. The summary highlights the progress of the most active committees. Further detail will be provided at the meeting of the CNC/CIE if requested.

Summary of the Activities of CIE Division 1

I. Activities of the Vision Section: Associate Director P Walraven

TC 1-21 Testing of Supplementary System of Photometry: K Sagawa

Terms of Reference: To test existing methods of photometry to evaluate lights for assessing comparative brightness relationships.

Progress: There has been a flurry of draft reports from this TC over the past year with number four expected shortly. This may reflect progress or some fundamental disagreement. No statement was given as to when the report might be ready for distribution to Division members.

TC 1-26 Individual Variations of Heterochromatic Brightness Matching: H Yaguchi

Terms of Reference: To analyse existing data on heterochromatic brightness matching in terms of individual variation.

Although a draft technical report has been produced, this TC seems to have a lot of work ahead of

it. It has still not evaluated all of the available data sets or models. It wants to include both 2 and 10 degree data.

TC 1-30 Luminous Efficiency Functions: M Ikeda

Terms of Reference: To prepare a CIE/ISO Standard on luminous efficiency functions which classifies and specifies the existing functions $V_{b,point}(\lambda)$, $V(\lambda)$, $V_{b,2}(\lambda)$, $V_M(\lambda)$, $V_{b,10}(\lambda)$, and the colour matching function $y_{10}(\lambda)$ if appropriate, in their photometric use.

Progress: The committee is active, but progress is slow. A revision of the first draft of a technical report, which was completed last year, has still not been completed. It would appear that there are several issues still unresolved and that there is a lack of consensus in the vision community about the form of these functions. That is unfortunate because the availability of these functions to the general community could reduce many of the inconsistencies between measured output and perceived output that now occur.

TC 1-36 Fundamental Chromaticity Diagram with Physiologically Significant Axes: F Vienot

Terms of Reference: To establish a chromaticity diagram of which the coordinates correspond to physiologically significant axes.

Progress: Again there seems to be many issues that need to be resolved before this TC will produce any significant results. The committee is now hoping to produce a diagram or series of diagrams that will work for field sizes from 30 minutes up to 10 degrees of arc. It has been agreed that the Smith-Pokorny functions for the cones, which assume no contribution to luminance from the S cones, will be used. However, there is still considerable discussion about the effect of macular pigment and the ocular media.

TC 1-41 Extension of $V_m(\lambda)$ Beyond 830 nm: P Walraven

Terms of Reference: To write a report on the feasibility of extending the $V_m(\lambda)$ beyond 830 nm.

Progress: Curves based on five sets of data have been completed and the report should be finished soon.

TC 1-42 Colour Appearance in Peripheral Vision: M Takase

Terms of Reference: To prepare a technical report on colour appearance zones for coloured lights in terms of unique hues in peripheral vision.

Progress: This used to be R 1-08. The membership has been approved and a meeting was held prior to the Division meeting. So far the experimental conditions and the extent of application have been approved as follows:

1. The test and surround should have photopic levels over 2000 scotopic trolands equivalent in order to saturate the rods completely.
2. About eight spectral test lights will be used.

3. Test loci in the visual field are required on at least two meridians.
4. The colour naming method is used.
5. The field size is 70 degrees.

II. Activities of Colour Section: Associate Director: A R Robertson

TC 1-27 Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparison: Ms P J Alessi

Terms of Reference: To study and make recommendations for the specification of a colour appearance match between a reflective image and a self-luminous display image.

Progress: The plan of the TC is to determine whether CIELUV and CIELAB colour spaces adequately specify a colour appearance match between a reflective image and a self-luminous display image. If not, then the committee will investigate whether modifications to those metrics or a totally different metric based on available colour appearance models would be more effective. Guidelines for research have been published in Color Research and Application. The TC is now waiting to see whether people do experiments following the guidelines and submit their data to the committee. The second term of reference for this TC - to act as official liaison to ISO/IEC JTC1 SC18 in the development of colour standards for text and office systems - has been dropped.

Personal Comment: Matching hardcopy to CRT colours is a high priority issue in the display industry. They are unlikely to wait for the results of research that may not appear for several years. At least one manufacturer, Barco, claims to be able to reproduce the colours on their CRT in print. It would seem important for this TC to liaise with industry to ensure that each is aware of the others progress and builds on it.

TC 1-29 Industrial Colour Difference Evaluation: D Alman

Terms of Reference: 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.

Progress: The work of this TC is almost completed. A Division ballot in May 1994 resulted in 12 positive votes and one negative. Subsequent changes to the report resulted in the negative vote being changed to positive. Currently a background paper on the research and a guideline document for further testing of the new formula are in preparation.

TC 1-32 Prediction of Corresponding Colours: Y Nagatari

Terms of Reference: To write a technical report describing the chromatic adaptation transform previously proposed for study (CIE Journal 1986) together with subsequent modifications.

Progress: The division ballot on the technical report produced by this TC was completed in April with 12 votes to 1. After minor changes, the negative vote was changed to positive. The TC will now be disbanded.

TC 1-33 Colour Rendering: W Walter

Terms of Reference: To study indices for evaluation of colour rendering properties of light sources based on a colour appearance model and to prepare a report on a proposed method that will replace CIE Publication No. 13.2.

Progress: The work of this TC is progressing. The consensus is that a new colour rendering formula should be based on CIELAB. However, it was expected that it would be several years before consensus was reached on colour appearance models. A third edition of publication 13.2 is being prepared. The paper will be circulated shortly for committee approval.

TC 1-34 Testing of Colour Appearance Models: M Fairchild

Terms of Reference: To investigate the performance of models based on their ability to predict the colour appearance of surface colours in simple and complex scenes under various illumination conditions.

Progress: The work of this committee is progressing. Several sets of data were submitted to the TC. These have been consolidated and distributed to Committee members. Tests of the models under consideration will be completed in 1994. In addition two experiments that directly tested colour appearance models were completed at RIT by Fairchild et al. An outline draft of guidelines for future research has been prepared and circulated to members. A preliminary draft of a Technical Report should be ready for the CIE meeting in New Delhi.

III. Activities of Visual Ergonomics Section: Associate Director T Takeuchi

There are six TCs in this section. However four of them are relatively inactive.

TC 1-19 Specification of Visibility for Real Tasks: W Adrian

Terms of Reference: To prepare a review of all methodologies for evaluating the visibility (threshold or suprathreshold) of real tasks.

Progress: A draft will be circulated to members in the spring of 1995. Several contributions have already been received from members.

R 1-03 Engineering Application of Brightness Scales: T Takeuchi

Progress: Takeuchi is continuing experimental work on effects as a car approaches a tunnel. The observer is asked to compare the brightness of objects at the tunnel entrance with the brightness of target objects.

IV. Proposals for New Work

Proposals for New Technical Committees

Title: The Visual Properties of Elderly People in Relation to Lighting Requirements.

Terms of Reference: To prepare a report describing the visual properties of elderly people which would be useful in determining lighting requirements for elderly people.

Progress: The title and terms of reference were approved unanimously and it was suggested that the following topics - ocular transmittance, visual acuity, pupil size, sensitivity to different light levels - be included.

New Reporter

A proposal was made for a new reporter with the title Cognitive Aspects of Colour. The terms of reference would be to survey and present a report on cognitive functions of colours in terms of behavioural, neuropsychological and neurophysiological data. Dr. Derefeldt was appointed Reporter and the number R-11 was allocated.

V. Next Meeting

The next meeting of Division I will be held during the 23rd Session of the CIE in November 1995. The Division will prepare a workshop.

VI. Other Business

A new Division Director and Associate Director will be required in 1995 to replace Dr Ikeda and Dr Robertson. National members will be requested to forward suggestions for these positions. If members of the CNC/CIE have any suggestions for replacements, I would be pleased to forward them.

CIE DIVISION 2 (Physical Measurement of Light and Radiation)

Director: Dr. Franz Hengstberger (South Africa)
Secretary: Dr. Antoine Bittar (New Zealand)

Report to CNC-CIE, November 28, 1994

J.C. Zwinkels
Institute for National Measurement Standards
National Research Council
Montreal Road
Ottawa, Ontario K1A 0R6

Phone: (613) 993-9363
FAX: (613) 952-1394

The most recent Activity Report of CIE Division 2, dated July 1994, is attached. This report covers the activities for the period from November 1993 to July 1994. It includes progress reports from the TC Chairmen and Reporters for this period.

The most recent CIE Division 2 meetings were held in Berlin, Germany, September 22-23, 1994, in conjunction with the 5th International Conference on Radiometry (NEWRAD'94). Unfortunately, I was unable to attend. Some important items to note are:

1. The following technical committees met: TC 2-10 (Photometry and Goniophotometry of Luminaires), TC 2-16 (Tristimulus Colorimeters), TC 2-19 (Retroreflection), TC 2-23 (Street-Lighting Luminaires), TC 2-25 (Fluorescence Measurements), TC 2-29 (Detector Linearity), TC 2-32 (Retroreflectance of Horizontal Road Markings), TC 2-34 (LED Measurements), TC 2-36 (Revision of CIE Publication #54: Retroreflection), TC 2-37 (Detector-based Photometry), and TC 2-38 (Flare Photometry).
2. A new technical committee, TC 2-38 on flare photometry has been formed, which will be chaired by Godsiff of S.Africa. Two new technical committees have been proposed: the first of these TCs proposes to convert the CIE technical report on luminance and illuminance meters to an ISO standard and the proposed chairman for this TC is Rattundi from LMT, Berlin; the second of these TCs proposes to recommend geometric tolerances for colorimetry and the proposed chairman for this TC is Danny Rich from the US. I would welcome any suggestions for Canadian members to these new and proposed TCs.
3. The work of TC 2-21 (Spectroradiometry of Flashing Lights) has been completed and the TC has been dissolved; the technical report has been published as CIE Publication 105-1993.

4. The work of TC 2-05 (Distribution Temperature) and TC 2-26 (Color of Self-Luminous Displays) has been completed and the full technical reports have been circulated to the division members for voting.

5. The next CIE Division 2 meeting will be held during the 23rd Session of the CIE in Isle, India, November 1-8, 1995.

Other Division 2 Notes:

I received a Division letter ballot for TC 2-26 (Guide to Characterizing the Colorimetry of Computer-Controlled CRT Displays). I approved publication of this document as a technical report with suggested editorial modifications.

The report "Distribution Temperature - A Revised Definition", from TC 2-05, chaired by Dr. Robertson, has been completed and is being recommended for publication in the CIE Collection.

Canadian participation in the work of the Division continues at a high level with the following members of Technical Committees:

TC 2-05, Chairman:	Dr. A.R. Robertson (NRC)
TC 2-16:	Dr. A.R. Robertson
TC 2-22:	Dr. A.A. Gaertner (NRC)
TC 2-24:	Mr. W. Budde (retired from NRC)
TC 2-25, Chairman:	Dr. J.C. Zwinkels (NRC)
TC 2-28:	Dr. J.C. Zwinkels, Dr. A.R. Robertson
TC 2-29:	Mr. W. Budde
TC 2-33:	Dr. A.R. Robertson
TC 2-35:	Dr. A.R. Robertson

Mr. Budde has indicated that he wants to resign as Canadian member of TC 2-24 (Users Guide for the Selection of Illuminance and Luminance Meters). Another Canadian member should be nominated to fill this position.



ACTIVITY REPORT

Dr A Bittar, Secretary
Measurement Standards Laboratory
Industrial Research Limited
P O Box 31310, Lower Hutt
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July 1994

CONTENTS

- I ADMINISTRATIVE MATTERS
- II COMMITTEE WORK IN PROGRESS
- III NEXT DIVISION MEETING

This report covers the activities of Division 2 for the period from November 1993 to July 1994.

I ADMINISTRATIVE MATTERS

- a) The Division 2 Officers as well as the TCs and Reporters which they are coordinating are listed as follows:

Director:	Hengstberger (SA) R2-11, R2-14
Associate Directors:	
Goodman (UK)	TC2-04, TC2-16, TC2-17, TC2-21, TC2-24, TC2-26, TC2-29, TC2-31, TC2-34, R2-05, R2-10
Johnson (USA)	TC2-11, TC2-14, TC2-19, TC2-25, TC2-26, TC2-30, TC2-32, TC2-33, TC2-35, TC2-36, R2-06, R2-09, R2-09
Vandemeersch (Belgium)	TC2-10, TC2-22, TC2-23
Secretary:	Bittar (New Zealand) R2-13
Editor:	Moore (UK) TC2-01, TC2-03, TC2-05, TC2-12

- b) Division 2 directorship. See enclosed notice.
- c) TC2-36 is to complete the revision of CIE Publication #54. Enquiries should be addressed to J Rennilson at:
- Dr J Rennilson
Advanced Retrotechnology Inc
2733 Via Orange Way
Spring Valley, CA 92078, USA
Fax: 619-560-5107
- d) TC2-38 on flare photometry is now under way. J Godsiff has accepted to chair this TC. Its terms of reference have been formulated and are detailed below. Countries interested in membership of this TC are requested to send names of representatives to:
- J Godsiff
Swartklop Products (Pty) Ltd
P O Box 977
Cape Town 8000, South Africa
- e) The Division 2 representative for Poland is:
- Mr Jerzy Pietrzykowski
Polish Committee for Standardization, Measures and Quality
Laboratory of Optical Radiation
Elektoralna 2
00-139 Warsaw, Poland
Tel: (4822) 205-971; Fax: (4822) 208-378

II COMMITTEE WORK IN PROGRESS

CM: Chairman;	AD: Associate Director;	TR: Terms of Reference;
ST: Status;	ML: Membership List;	RP: Reporter;
DD: Division Director;	DS: Division Secretary;	DE: Division Editor

Technical Committees

2-01 Measurement of High-Pressure Mercury Vapor Lamps

CM: Poppo (Hungary) DE: Moore (UK)
 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 report is to be archived. A summary of the results has been drafted by the DE (J R Moore).

2-04 Secondary Standard Sources

CM: Moore (UK) AD: Goodman (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 first draft will be produced. It is to include a list of lamp manufacturers. The document is expected to be ready September 1994 and will eventually be published as a CIE Report.

2-05 Definitions of Distribution Temperature

CM: Robertson (Canada) DE: Moore (UK)
 ML: Azaryonok (USSR), Geutier (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: The report is presently with the DE. Publication in the CIE Collection has been recommended.

2-10 Photometry and Goniophotometry of Luminaires

CM: Vandermeersch (Belgium) AD: Vandermeersch (Belgium)
 ML: Aral (Japan), Aimassy (Hungary), Blochouse (Belgium), Cazabat (Argentina), Lewin (USA), Petrov, Price (USA), Procter (UK), Sconieczna (Poland), Soardo (Italy), Vermeulen (Netherlands).
 TR: Prepare a report on the photometric characteristics of luminaires and their measurement.
 ST: TC balloting of the draft report is proceeding. The draft will then be sent to DE. Divisional and BA voting is expected soon for publication as a technical report. A TC meeting is scheduled for 22/9/94 in Berlin.

2-11 Gonioreflectometry of Standard Materials

CM: Hsla (USA) AD: Johnson (USA)
 ML: Berns (USA), Bittar (NZ), Erb (FRG), Jungmann (Argentina), Li, Z. (PRC), Mashkovskaya (USSR), Nanjo (Japan), Ohno (USA), Rossi (Italy), Verrill (UK)
 TR: Study gonioreflectometric properties of standard white reference materials, including measurements and survey of published data.
 ST: A timetable for the work of this Committee has been drawn up. A first draft document will be circulated by end 1993. TC and Divisional voting is expected to occur end 1994 and May 1995 respectively.

2-12 Photometry of Thermally Sensitive Lamps

CM: Vandermeersch (Belgium) DE: Moore (UK)
 ML: Dissolved
 TR: Prepare a joint report on the photometry of thermally sensitive lamps.
 ST: A one-page summary report with references will be published in CIE News and Collection.

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

- CM: Polato (Italy) AD: Johnson (USA)
 ML: Blanchini (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: Dr Polato has accepted to chair this TC with Dr Blanchini as TC member. The document may evolve into a joint ISO/CIE standard.

2-16 Characterization of the Performance of Tristimulus Colorimeters

- CM: Rastello (Italy) AD: Goodman (UK)
 ML: Billmeyer (USA), Cogno, Fillingier (Hungary), Geutler (FRG), Hengstberger (SA), Krochmann (FRG), Matveer, McLaren, Moore (UK), Nielsen (Denmark), Robertson (Canada), Sueyama (Japan), Waiker
 TR: Complete the technical report on tristimulus colorimeters started by TC 2.2.
 ST: An updated draft of the report has been circulated to TC members. The TC is scheduled to meet on 22/9/94 in Berlin.

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

- CM: Kockot (Germany) AD: Goodman (UK)
 ML: Aydinli (FRG), Ingalyev (USSR), Justus (USA), Kaase (FRG), Kasten (FRG), Kockot (FRG), Moore (UK), Richmond (USA), Zerlaut (USA)
 TR: Revise and update CIE Publication #20 (1972)
 ST: Comments on the first draft of part II are being collated. A second draft will be prepared before holding a second meeting of the TC.

2-19 Measurement of the Spectral Coefficient of Retroreflection

- CM: Johnson (USA) AD: Johnson (USA)
 ML: Brekke (Norway), Fisher (USA), Hsia (USA), Hubert (France), Kurioka (Japan), Price (UK), Rendu (France), Rennison (USA), Richey (FRG), Schraiber (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: More data has been collected. Analysis of this has identified some of the sources of error in the intercomparison

2-21 Spectroradiometry of Flashing Lights

- CM: Kondo (Japan) AD: Goodman (UK)
 ML: Gavrilova (USSR), Goodman (UK), 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: Voting on the document has been completed. The document is published as CIE report #105. The TC is to be dissolved.

2-22 Luminous Flux of High-Pressure Sodium Lamps

- CM: Garzo (Hungary) AD: Vandermeersch (Belgium)
 ML: Azaryonok (USSR), Bastie (France), Bertrand, Burghout (Netherlands), Chen (PRC), Foerste (FRG), Gaertner (Canada), Gale, Goodman (UK), 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: Results of the intercomparison were presented at Sopron 1992.

2-23 Photometry of Street-Lighting Luminaires

- CM: Vandermeersch (Belgium) AD: Vandermeersch (Belgium)
 ML: Almási (Hungary), Andras (Hungary), Arai (Japan), Blochouse (Belgium), Cazabat (Argentina), Cherouge (France), Collins (UK), Krochmann (FRG), Levin (USA), Petrov, Price (UK), Procter, Skonieczna (Poland), Soardo (Italy), Vermeulen (Netherlands)

TR: Prepare a technical report on the photometry of street lighting luminaires.
 ST: Work will start September 1993 with a TC meeting. A first report is to be prepared for May 1994.

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

CM: Moore (UK) AD: Goodman (UK)
 ML: Budde (Canada), Burghout (Netherlands), Corrons (Spain), Dezs (Hungary), Goodman (UK), Hubert (France), Krochmann (FRG), Lewin (USA), Lozano (Argentina), Moore (UK), Ottosson (Sweden), Sauter (FRG), Tozawa (Japan).
 TR: Prepare a users' guide for the selection and use of illuminance and luminance meters.
 ST: A meeting was held on Monday, 17 May 1993. An outline of the Guide was presented to the divisional meeting.

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

CM: Zwinkels (CA) AD: Johnson (USA)
 ML: Erb (FRG), Griesser, Nayatani (Japan), Racz, Simon (USA), Verrill (UK), McCamy (USA), Mielenz (USA)
 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 new CM has been appointed (J Zwinkels — Canada). Meetings have been held on 17 May 1993 and 22 February 1994 at Williamsburg, Virginia. A first draft report is expected by end August. The TC is scheduled to meet in Berlin 22/9/94.

2-26 Measurement of Color of Self-Luminous Displays

CM: Berns (USA) AD: Johnson (USA)
 ML: DeMarsh (USA), Gavanin (USSR), Gorzynski (USA), 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) of self-luminous displays.
 ST: TC voting completed. The full report is now being circulated for division and board balloting.

2-28 Methods of Characterizing Spectrophotometers

CM: Verrill (UK) AD: Goodman (UK)
 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: A meeting of this TC is planned during the division 1 meeting.

2-29 Measurement of Detector Linearity

CM: Goodman (UK) AD: Goodman (UK)
 ML: Bastie (France), Budde (Canada), Dezs (Hungary), Mihailov (USSR), Mostl (FRG), Olinu (Japan), Parr (USA), Billar (NZ), Andor (Hungary), Distl (Germany).
 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 of suitable devices for specific applications.
 ST: A meeting was held to discuss the draft on Monday, 17 May 1993. A second draft will be produced and circulated at a TC meeting scheduled for September 1994 in Berlin.

2-30 Diode-Array Radiometry

CM: Wychorski (USA) AD: Johnson (USA)
 ML: Abasari (Hungary), Goodman (UK), Jones (USA), 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: An extensive bibliography has been produced and discussed at the 17 May 1993 TC meeting.
- 2-31 Methods of Characterizing Actinic Radiometers
- CM: M. Poppe (Hungary) AD: Goodman (UK)
- ML: Bastie (France), Ferenczi (Hungary), Hughes (USA), Kaase (FRG), Kok (SA), McKinlay (UK), Pastels (Belgium), Bittar (NZ), Wilkinson (Australia), Reiter (Austria), Sarytchev (USSR), Steck (FRG), Vallant (France).
- TR: Prepare a CIE Standard on characterizing the performance of actinic radiometers.
- ST: New CM is M Poppe (Hungary). A revised draft has been circulated to TC members for comment.
- 2-32 Measuring Wet Retroreflectance of Horizontal Road Markings
- CM: Bradshaw (USA) AD: Johnson (USA)
- ML: Johnson (USA), Lundquist (Sweden), Meseberg (FRG), Rennilson (USA), Schmidt-Claussen (FRG), Schreuder (Netherlands), Serres (France), Bry (France), Dibbern (Germany), Meseberg (Germany), Meydan (Australia), Hubert (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: A new TC Chairman, Bradshaw (USA), confirmed. Due to interest, several names were added to the membership list of this TC. TC scheduled to meet 22/9/94 in Berlin.
- 2-33 Re-formulation of CIE Standard Illuminants A and D₆₅
- CM: Mielenz (USA) AD: Johnson (USA)
- ML: Hala (USA), Robertson (Canada), Verrill (UK), Terstiege (FRG)
- TR: Re-write CIE Standard S001 in terms of thermodynamic temperatures, and in a manner such that the spectral distributions of the standard illuminants are preserved, but are independent of international temperature scales.
- ST: A draft has been circulated to TC members. A meeting discussing the draft was held on 17 May 1993. This is to be a joint CIE/ISO standard. The approved document will be sent to the Central Bureau.
- 2-34 LED Measurements
- CM: Muray (USA) AD: Goodman (UK)
- ML: Sauter (FRG), Moore (UK), Sojourner (USA)
- TR: Investigate and recommend standard LED measurement methods including parameters to be measured.
- ST: A meeting is scheduled 22/9/94 to discuss the draft report produced since the last meeting.
- 2-35 V(λ) and V'(λ) CIE Standards
- CM: Mielenz (USA) AD: Johnson (USA)
- ML: Robertson (Canada), Bittar (New Zealand)
- TR: Prepare a new CIE Standard on the present V(λ) and V'(λ) functions.
- ST: The draft was completed and presented at the 17 May 1993 TC meeting. A final date for TC comment of 30 September 1993 was set. Voting will be started end 1993.
- 2-36 Revision of CIE Publication #54: Retroreflection
- CM: Rennilson (USA) AD: Johnson (USA)
- ML:
- TR: To revise and update CIE Publication #54 and prepare an ISO/CIE joint standard on *Retroreflection, Definition and Measurement*.
- ST: A meeting was held on 17 May 1993. Seven tasks, forming the parts of the draft document, have been outlined. Work is starting on drafting these. A further meeting is scheduled for 22/9/94 in Berlin.

2-37 Detector-based Photometry

CM: Yohno (USA) AD: Johnson (USA)

ML:

TR: Investigate detector-based methods of Photometry for providing improved traceability for industrial measurements.

ST: A first draft has been produced which will form the basis of discussions at TC meeting scheduled for 22/9/94 in Berlin.

2-38 Flare Photometry

CM: Godsiff (S Africa) DD: Hengstberger (SA)

ML:

TR: Produce a technical report containing recommendations for the standardisation of test conditions and test procedures for the measurement of the photometric, radiometric and colorimetric properties of flares.

ST: The CM has been confirmed by the CIE board and terms of reference defined. Countries are invited to send the names of further interested members to the CM. The TC is scheduled to meet on 22/9/94 in Berlin.

Reporters**R2-05 Visual Gloss**

RP: J. Taylor (UK) AD: Goodman (UK)

TR: Investigate need for a TC on the subject of gloss, perhaps with a revised term of reference.

ST: J. Taylor is investigating various instruments, standards and geometries. This will continue in coordination with R2-06. Nothing further to report.

R2-06 Standardization of Measuring Geometry for the Colorimetry of Metallic Coatings

RP: McCamy (USA) AD: Johnson (USA)

TR: Advise and inform Division 2 of work carried out by ASTM and DIN in this area and report progress at Division 2 meetings.

R2-08 Detector Based Photometry

RP: Ohno (USA) AD: Johnson (USA)

ML: Wychorski (USA), Parr (USA)

TR: A TC has been approved for this work. This reportership is to be terminated. See TC2-37.

R2-09 Absolute Cryogenic Radiometers

RP: Parr (USA) AD: Johnson (USA)

ML: Hengstberger (SA).

TR: Advise Division 2 on the needs of industrial users of cryogenic absolute radiometers. This function is to remain open for a further three years.

R2-10 Non-Selective Detector (Terminology)

RP: Nettleton (UK) or Moore (UK) AD: Goodman (UK)

TR: A report from the RP has been circulated to Division 2 membership for comment. Report may be published in the CIE Collections.

R2-11 Flare Photometry

RP: J. Godsiff (SA) DD: Hengstberger (SA)

TR: Investigate the need for a TC to specify the measuring conditions for the photometry and Colorimetry of flares. This reportership is to be terminated. See TC2-38.

R2-12 Revision of publication #54 (Retroreflection)

RP: Rennilson (USA) AD: Johnson (USA)

TR: TC2-36 is established to carry on the work identified by this reporter function.
CM: Rennilson. R2-12 closed.**R2-13 Advice to Division 3 on IDMP**

RP: Kendrick (Australia) DS: Bittar (New Zealand)

ML: Hengstberger (SA), Bittar (New Zealand)

TR: Advise Division 3 on calibration and test methods for the quality assurance programme required for the International Daylight Measurement Programme.

R2-14 Division 2 Standards

RP: Wychorski (USA)

DD: Hengstberger (SA)

TR: Review existing Division 2 documents/publications for possible conversion into Standards and advise TC's involved in such conversions on appropriate procedures in close liaison with the CIE Central Bureau.

R2-15 Colorimetry of Lustre Pigments

RD: R Grosswang (Germany)

ML:

TR: To investigate possible standardisation of the measuring geometry for the colorimetry of lustre pigments.

Liaison

- | | |
|------------------|------------------------|
| • CCPR/CIE Div 2 | A Parr |
| • ISO TC160 | |
| • ISO TC180 | D Kockot |
| • ISO TC6 | J Zwinkels |
| • ISO TC53/WG18 | P Wychorsky (proposed) |

III NEXT DIVISION MEETING

The agenda for the next division meeting scheduled for 22-23 September 1994, Berlin, is included. Several other meetings are scheduled around this time including:

- CCPR, September 1994, Paris
- IMEKO, September 1994, Turin
- International Conference on Radiometry, September 1994, Berlin

Canadian National Committee of the CIE

39th Annual Meeting

Location: NIST, Gaithersburg, MA, USA

Division 3 Member's Report

Division 3 Member:

Mr. Ivaldo Pasini, P.Eng.

A&E Services, Buildings

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For the third consecutive year the Director for Division 3, Mme Chauvel, has been unable to prepare and distribute a summary of activities of the Division, due to ill health, and the deputy Director, Anthony Slater, has not yet reported on her behalf. The following summarizes the activities of Division 3 during the past year as presented at the last meeting in Gaithersburg, MD, USA, September 21 and 22, 1994.

1. The position of Division secretary has been filled by Belinda Collins.
2. The position of Division editor has been filled by Clay Belcher.
3. The status of the currently active TC's and the Canadian participation in them is as follows:

TC 3-01 "Discomfort Glare from Small and Large Sources"

Canadian representative: Dr. W. Adrian

Balloting for acceptance of the UGF (Unified Glare Formula) is currently underway and it is expected that it will be adopted by CIE.

TC 3-04 "Subjective Response to Lighting and Shading Control Systems"

The work of this committee is almost completed as it requires only editorial editing to their report. The hardware section on controls for shading devices is quite complete, however, the subjective response component has encountered some difficulties, due to lack of work in pertinent human factors and it will be presented as a 'state -of-the-art' section of the report.

TC 3-07 "International Collaboration on Daylighting Availability Measurements".

Canadian representative: Dr. A. Mc Arthur.

Report has been published and TC has been disbanded.

TC 3-09 "Average Sky as a Standard".

Report has been published and TC has been disbanded.

TC 3-11 "Daylighting Calculation Methods"

M. Navvab has taken over as chairperson and work is progressing.

TC 3-12 "The Optimisation of Daylighting and Solar Radiation Data with respect to Lighting and in Association with Other Aspects of Building Performance"

Progress report not available.

TC 3-13 "CIE Discomfort Glare Evaluation System"

The work of this TC has been completed however the balloting process has resulted in many comments on the organization of this document therefore there is a good possibility that it will not be accepted in its current form.

TC 3-14 "Three- dimensional Forms of Illuminance"

This TC was closed because a new Chairperson could not be found.

TC 3-15 "Standard and Intermediate Skies Luminance"

Report has been completed and will be published after balloting.

TC 3-16 "Psychological Aspects of Lighting Review"

Dr. D. Tiller

Draft has been completed and will be circulated to the Division for balloting.

TC 3-18 "Rational Use of Solar Radiance for Energy Efficient Daylighting"

TC has been closed.

TC 3-19 "Sky Simulation for Daylighting for Atria"

Work is progressing.

TC 3-20 "Daylighting and Architecture"

Preliminary report is expected to be ready in New Delhi.

TC 3-21 "CIE 29/2 Interior Lighting"

Canadian Representative: I. Pasini

Draft will be available next year, TC is awaiting the final resolution of UGR (it is vital to this TC's work that the UGR is accepted).

TC 3-22 "Museum Lighting"

Canadian representative: P. Gabriel

A Technical Report is under active preparation and is targeted to be finalized in time for the Plenary Session in New Delhi next year. This committee met last on Sept 18-20, 1994 in Paris.

TC 3-23 "Variability of Interior Luminous Environments"

Chairperson has put out a request for new members.

TC 3-24 "Energy Aspects of Lighting"

Chairperson: D. Carruthers has recommended that a new chairperson be found.

TC 3-25 "Interior Daylighting Measurements proposal and data collection"

H. Nakamura has taken the chairman position. Work is progressing and a report is almost ready.

TC 3-26 "Development of Post Occupancy Questionnaires"

Chair and Canadian representative : Dale Tiller

The chairman has requested that members from other countries submit any questionnaires that they use for post-occupancy evaluation so that they can be included in the TC's review. Work currently in progress (PWGSC and NRC/IRC) includes a new Canadian initiative aimed at developing a PC based flexible questionnaire.

TC 3-27 "Evaluation of Exit Markings"

No new progress to report, if no progress has been made by New Delhi, the current chairperson will recommend that a new chairperson be found.

TC 3-28 "Standard on Calculation of Utilization Factors"

No report available.

TC 3-29 "Computer Procedures for Lighting Metrics & Visual Performance"

No report available.

TC 3-30 "Hollow Light Guide"

Canadian representative: L. Whitehead

TC has met and is considering putting on a workshop in New Delhi.

4. Proposal for Division Director for Next Quadrennium (1995-1999)
Anthony Slater was nominated for the position of Division Director. To satisfy CIE requirements to have two nominations, Belinda Collins was also nominated but accepted the nomination with the note that she supports A.

Slater's nomination.

5. Next Divisional Meeting
Division 3 is tentatively scheduled to meet in New Dlehi, on Nov. 6 and 7, 1994.
6. Issues for New Delhi, India Session
Members were requested to submit proposals for possible workshops in New Delhi. A proposal for a workshop on "Lighting Quality for Interior Working Environments" will be submitted by T. McGowan and C. Jones. Other possible topics for workshops were D.O.E. and something dealing with measurements and measuring procedures.
7. Next meeting of Division 3: New Delhi, India, duing the CIE Plenary Session.

Division 3 - Interior Environment and Lighting Design

Activity Report - September 1994

This report covers the period from the CIE session in Edinburgh, April 1993, to the mid-session meeting in Gaithersburg, September 1994. The September 1994 meeting was held at the National Institute of Standards and Technology in Gaithersburg, MD, under the chairmanship of Anthony Slater, Associate Director. The Division wishes to acknowledge the sponsorship of the USNC for the September 1994 meeting.

During the reporting period, the Division was fully staffed with the appointment of Peter Tregenza as Associate Editor for Daylighting, and Belinda Collins as Secretary. Editing was handled by each TC.

Editor's report

TC 3-13 report on discomfort glare has been edited once, although further editing is required and will be done at CIE Headquarters.

Publications

CIE 108-1994 "Guide To Recommended Practice of Daylight Measurement"

CIE 110-1994 "Spatial Distribution of Daylight - Luminance Distributions of Various Reference Skies"

LIAISON ACTIVITIES

Liaison with CEN TC169: A I Slater (UK)

Anthony Slater reported much activity in CEN on lighting, including revision of the Interior Lighting and Lighting Requirements Standard and the Standard for Emergency Lighting. CIE is defining nomenclature being used by CEN, but CEN is defining the activities in the Interior Lighting Guide and for Emergency Lighting. Work in CEN is also progressing on lighting for sports, tunnels, roads and terminals as well as photometric data presentation.

Liaison with CIB: JD Kendrick (Australia)

Liaison with CIB will be handled in the future by Janos Schanda of the Central Bureau. Thanks were expressed to Kendrick for his activities.

Liaison with IALD

The liaison has been Jules Horton. Carol Jones of Pacific Northwest Laboratory will follow-up with him since he has not been active recently. She volunteered to serve if Horton is willing. Hy Kaplan is the IALD representative from the USNC, and is willing to serve as well as CIE representative to the IALD.

Liaison with ISO Ergonomics Working Group #3 of TC 159

Hentschel (Germany) formerly served as liaison; Peter Tregenza (UK) will attend the next meeting. Thus far there has been little direct connection with lighting. Hans Allen Lofberg (Sweden) has followed the activities of glass in buildings, while Lou Bedocs has tracked Ergonomics of the Physical Environment.

Liaison with UIA

James Bill of the United Kingdom has been the representative. No activity has been reported to date.

Liaison with ISO TC 180

Peter Valko of Switzerland has been the liaison with TC 180 on Solar Energy: Climate Measurement.

Liaison with IEA

Peter Tregenza will serve as liaison for Advanced Glazing Technology while Nan Ruck will provide liaison with IEA #21 on Daylight and Buildings

TECHNICAL COMMITTEE REPORTS

TC3-01: Glare for small and large sources: Dr. H. Einhorn (South Africa)

Einhorn has reported that a draft document has been written which describes glare for small sources. This will be circulated to the division for comments. It could be considered for the CIE Collection or as an appendix to 3-13. Einhorn plans to handle technical assessment of glare for large and for complex sources by correspondence.

TC3-04: Subjective response to Lighting and Shading Control Systems: T K McGowan (USA)

The electric control portion of the planned report has been completed. There has been some difficulty finding contributions and material for the daylight portion. In Edinburgh, the sense of the Division was that both portions should be completed if possible. More material is needed on controls for daylighting. McGowan requests that additional contributions should be given to the chairman. The goal is to have the report complete and the work of the TC finished by the New Delhi meeting in 1995. The Division encouraged McGowan to complete even a partial report dealing only with electric light for circulation to the Division before the New Delhi meeting.

TC3-07: International Collaboration on Daylight Availability Measurements: J D Kendrick (Australia)

Kendrick reported that he has just received notification from Dr. Janos Schanda, Executive Director, together with a copy of the final document, that publication of Technical Report No: CIE 108-1994: Guide to Recommended Practice of Daylight Measurement has now taken place. He has advised all TC members and consultants that the TC is now disbanded. He reported further that in the final work which was done in 1993 and 1994 on this document special thanks must go to Professor Peter Tregenza at University of Sheffield, G.B., for organizing this; to Dr. Richard Perez and his colleagues at State University of New York, Albany, U.S.A.; and to Dr.'s Pierre Inejchen and Benoit Molineaux at the University of Geneva, Switzerland, for Appendix 1. As recommended by the CIE Board at its meeting in Melbourne, Australia, in July 1991, this CIE guide was "dedicated to the late Prof. Jurgen Krochmann, a pioneer and leader in daylighting research". Thus is completed the work which began at Kendrick's suggestion at an old TC 4.2 (Daylight) meeting in Berkeley, California, in February 1983, and which was confirmed as TC 3.07 at the reformation of CIE at Amsterdam in August 1983. Kendrick reported that he is personally very grateful to all the many people who have contributed so much of their time and energies during the past decade in order to bring this document to this successful conclusion. It is now up to TC 3-25 to take over responsibility for keeping the International Daylight Measurement Program active and under review and to add supplements or revisions to CIE 108 as and when new information comes to hand in the areas of (a) Clouds and (b) UV measurements made in parallel with daylighting measurements, as a result of sub-committee work in TC 3-25, the continuation committee.

TC3-09: Average Sky as a Standard: Prof K Matsuura (Japan)

The technical report "Spatial Distribution of Daylight - Luminance Distributions of Various Reference Skies" has been officially published as CIE Publication No. 110-1994 in August 1994. At the same time TC 3.09 was automatically disbanded. The Chairman, K. Matsuura, Japan, would like to express his sincere thanks to all the members of TC 3.09. This technical report is a review of studies on various sky luminances and specification of reference skies, with a method of composing average sky and mean sky as an appendix. Several reference skies including the average sky and mean sky are defined and various studies on these sky luminances are introduced, with a bibliography and three appendices.

TC3-10: Maintenance of Lighting Systems: L Bedocs (UK)

Report 97 was published and the committee disbanded. The work on maintenance issues for windows was passed to the daylight committees and those of outdoor systems to division 4 and 5. Bedocs has provided guidelines to all these committees for their consideration but is continuing to function as a Reporter for Maintenance. He is dealing with queries and will issue a small list of corrections to Report 97 together with a floppy disc containing optimization of maintenance factors and software donated by G. L. diFriaia to CIE. As needed, Bedocs plans to keep an eye on maintenance activities and issue reports from time to time. The Division noted the need for information on window maintenance and daylight depreciation factors and encouraged members to provide information to Bedocs.

TC3-11: Daylighting Calculation Methods: M Navvab (USA)

Navvab noted that the TC work on review of current calculation methods is completed. The TC related technical materials submitted by TC-working members, corresponding members and other interested experts in this field are archived. The related CIE references, supporting documents (TC past works), articles and papers from other sources than lighting field (e.g. computer simulations) are collected. The outline of the TC's final report to the division has been prepared. The TC has identified what each daylighting calculation method can offer and under what circumstances they are appropriate. Selected case studies show validation of calculation methods used in computers (e.g. full scale/scale simulated/measured data vs. calculated). The results would be an independent technical report to Division 3, representing TC-3.11 work at CIE-Division Meeting, November 1995, New Delhi, India.

TC3-12: Daylight and Solar Radiation Data for Building Performance: Prof N C Ruck (Australia)

No report received to date.

TC3-13: Discomfort Glare Evaluation System: K Poulton (Australia)

The TC3-13 Report is now in the hands of the Executive Director and will probably only need minor editing, it would appear that the work of TC3-13 is finally completed. Therefore Poulton does not believe that there is any need to have another meeting of this committee. Poulton recommends strongly that the Division do no further work on numerical methods of limiting Discomfort Glare until further research has been done on the fundamental nature of Discomfort Glare in Division 1. This matter was discussed at the Melbourne Session and I understand that Mike Perry from the BRE (UK) was undertaking a research program on this subject. The Division noted that the report requires extensive further editing (now being done at the Central Bureau) because it is difficult to read. This editing will not be technical, and will be circulated to Kiowa Sorenson and Kevin Poulton for comment. It will not be balloted further unless they see substantive changes in the technical content.

TC3-14: Three-Dimensional Forms of Illuminance: K Cuttle (USA)

Cuttle reported that he has been totally inactive as Chairman of TC 3-14, Three-Dimensional forms of Illumination. He has recommended that a new chairperson be sought, but has not consulted the members of the committee on a replacement, and believes that most of them will have forgotten that they were members. Cuttle stated that this gloomy report is relieved by just one minuscule point source. He has a student who has chosen for his master's thesis the application of illumination vector theory for computer-generated visualization of lighting. Cuttle has turned over to him the references and literature that he accumulated while he was an active chairperson, and they are working on analyzing and ordering this material. The study is restricted to the theory of the Light Field (Gershun) and/or the Photoc Field (Moon & Spencer), including vector and scalar concepts, but excluding cylindrical and conical illuminance, and concepts of that sort. Cuttle will be pleased to share the outcome of this work with any new chairperson who is able to breathe life into TC 3-14.

At the September meeting, the Division recommended that TC 3-14 be closed and that the chair send his materials to Vienna to be archived. No one has volunteered to be chair, although one has been sought since Edinburgh. Hence, it was concluded that there is not sufficient interest in the topic. Cuttle was encouraged to have his student produce a good thesis on the topic and circulate that to the Division.

TC3-15: Standardization of Intermediate Sky Luminance: Prof K Matsuura (Japan)

The terms of reference of TC 3-15 are to standardize intermediate sky or skies between the two already standardized clear and overcast skies. The TC was set up in 1988 after the CIE Venice Session 1987. However, the TC work has not yet been able to start because of lack of measurement data for the intermediate sky luminances. So, it is waiting results from the IDMP, particularly data for the sky luminance distributions. Since the IDMP is giving sufficient data nowadays, the TC is preparing to go into action.

At the September meeting the Division discussed the need for a new committee which could evaluate the data form and coordinate future work from the IDMP. Tregenza will work with the chair to develop a proposal for consideration in New Delhi.

TC3-16: Psychological Aspects of Lighting: Dr B L Collins (USA)

Collins reported that a draft report has been circulated to the TC for review. It was approved by the TC with the only suggested changes being editorial. Once these have been completed, the report will be circulated to the Division for voting. A final report is expected by the New Delhi session. In New Delhi, the Division may wish to consider a new committee for implementation of the results of TC 3-16.

TC3-19: Scale Model Photometry for Interior Lighting: M Navvab (USA)

Navvab reported that the TC work on scale model photometry for interior lighting is completed. The technical papers and case studies on simulation techniques submitted by TC-working members, corresponding members and by other interested groups (e.g. lighting engineers, designers and architects) are documented. The related CIE references, supporting documents (e.g. architectural lighting/daylighting design work with technical reports on scale model studies), and published articles on award winning lighting designs are archived. The outline of TC's final report to the Division has been prepared. The TC has identified what each simulation technique can do and under what design criterion they are useful. Some case studies are used to show different techniques in model photometry. Video simulation and luminance scanning results are stored electronically in Tiff or Gif file format. The results will be a technical report to Division 3 representing TC 3-19 work at CIE-Division Meeting, November 1995, New Delhi, India.

TC3-20: Lighting and Architecture: Dr -Ing H Kramer (Germany)

Kramer reported that TC 3-20 did not have a meeting last year but communicated by fax. The headlines for the draft are fixed and the chair hopes to get the members to work on the chapters of the draft. Because of the difficulty of the subject, TC 3-20 will work on it at least for one year, with a preliminary report for discussion during the planned meeting in New Delhi next year.

TC3-21: CIE/ISO Interior Lighting Standards: Mr L Bedocs (GB)

Bedocs reported that he has failed twice to hold meetings and has decided to prepare a draft based on the original framework. He hopes a draft will be available in 1995. The plans are basic and will just cover the essential design criteria and recommendations. He hopes that the TC will make better progress by correspondence and will have a report by New Delhi. An essential element of the report will be the criteria for discomfort glare. It is vital that the UGR system is accepted but until it is, Bedocs proposes to use the limiting GI values published in the 1994 Code for Interior Lighting by CIBSE.

The following are listed as active members of the TC. Bedocs requests information about any changes:

G. Debreczenii - Hungary	C. Bernecker - USA
M. Van Ooyen - Netherlands	H. Reischenschmidts - Germany
L. DiFriaia - Italy	K. Poulton - Australia
J. Grundy - R.S.A.	I. Pasini - Canada Q. Than - China
S. Kanaya - Japan	P. Dehoff - Austria

TC3-22: Museum Lighting and Protection Against Radiation Damage: E Ne'eman (Israel)

The content outline of the proposed CIE Guide on Museum Lighting and Protection Against Radiation Damage was drafted at the first meeting of the committee during the Lux Europa Conference at Edinburgh in April 1993. This outline was finalized by correspondence and circulated to members in January 1994. Topics include introduction, visual requirements, design concepts, architectural concepts, daylighting, electric lighting systems, lighting controls, damage, protection, measurement lighting computation and design of the visual environment.

The program of work is scheduled so that the manuscript of the guide will be submitted at the CIE Session in New Delhi, in November 1995. First drafts of the various chapters are to be submitted by the end of June 1994. Six drafts (out of 14) have been received so far. A reminder has been circulated recently to all authors. The next meeting of the committee occurred in September 18-20 in Paris. It reviewed the first drafts which were submitted and circulated to members before the meeting. The committee plans to have a year for final editing of the draft, although it is aware of the difficulty in making individual contributions into a comprehensive document. The committee hopes that it shall have the manuscript ready for New Delhi.

TC3-23: Variability in Interior Luminous Environment: J D Kendrick (Australia)

When this TC was proposed at Melbourne in July 1991 it was expected that within 18 months a document could be prepared outlining more clearly the work that this TC might undertake. This did not happen due to academic work pressures and Kendrick's subsequent retirement. This was explained at Edinburgh and a request was made to continue to do the work and to report at New Delhi in October 1995. This request was accepted by Division 3. It can now be reported that a draft of a document which attempts to define "Variability", as a basis of understanding for discussion, is in the course of preparation and will be circulated to TC Members before the end of 1994 for comment. At this date however the TC consists of about 7 Japanese members (including a Secretary and translator (Ms. Koga), one person from Scotland and one from China, which is far from representative. Kendrick wish to hear from other potential correspondence members for this TC.

TC3-24: Energy Aspects of Lighting: D Carruthers (Australia)

This TC last met at the Eurolux Conference in Arnhem in September 1993. At that meeting a draft outline for a document on "Energy Aspects of Lighting" was provided by L. Zonneveldt and B.P.F. Huenges Wajer. This draft was discussed at some length and forms the agreed basis for the TC report. The sections in the report were seen as:

An overview concerned with a designer's brief; Specification of a lighting system; Environmental factors; Energy efficient lighting design, including best use of daylight; Costing aspects.

It was decided that the document be restricted to normal indoor environments; offices, shops and light industry. At that time some members agreed to prepare sections of the report, but at present the draft chapters are not ready. More recently, Laurens Zonneveldt agreed to join the group. Progress has been slow, but grateful thanks are due to Zonneveldt and Huenges Wajer for keeping the TC moving. Anyone with an interest in furthering the document would be welcome to join the group.

At the Division meeting Carruthers announced his intention to step down as chair. Anthony Slater is working to see if Laurens Zonneveldt would be willing to chair the TC, and reminded the Division of the importance of Energy and Lighting, as well as the activities with CEN.

TC3-25: Monitoring Progress of the International Daylight Measurement Program and New Sections for the Daylight Measurement Guide: J D Kendrick (Australia)

The chairperson of Technical Committee 3-25 in CIE Division 3 was changed from Mr. J. Derrick Kendrick (Australia) to Prof. Hiroshi Nakamura (Japan) at the meeting of Edinburgh in April 1993. The TC 3-25 has been reorganized with 15 members (including chairperson and two secretaries) and 14 corresponding members. Most of them are managing their IDMP stations scattered all over the world.

The chairperson and Ms. Koga, a secretary, edited a draft document applying the same format used in descriptions on the IEA stations by Mr. Dominique Dumortier, the other secretary. It includes the detailed description on the IDMP and IEA measurement stations and is named "International Daylight Measurement Program: December 1993" This draft document was shown to some of the members and some comments were given. The Committee now intending to reformat the draft document as a CIE official publication entitled "The IDMP Index - participants, details of measurement systems and site locations -" according to the comments by ex-chairperson Mr. J. Derrick Kendrick.

The chairperson visited and inspected several IDMP measurement stations in Europe, USA and China in 1993. Two research class measurement stations have been newly established in Japan (Chofu and Tsukuba). Two measurement stations which can acquire the data of 5 measurement items of IDMP have been planned in Ujung Pandang in Indonesia and Seoul in Korea. They will be completed soon and begin their activities, which will be included in future reports of the TC.

TC3-26: Development of a Protocol for Post Occupancy Evaluation of Lighting: Dr D Tiller (Canada)

Tiller reported that he is collecting questionnaires used in post-occupancy evaluations. He is looking for materials on paper or on floppy disk in the original language used for the evaluation. He will integrate this material into a draft report which he hopes to circulate to the TC members by summer 95 for discussion in New Delhi.

TC3-27: Evaluation of Exit Markings and Emergency Lighting: Dr B L Collins (USA)

Collins reported that the committee had reviewed the CEN draft document on exit markings. It was noted that this is a very active topic in Europe. She asked for additional committee members from Europe, and noted that she hopes to circulate a draft document for committee review before New Delhi. All activities have proceeded by correspondence to date.

TC3-28: Standard on Calculation of Utilization Factors: R I Bell (GB)

The committee is collecting information on calculation factors, although no activity has been reported formally to the Division. It was noted that there are both CEN and IESNA committees working in this area. Technical input will be obtained from the IESNA through the USNC for consideration by the TC.

TC3-29: Visualization: M Smith (USA)

No activity report received to date. The Division commented on the importance of this committee's activity to that in the information technology community.

TC3-30: Hollow Light Guide: J Aizenburg (Russia)

In the Melbourne meeting in 1991 it was proposed that a new TC be created for the purpose of standardizing terminology and dissemination of knowledge in the new field of illumination with hollow light guides. It was suggested that recent discoveries and manufacturing advances are initiating a substantial increase in the magnitude and diversity of activities in this field, and that a centralized coordination of terminology and information dissemination would be most useful. The first step was the creation of a reporting task, with Julian Aizenburg as Chair. The next step, in April of this year, was the creation of TC 3.30, again with Professor Aizenburg as Chair.

During the interval 1991 to 1993, there was indeed substantial growth in the magnitude and diversity of work in this field. For example the full 1.5 km length of the Callahan tunnel in Boston is now illuminated with a prism light guide product, and over 100 km of dangerous roadways in Europe and the US are delineated with a different prism light guide product. There are now substantial light guide development activities in major US, Japanese, and European lighting companies, and the range of successful applications has grown

considerably. As a result, it was possible to solicit 19 enthusiastic members for the proposed TC, and to hold a first meeting very shortly after the committee was formed.

The TC held its first meeting on June 6,7 1994 in Stockholm, Sweden, with the facilities being graciously provided by the NUTEK organization. Ten committee members were able to attend. Most of those attending had previously become familiar with the goals of the committee, and understood the matters which needed to be resolved, so that at the meeting we were able to concentrate on decisions for immediate action, in three areas:

1) Activities related to a detailed report:

- a) A bibliography is being prepared, based on a thorough key-word data base search of patents and periodicals. The bibliography will include a classification system to help users identify the articles which would likely be most useful in their work. The first draft is expected to be complete this year.
- b) As a forward to the bibliography, we are preparing a brief history of developments in this field prior to the creation of the TC, to provide a context for interpreting the contents of the bibliography and subsequent TC reports. It will be completed this year.
- c) After a review of the applicability of current CIE definitions to the terminology requirements of hollow light guide systems, we were able to limit the number of new terms required to eight, and these will be submitted to Division 7 by September 30.

The TC has planned its next meeting for March 6 and 7 1995 in Washington, DC, with the subsequent meeting will be held at the New Delhi conference in November 1995. They have also proposed that a workshop be held on the use of hollow light guides for roadway and tunnel illumination at the New Delhi conference. The reason for this suggestion is that there is considerable activity in this field and considerable uncertainty about many standards-related issues on this topic. Since this area of application involves Division 4, Division 3 pointed out that they should be consulted in this regard. This will be done, and a revised proposal made, by October 31, 1994.

As an additional aid to users of the bibliography, the committee is investigating a plan for a firm in the copyright clearance/document retrieval business to provide, at the expense of the requester, copies of items from the bibliography. It appears that this may make retrieval of the documents more convenient and less expensive than would otherwise be the case. An analysis of this concept will be completed this year. The committee has requested and received brief submissions from 14 organizations, in which they each describe their most interesting hollow light guide project. These were provided to the committee with the intent that they be distributed to interested persons in some appropriate matter, for the purpose of increasing general interest and understanding of this field. The committee is compiling a

diverse list of persons who are believed to have a substantial interest in developments in hollow light guides. This list will be complete by September 30, and is expected to contain roughly 1,000 names and addresses.

Finally, the committee wishes to distribute, free of charge, to persons on the list described in 3c above, a document as described below. The purpose of rapid dissemination of this document would be to solicit information from sources not currently known by the committee, to immediately help coordinate terminology, in order to minimize the cost and difficulty of having the new terminology adopted once it becomes official, to solicit advice on how our committee can best serve the needs of the lighting community, and to build general awareness of the benefits available in this new area of application. The document would contain:

- a cover letter introducing the new TC 3.30, providing a historical review of the field, and requesting input and advice on all of the contents of the package.
- the proposed new terms which have been submitted to the CIE (with these terms clearly labeled **TC draft - subject to change**)
- the proposed new bibliography, (clearly labeled **TC draft - not yet complete**)
- an edited compilation of the submissions which have been collected per item 3b above.

Before distributing this information, the committee will first ensure that the relevant persons in the CIE understand and agree with the intent of the distribution. The committee members have agreed to share the task of copying and mailing these packages, so that the cost for each organization would be quite small. The goal is to have this distribution completed in first quarter of 1995.

Reporters

R3-02: Stage and Studio Lighting - K. Ackerman (UK)

Ackerman reported that he is participating in Showlight 97, and will provide Division 3 with more information about this event at the New Delhi Conference.

R3-05: Overview of Quality Aspects of Lighting - K. Poulton (Australia)

Kevin Poulton has begun a literature search on the subject and plans to submit an activity report later. He continues to be handicapped by the amount of work required on TC 3-13.

R3-06: Research on Accidents Caused by Poor Interior Lighting - R.G. Irvine (USA)

No information has been received on this activity to date.

R3-07: Light Guides - J.B. Aizenberg (Russia)

This activity has been transferred to TC 3-30 which has been quite active.



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CIE Division 4 Activity Report: 1994.

Division 4 continues to be active producing 3 publications (#s 107, 111 and Urban Sky Glow). Six additional reports are nearing completion, including Definition of cut-off for motor vehicle headlamps, front fog lamps, colour of signal lights, criteria for nighttime visibility of retroreflective materials, luminous intensity distributions of road traffic roundel signals, recommendations for lighting of roads for motor and pedestrian traffic.

Division 4 met in Liege, Belgium this fall for its annual Division meeting. W. Adrian, B. Tansley and R. Gibbons attended from CNC/CIE division 4

A symposium on CCD photometry was held at the Liege meeting with participants from various countries conducting an intercomparison of road lighting measurements. The proceedings of the symposium will be published as a technical report this year.

Attached is the Division 4 Activity report. Specific details may be obtained by contacting me.

Brian W. Tansley, Ph.D., C. Psych. (Ontario)
Director, Centre for Human Factors

ACTIVITY REPORT DIVISION 4

update: 10 November 1994

DIVISION 4 LIGHTING AND SIGNALLING FOR TRANSPORT ÉCLAIRAGE ET SIGNALISATION POUR LES TRANSPORTS BELEUCHTUNG UND SIGNALE FÜR DEN VERKEHR

Director of Division: Mr. Ron W. Holmes
Associate Directors: Mr. Richard N. Schwab
Dr. Ir. Pieter L. Walraven
Secretary of Division: Dr. Elisabeth C. de Vries-de Mol
Editor of Division: Mr. Robert S. Yates

Members of Division:

AUSTRALIA	Steve E. Jenkins	AUSTRIA	Friedrich Dechat
BELGIUM	Jean M. Dijon	BRAZIL	Francisco L. Valle
BULGARIA	N. Vassilev	CANADA	Brian W. Tansley
CHINA	Kang-Sheng Xu	CROATIA	Edo Shirola
CZECH REP.	Jaroslav Kotek	DENMARK	Kai Sørensen
FINLAND	Pentti Hautala	FRANCE	M. Donizeau
GERMANY	Werner Kebschull	GR. BRITAIN	Nigel E. Pollard
HONG KONG	K.K. Ng	HUNGARY	S. Almási
INDIA	S. Roy Chowdhury	ISRAEL	Ms E.B. Georgee
ITALY	Giuseppe Agoni	JAPAN	Sho'etsu Sakamoto
NETHERLANDS	Duco A. Schreuder	NEW ZEALAND	J.V. Nicholas
NORWAY	Arve Augdal	POLAND	Hanna Leszczynska
ROMANIA	Iosif Pascut	RUSSIAN FED.	V.M. Ptchelin
SLOVENIA	Marco Bizjak	S. AFRICA	Robert S. Yates
SPAIN	F. Vila	SWEDEN	vacancy *)
SWITZERLAND	W. Riemenschneider	THAILAND	Deja Glarob
U.S.A.	Richard N. Schwab		

*) Due to resignation of Kåre Rumar

The Division 4 meeting took place at Liège, Belgium.
The programm was as follows:

23/9 Friday PM TC4-26 Workshop concerning measurements of luminance by camera CCD.
Organisers: Ing. Rossi, Ch:TC4-26 and Dr Embrechts, University of Liège.
The workshop was open to Div.4 members.
Friday Evening Intercomparison of CCD measurement systems.
This was open to TC4-26 members and the staff of every measurement system.

24/9 Saturday AM Opening of Division Meeting, Plenary Session
Meetings of TC 4-15 and TC 4-31
PM Meetings of TC 4-19, TC4-33 and TC 4-36

25/9 Sunday Visit to Huy and Chateau Modave (Ardennes).

26/9 Monday AM TC Meetings of TC4-24, TC4-32 and TC5-08.
PM TC Meetings of TC4-16, TC4-26 and TC5-08.

Evening: Reception and dinner offered by the Belgian National Committee on Illumination and the Belgian Lighting Industry.

27/9 Tuesday AM TC Meetings of TC4-15, TC4-26 and TC4-35
PM Division 4 meeting, Plenary Session

The Next Division meeting will take place at the CIE session in New Delhi.

Invitations are received for 1996 from France, Poitiers, for 1997 from South-Africa, Cape Town, possibly in connection with a Division 2 meeting there, and for 1998 from United Kingdom, Bath. The Division decided to accept the invitation from France, and leave further decisions to the meeting in New Delhi.

Technical Committees formed before the start of the 1987 quadrennium

TC 4-07 DESIGN METHODS FOR ROAD LIGHTING

Terms of reference: To review existing design methods and to investigate their validity for bends of large radius. To review design methods for bends with small radius. To draft a technical report.

Expected Date of Complete Draft: January 1995

Chairman: J. Vermeulen (NL)

Members: M. Bonomo (IT), F. Burghout (NL), P. Hautala (FI), W. Kebschull (DE), J.C. Marinier (FR), R.H. Simons (UK), R.E. Stark (US), A. Stockmar (DE).

Corresponding members: J.B. Arens (US), P. Gergely (HU), I. Hauser (HU), A. Ketvertis (CA), V.M. Ptchelin (SU).

Status: Copy of the latest report is circulated to the Division for comments and request of views on whether or not we will continue with this TC. Replies have been received and a vast majority is in favour of completing the report.

The text is ready and the illustrations will be finalized by the chairman in close cooperation with Dr. K. Narisada. The report will go to TC-members for voting, and the next step will be voting in the Division. It is expected that the report will be ready January 1995 for voting in the Division.

TC 4-09 FUNDAMENTALS OF THE VISUAL TASK OF NIGHT DRIVING

Status: Closed with publication of Publ. 100.

TC 4-10 AUTOMOBILE LIGHTING SYSTEMS

Expected Date of Complete Draft: 1994

Chairman: P.L. Walraven (NL) (temp.)

Members: J.L. Banks (UK), J. Bergin (US), M. Bernhard (CH), J. Th.H. Bindels (NL), M. Cejnek (CS), L. de Brabander (BE), G. Dorléans (FR), G.R. Draper (FR), A.J. Fisher (AU), G. Furlan (IT), K. Honda (JP), H.-G. Hornig (DE), H. Löfgren (SE), D.W. Moore (US), W. Pollack (DE), R. Rendu (FR), W.H.J. Sator (ZA),

C. Schmidt (DE), H.J. Schmidt-Clausen (DE), N. Stepanov (SU), G. Szekacs (HU), F. Takata (JP), H. Westermann (DE), Tai-Ming Zhou (CN).

Status: Reports on 'Definition of the Cut-off of Vehicle Headlights' and 'Requirements for Light Beam Pattern of Front Fog Lights' are approved by Division and BoA. The reports require further editing, and will then be ready for publication. The first report has been edited by the Working Group, according to remarks made during the balloting, and is almost ready for sending to the CIE-Bureau.

Prof. Schmidt-Clausen has resigned after 9 years work as chairman of TC4-10. At the San Diego meeting of TC4-10, Oct. 1992, it was unanimously decided to abolish the TC, provided a. the two reports, which have been going through the voting procedure, are published and b. the remaining work is incorporated in new to establish TC's in CIE or GTB.

At the GTB-meeting in San Diego the final details of a new agreement between CIE and GTB were negotiated. The new agreement is signed now by the Presidents of CIE and GTB.

CIE-observer to the plenary session of GTB is P.L. Walraven. This TC will be abolished when the technical reports "Definition of Cut-off of Vehicle Lights" and "Front Fog Lights" are published.

TC 4-13 DAYTIME RUNNING LIGHTS

Terms of reference: To study the increase in visibility/conspicuity of vehicles to other road users provided by daytime running lights. To specify their optical performance and to produce a CIE/ISO standard.

Expected Date of Complete Draft of ISO-Standard: End 1995.

Chairman: vacancy, due to resignation of K. Rumar (SE)

Members: C. Schmidt (DE), A. Reynolds (UK), J. White (CA), D. W. Moore (US), D.A. Schreuder (NL), K. Levitin (SU), L. Dellby (SE), secr..

Status: The work on the report is now finished, and is now published as Publication nr CIE 104-1993. The committee is now committed to work on an ISO-standard. Things are happening with DRL in Europe (Austria, Hungary, Poland) that might influence the work. End 1995 the work might be finished.

Technical Committees formed at Venice Session Meeting in 1987

TC 4-14 REVIEW OF THE COLOURS OF SIGNAL LIGHTS

Terms of reference: To review the published experimental reports on the recognition of coloured signal lights especially those published after Publication 2.2. was finalised. To produce a CIE/ISO standard.

Expected Date of Complete Draft: Technical Report is published as CIE Publ. 107. Draft CIE/ISO standard by 28 Febr. 1995.

Chairman: B.L. Cole (AU).

Members: J.D. Maddocks (secr.), A.N. Chalmers (ZA), F. Corno (FR), A.J. Fisher (AU), G. Fisher (GB), J. Th. Hartge (DE), A. Hedin (SE), L. Kaderavkova (CZ), J.A.S. Kinney (US), C.W.

Mortimer (to 1991), H.J. Schmidt-Clausen (DE), D.A. Schreuder (NL), R.N. Schwab (US), B. Tansley (CA), H. Terstiege (DE), A.J. Vingrys (AU), W. Witakowski (PO)

Advisors: B.L. Collins (US), J.V. Nicholas (NZ), A.J. Smith (GB), K. Sørensen (DK).

Status: The Report is published as CIE 107-1994, July 1994. The standard has been approved by both the Division and the BA. The only negative vote was from Japan. The standard is presently subject to comment by the National Committees and relevant international organizations. Voting by the National Committees is expected to start at 1st of March 1995.

TC 4-15 LIGHTING OF ROADS FOR MOTOR AND PEDESTRIANS

Terms of reference: To revise CIE Publication 12/2 and associated documents with the object of incorporating recently developed techniques relating to visibility, glare, and other lighting variables. To produce a CIE/ISO Standard.

Expected Date of Complete Draft: 1995.

Chairman: Ronald H. Simons (UK).

Members: W. Adrian (CA), S. Almási (HU), M. Bonomo (IT), Chow, J.M. Dijon (BE), Gordon, P. Hautala (FI), R.W. Holmes (UK), M. Keck (US), J. Lecocq (FR), K. Narisada (JA), V.M. Ptchelin (SU), W. Riemenschneider (CH), A.C.M. de Visser (NL) as successor of D.A. Schreuder (NL), K. Sørensen (DK), R.E. Stark (US), A. Stockmar (DE), R.S. Yates (ZA).

Status: The TC voted 14-2 in favour of the technical report, which has been sent to the Central Bureau for Division and Board for voting. The TC will now continue to update Publication 30.2.

The TC decided during the Orlando meeting November 1994 to postpone the preparation of an ISO Standard for 2 years, by which time the situation as regards the use of VL as a design criterion should be clarified.

The TC met in Liège, September 1994.

The contents list of 30.2 was reviewed and the following decisions made:

- * Measurements are not to be included as these are the province of TC's.

- * As a consequence of this, the title is to be changed to Road Lighting Calculations.

- * The computer program listing would not be included as the calculation procedures are out-of-date and the language FORTRAN is hardly ever used.

- * Instead of a program listing, algorithms would be provided together with a flow chart.

- * Data would be provided for checking the output of programmes.

- * Graphical methods would not be provided unless TC4-07 is not able to complete its work.

- * The following basic changes to the calculation procedures were decided:

- The angle of view of the observer would be fixed at 1 degree, ie the observer would be moving.

- Interpolation would be linear.

- There would be three calculations points across each lane.

- The worst value of the longitudinal uniformity, overall uniformity, and TI would be selected.

- The illuminance and the luminance would be calculated in the centre of rectangles, equally spaced in the field of calculation, which would commence and end at the transverse line through a lighting column.

A proposal to reduce observer height to 1.25 m was left in abeyance.

- * A first draft would be produced by the end of the year by R.H. Simons

- * There was a desire to hold a meeting before the plenary meeting of CIE in New Delhi, but this was not possible.

TC 4-16 THE TRANSFER OF PHOTOMETRIC DATA FOR ROAD LIGHTING

Terms of reference: To consider the sequence of data transfer from computer to store (eg magnetic) or from computer to computer. The objective is to enable photometric data to be taken from any laboratory in any country to be transferred to a computer for use in an application program originating in any country.

Chairman: Merle E. Keck

Members: A. Augdal (NO), K. Sørensen (DK), J. Koster (NL), J. Lecocq (FR), P. Blaser (CH), W. Kebschull (DE), B. Odemark (SE), R.H. Simons (GB), G. Rossi (IT), W. Egger (AT)

Status: The report is published as Publication CIE 102-1993: "Recommended File Format for Electronic Transfer of Luminaire Photometric Data".

The TC met in Liège, September 1994 in order to work on the ISO-Standard. The first draft of the standard was discussed. No substantial changes with respect to Publ. 102 are expected. Draft nr. 2 will be circulated in December 1994. Completion is expected September 1995.

TC 4-17 VISUAL ASPECTS OF VARIABLE MESSAGE SIGNS

Terms of reference: To consider the visual aspects of variable message signs for application to road, sea, rail, and airfield applications.

Expected Date of Complete Draft: 1994.

Chairman: vacancy (Granville F. Fisher (UK) resigned 1st April 1994)

Members: J.J. Collins (UK), M. Colomb (FR), C. Dudek (US), E.C. De Vries-de Mol (NL), Wolton, Cobbe (retired 1991), D.A. Schreuder (NL)

Status: Closed with Publication 111.

TC 4-18 CONSPICUITY OF TRAFFIC SIGNS AND SIGNALS IN COMPLEX BACKGROUNDS

Terms of reference: To report on the factors which determine the conspicuity of road traffic control devices when viewed by day and by night, against complex backgrounds.

Expected Date of Complete Draft: 1996.

Chairman: Steve E. Jenkins (AU).

Members: Lerner, Freedman, Kawai, B. Cole (AU), P.K. Hughes

(AU), Pottier (FR).

Status: The TC met on 28th October 1993 in Orlando. At the meeting a first draft of about 60% of the report was submitted. Comments on this report by TC members and guests at the meeting were requested by the end of November. It is important that the report gives recommendations for ensuring conspicuity of traffic signs to practitioners as far as possible from research so far. A complete new draft will be circulated before the New Delhi meeting, which will include comments by TC members on the present submission and input from France and USA. The TC will meet next at the CIE conference in New Delhi in 1995, and all work will be done by correspondence.

Technical Committees formed during 1988-1991

TC 4-19 ROAD VISIBILITY IN FOG

Terms of reference: To investigate the visual performance and the propagation of light in thick fog. To study the implications for the design of road lighting and signalling in relation to the measurement of visibility.

Expected Date of Complete Draft: 1995

Chairman: Jean-Sébastien T. Dubuisson (FR).

Members: R.W. Holmes (UK), G. Fisher (UK) (up to 1 April 1994), D.A. Schreuder (NL), R.N. Schwab (US), W. Kebschull (DE), Bandini, B. Tansley (CA), W. Adrian (CA).

Status: The TC met in Liège, September 1994. The 7th draft was discussed, and it seems that this is already close to the final document. The theoretical part will be reviewed by W. Adrian. The practical part will be completed by D.A. Schreuder by adding a paragraph on 'patchy fog' and operating fog warning systems. A small section will be added on the microphysical characteristic of fog on the relation with visibility. The 8th draft will be completed early 1995. The Central Bureau will inform the World Meteorological Organization, W.H.O., about this document.

TC 4-20 CRITERIA FOR NIGHT-TIME VISIBILITY OF RETROREFLECTIVE ROAD SIGNS

Terms of reference: To study the night-time luminance and minimum retroreflectivity of road signs to ensure an adequate level of night time performance. To study the data requirements for the maintenance of road signs.

Expected Date of Complete Draft: October 1994.

Chairman: Henry Woltman (US).

Members: W. Adrian (CA), M. Bernhard (SW), M. Colomb (FR), P. Dibbern (DE), R.W. Holmes (UK), F.R. Gennaoui (AU), S.E. Jenkins (AU), N.L. Johnson (US), K. Rumar (SE), H.J. Schmidt-Clausen (DE), D.A. Schreuder (NL), R.N. Schwab (US), G. Schreiber (DE), A.-M. Serres (FR), H. Terstiege (DE).

Status: The last editing is in progress, whereafter the document will be published.

TC 4-21 INTERFERENCE BY LIGHT WITH ASTRONOMICAL OBSERVATIONS

Terms of reference: To produce an international framework to enable national or local regulations, or recommendations to be produced to restrict interference by light with astronomical observations.

This committee was set up jointly with the International Astronomical Union (IAU) and the first meeting was held in York, UK on 13th September 1990.

The following focusing points have been defined for the working programme:

- * inclusion of teaching to (secondary and college) general students;
- * inclusion of setting up national and/or international standards (e.g. BSI, ISO and probably also DIN and CEN);
- * establishment of a simple experiment aiming at the measurement of the extent of the interference, including the design of measuring gear.

Expected Date of Complete Draft: CIE meeting New Delhi

Chairman: Duco A. Schreuder (NL)

Members: D.L. Crawford (US), Diaz, G.A. Eslinger (US), A.J. Fisher (AU), Isobe (JP), Mason, Murdin, C.A. Oerkvitz (US), N. Pollard (GB).

Status: A half-day meeting entitled "Control of Light Pollution - Measurements - Standards and Practice" was held on 21 August 1994 in the Hague, Netherlands, on the occasion of the General Assembly of the IAU, the International Astronomical Union. The proceedings of that meeting are under way.

CIE Guide: Schreuder will prepare a third draft, to be circulated in TC before 31 December 1994, based on the second draft, the comments made at the previous meeting of the TC in London, and the input from the IAU. A fourth (final) draft of the Guide will then be prepared for circulation and voting in the Division. The report will be presented at New Delhi.

A workshop for the New Delhi meeting is proposed, putting emphasis on energy conservation and economic saving aspects, and the role of the developing countries.

Future work will concentrate on:

- * standardizing measuring methods (together with IAU) possibly as an ISO standard (if possible in collaboration with CIE Division 2);
- * a "textbook" on road and outdoor lighting for astronomers;
- * pursuing educational aspects (authorities, astronomers, lighting engineers and general public, possibly in collaboration with IAU and CIE Division 7).

The next meeting is planned around 10-11 April 1995 in La Palma, Canary Islands, Spain, including visit to the adapted road lighting (subject to confirmation).

At the meeting of TC 5-12 in London, October 1992 it was decided that TC 5-12 will mention sky glow as a factor, whereas TC 4-21 will deal with the subject in depth. In the future the reports of TC 4-21 and TC 5-12 will be amalgated.

TC 4-22 HIGH INTENSITY DISCHARGE HEADLIGHTS

Terms of reference: To consider a comparison of HID versus

incandescent headlights, dipped beam/higher beam lighting, headlight beam pattern/definition, lighting parameters and the effect on road safety.

Expected Date of Complete Draft: End 1993.

Chairman: H.O. Westermann (DE)

Members: J.B. Arensa (US), M. Bernard (CH), J. Bergin (US), J.Th.H. Bindels (NL), Fratty, Honda (JP), D.A. Schreuder (NL), R.N. Schwab (US), Neumann (DE), Rendu (FR), H.J. Schmidt-Clausen (DE).

Status: This Technical Committee met for the first time in Hannover in October 1990 and is to investigate the effects of HID headlights on visual performance and comfort factors related to road traffic at night. Project teams have been set up on Colour and Contrast Aspects, Glare, Run-up, Left and Right-side zone, Horizontal aiming, Foreground and side lighting and Overhead sign lighting. Research analysis is proceeding well. In 8 working groups the major quality and traffic safety aspects are analyzed into recommendations. The input comes from Europe (10 members), USA (7 members) and Japan (1 member). The TC met in October 1992 in Washington DC. Two further meetings took place in 1993: on April 26 in Prague and on October 7 in Ann Arbor, Michigan in conjunction with meetings of the GTB and SAE lighting committees respectively.

The technical report is almost completed, the only items missing are some of the environmental and accident studies. The chairman has set up an editorial review panel (Erion, Gaugel, Dorléans and Draper). The panel met in Cannock at June 22, 1993. The next plenary session of TC4-22 will be held in the fall of 1994 in conjunction with either the GTB-meeting or the SAE-meeting.

TC 4-24 CALCULATION AND MEASUREMENT OF TUNNEL LIGHTING QUALITY CRITERIA

Terms of reference: To define a method for the calculation of quality criteria for tunnel lighting. The quality criteria to be based on the average luminance and uniformity of road surface and walls, vertical illuminance in the driving direction and the veiling luminance created by the luminaries.

To define the measurement of lighting quality in tunnel lighting.

Expected Date of Complete Draft:

* Calculation of quality criteria based on improved diffuse reflection of wall, taking into account only 1 (the first) reflection: 1994

* Calculation of quality criteria based on reflection properties according to 4 angles: 1995

* Measurement of quality criteria: 1993

Chairman: Werner Riemenschneider (CH).

Members: A. Augdal (NO), P. Blaser (CH), Chasse, J.M. Dijon (BE), Embrechts (BE), M. Etienne (FR), Kotek (CS), K. Narisada (JP), Novelas, S. Sakamoto (JA), Sarteel (BE), G. Rossi (IT), D.A. Schreuder (NL), R.N. Schwab (US), R.E. Stark (US), A. Stockmar (DE).

Status: This Technical Committee was set up in 1990. In 1992 and 1993 four meetings have taken place. The reflection pro-

properties of walls and pavements are only known for some kind of street pavements as R1..R4 / W1..W4 / N1..N4 / C1 and C2. Also for these surfaces the reflection properties are only known for one (1°) observation angle. The today mostly used assumption of diffuse reflection gives incorrect results.

TC 4-24 decided to:

- * work out the principles of calculation of the quality criteria based on diffuse reflection of the walls and pavement in driving direction, but with correction factors coming out of measured installations, in order to take into account the specularly of reflection.

- * work out the schema to measure the photometric values for the quality criteria. The points and area to be measured are identical with that of calculation.

- * to cooperate with TC 4-26 in which opportunities are given to measure the reflection properties as function of four angles.

The TC met in Italy on 3 and 4 May 1994 in Milano, Italy, and on 26 September 1994 in Liège, Belgium. During the meeting in Liège, the 4th draft "Calculation of tunnel lighting parameters" was discussed and commented. Special items have been:

- * the purpose of calculation;
- * design - acceptance - operation;
- * parts of surfaces in the tunnel;
 - walls up to 2m - above 2m
 - ceiling
 - pedestrian strips
 - emergency lanes
- * measurement of reflection;
- * new materials for pavements;
- * curved tunnels;
- * cooperation with TC 4-25, road surfaces;
- * daylight in entrance and exit zones.

Next meeting will probably be held in Portugal, March 1995, where draft 5 will be discussed.

TC 4-25 ROAD SURFACE AND ROAD MARKING REFLECTION CHARACTERISTICS

Terms of reference: To consider the outstanding problems concerning road surface lighting characteristics: in particular principles for in situ measurement and the change of characteristics at large observation angles. To consider lighting by road and vehicle lighting.

Expected Date of Complete Draft: 1996

Chairman: Kai Sørensen (DK).

Members: W. Adrian (CA), M. Bry (FR), J.M. Dijon (BE), M. Eckert (DE), M. Frankinet (BE), G. van Heystraten (BE), J.E. Jewell (US), W. Keschull (DE), S.-O. Lundkvist (SE), M.J. Peybernard replaces M. Legillon (1 march 1994), J. Rennilson (US), S. Sakamoto (JP), D.A. Schreuder (NL).

Status: This Technical Committee was set up in 1990 to consider any outstanding road surface, reflection characteristics such as the principles for 'on-site' measurements and the change of characteristics at large observation angles. The work has started with a letter from the Chairman for informa-

tion and enquiries.

The first meeting was held in Prague. Minor changes in the Terms of Reference were requested. The need for revision of some CIE reports was pouled out. The Editor, R.S. Yates will take care of that.

The outstanding problems were identified and some surveys into how to solve these problems were indicated.

During the TC meeting in Orlando three research programs, as initiated at the Prague meeting were considered:

- 1) Variation with the geometry ($\alpha = 1$ degree to 3 degree);
- 2) Q_0/Q_d comparison;
- 3) Specular parameters.

A fourth research programm was added:

- 4) to collect data for the full range of α (up to 90 degree)

The TC feels the need for research on other surfaces. The technical report will be short, only introducing what is new compared with CIE-publications 30.2, 47, 66 and 73.

The TC did not, although originally planned, meet in Liège, September 1994. The chairman stayed in contact with commitee meberes by correspondence. The Federal Highway Department has done similar work, and this will be made available to the TC. (W. Adrian).

Technical Committees proposed in Melbourne.

TC 4-26 SYSTEMS FOR MEASUREMENT OF PHOTOMETRIC QUANTITIES OF ROAD LIGHTING INSTALLATIONS

Terms of reference: To produce a guide for automatic measurement systems for the metrological characteristics of road and tunnel lighting.

Expected Date of Complete Draft: 1995

Chairman: Giuseppe Rossi (IT)

Members: S. Almási (HU), Blochouse, Melle Corinne Brusque (FR), J.B. Dubuisson (FR), replaces H. Legillon (1 march 1994), G.A. Eslinger (US), I. Lewin (US), W. Riemenschneider (CH), H.J. Schmidt-Clausen (GE).

Status: Working programme: - To review the automatic measurement systems currently being used or developed. - To review the essential photometric quantities available from an automatic measurement system to adequately describe and specify a lighting system. - To produce, by 1995, a "GUIDE" to enable automatic measurement systems to be specified.

Intercomparison and workshop Six different CCD systems were shown and five carried out the intercomparison during Friday night (4 static and 1 dynamic). The spread of the results was quite large (0.66 to 1.2 on road mean values taking a manual measurement as reference and 0.85 to 1.05 on the luminance of the target). The intercomparison evidences some geometrical measurements problems.

TC-meeting The 3rd meeting was held in Liège. During the meeting a discussion about the intercomparison results was carried out and an agreement about static and dynamic measurement conditions was obtained. The next draft will be circulated

February 1995. The results of the intercomparison and the papers presented at the workshop will be used for a CIE-publication.

TC 4-27 IN SERVICE VISIBILITY REQUIREMENTS FOR ROAD MARKINGS

Terms of reference: To characterize the visibility of road markings from values obtained by different methods of measurement. To define the parameters which affect the driver according to type of road, type of product (marking, stud etc), type of vehicle lights, climatic conditions etc.

Expected Date of Complete Draft:

Chairman: vacancy, France will make a proposition.

Members: K. Sørensen (DK), M. Bry (FR), M. Colomb (FR), R.W. Holmes (UK), N. Johnson (US), S.-O. Lundkvist (SE), D.A. Schreuder (NL), R.N. Schwab (US).

Status: No overlap with TC4-25 and TC4-26 will occur.

During the Orlando meeting it was decided that the contents of the report will comprise:

- 1) Influence factors of visibility distances
- 2) Relation between visibility distances and photometric data
- 3) Criteria to renew road markings.

TC 4-29 ISO STANDARD ON ROAD TRAFFIC LIGHTS

Terms of reference: To prepare a standard on road traffic lights.

Expected Date of Complete Draft:

Chairman: vacancy (Granville F. Fisher resigned 1st April 1994)

Members: B. Cole (AU), D.A. Schreuder (NL), R. Schwab (US)

Status: The draft ISO standard has been discussed under the chairmanship of R.W. Holmes at the Orlando-meeting, and the resulting draft is circulated among the members of the committee for voting. On the basis of the voting R. Schwab redrafted the text. Division and BA ballot are now in progress.

New Technical Committees proposed in Prague.

TC 4-31 COLOUR VISION STANDARDS FOR TRANSPORT

Terms of reference: To prepare official CIE-recommendations for standards of colour vision that are necessary to ensure safe and reliable recognition of coloured signal lights and traffic signs, taking into account:

1. the complexities of the colour code,
2. the difficulty of view conditions,
3. the importance of colour recognition to safety in various transport modes, and prepare recommendations for practical test methods that can be used by transport authorities who test against these standards.

Expected Date of Complete Draft:

Chairman: Prof. Dr. B.L. Cole (AU).

Members: A.J. Adams (US), S.J. Dain (AU), Prof. K. Ruddock (UK), R.N. Schwab (US), A.J. Vingrys (AU), J.J. Vos (NL), P.L.

Walraven (NL), G. Fisher (UK) (up to 1st April 1994).

Status: After discussion between the DD with DD1 and VPT, concerning whether this TC should be in Division 1 or Division 4, it has been decided by VPT that the TC will be included in Div. 4, provided the title of the TC includes "for transport". Div. 1 appointed P.L. Walraven as liaison with TC 4-31. The first meeting of the TC was held in Liège, September 1994.

- * A bibliography was prepared, and will be amended;
- * Structure of the technical report decided;
- * Preliminary consideration will be given to a first draft of colour vision standards for road, maritime and aviation transport;
- * Preliminary discussion of some of the difficulties that will be encountered defining practical test methods, because of diversity of test instruments and methods in different countries and the specialised expertise needed for testing which may not be available in some countries or in remote districts of larger countries.
- * Future action: develop bibliography; prepare first draft of the technical report.

New Technical Committees proposed in Orlando.

TC 4-32 SURFACE COLOURS FOR TRAFFIC SIGNS

Terms of reference: To revise CIE Document 39.2, including addition of new colour categories and illuminating conditions.

Expected Date of Complete Draft:

Chairman: Pieter L. Walraven (NL)

Members: N. Johnson (US), H. Terstiege (DE)

Status: A first meeting was held in Liège, September 1994. The Terms of reference were confirmed, although it was understood that the activities of the TC are not only updating Publ. 39/2, but also include giving indications how to use recommended colour-areas. The choice of the colours will not only be determined by psycho-physical evidence, but as well by feasibility. It was suggested to develop CIE-colours, to be presented as samples, illustrating the optimal choice of colours for particular purposes.

The chairman will prepare a first draft.

TC 4-33 DISCOMFORT GLARE IN ROAD LIGHTING

Terms of reference: To study the known mathematical description of the discomfort glare in road lighting, its scaling and comparisons with field studies and to condense the outcome in a report that should result in recommendations for discomfort glare assessment.

Expected Date of Complete Draft:

Chairman: Werner Adrian (CA)

Members: M.K. Keck (US), M.J. Ouelette (CA), H.-J. Schmidt-Clausen (DE), R.E. Stark, (US), T. Zwahlen (US)

Status: In order to avoid confusion with activities in Division 1, the original title of the TC "Discomfort glare" has

been changed into "Discomfort glare in road lighting". The inaugural session of the TC took place at the Div.4 meeting in Liège, Belgium. The committee was set up to study the known mathematical description of discomfort glare in road lighting, its scaling and comparisons with field studies, the result of which should provide the basis for recommendations on glare restriction. Many topics were raised during the meeting, and the first thing to do is to deal with it in the minutes of the meeting, which in turn can lead to a first draft of the report.

TC 4-34 REVISION OF CIE PUBLICATION 92

Terms of reference: Revision of CIE publication 92

Expected Date of Complete Draft:

Chairman: R. Yates (ZA)

Members:

Status: A questionnaire was sent to all members of the old committee and others who may have wished to be involved in order to determine where conflict could occur. The response showed that nobody wanted to change the text, except for some appropriate editing, but the horizontal illuminance values should be lined up with the revised 12/2. New tables were prepared and sent out to members before the meeting. The proposals were discussed at the meeting in Liège and, apart from some minor alterations, were accepted. Some discussion arose on the recommended glare control formula in the original document. It was decided to change the formula LA^{25} to LA^5 and W. van Bommel will check if the recommended values need to be changed. On receipt of this an edited version will be sent to members for voting. It is proposed that this be done before January 1995.

TC 4-35 TUNNEL LIGHTING

Terms of reference: Revision of CIE Publication 88

Expected Date of Complete Draft:

Chairman: W. Riemenschneider (CH)

Members:

Status: A first meeting was held in Liège. D. Schreuder will act as secretary. A Table of contents of the report was discussed. A first draft will be written by D. Schreuder. The next meeting will be held in connection with TC4-24 in March 1995, probably in Portugal.

TC 4-36 VISIBILITY DESIGN FOR ROADWAY LIGHTING

Terms of reference: To develop a technical report on design procedures for roadway lighting based on the visibility level concept.

Expected Date of Complete Draft:

Chairman: Richard E. Stark (US)

Members: W. Adrian (CA), J.M. Dijon (BE), M.E. Keck (US), J. Lecocq(FR), W. Kebschull (DE), D.A. Schreuder (NL), N.E. Pollard (UK), R. Simons (UK), J. Havard (US), Phillips (US).

Status: Produce first draft by CIE Session meeting in 1995.

The first meeting took place in Liège, September 1994. Keck, Lecocq and Tansley gave presentations. Adrian and de Visser reported on a german study of accidents versus lighting. The recommended program is to develop a generic program of visibility design for roadway lighting. This will be accomplished by accumulating data on proposed systems and backup research for evaluation as to the best system or combination of systems. A visibility system can then be selected and a table of levels set. Finally, application information must be provided. J.M. Dijon and R. Simons were added to the list of members.

TC 4-xx DAYTIME VISIBILITY REQUIREMENTS FOR ROADWAY SIGNS

Terms of reference: Revision of CIE Publication nr 74

Expected Date of Complete Draft:

Chairman: D. Mace , USA ?

Members:

Status: It needs some sorting out whether this TC can get started.

List of TC's dealing with automobile lighting:

TC 4-10, TC 4-13, TC 4-22

List of TC's dealing with ISO/CIE Standards:

TC	Title	Promised deadline	Reference Publ. No.
4-13	Daytime running lights	95-12-31	104
4-14	Specification of colour boundaries ballot for signal lights (revision of CIE Publ. 2.2)	ballot phase	2.2
4-15	Lighting of Roads for Motorized Traffic and Pedestrians	95-12-31	12.2;32; 92
4-16	Recommended file format for elec- tronic transfer of luminaire photometric data	94-12-31	102
4-29	CIE/ISO Standard on Road Traffic Lights; Specification for colour and optical performance of vehicular traffic signals (revision of Publ.79)	ballot phase	2.2;48; 79
4-31	Colour Vision Standards for Transport		

Reporters:

R4-09	vacancy due to resignation by Kåre Rumar	Use of Ultraviolet Radiation to improve Visibility in Transport.
R4-12	vacancy	Use of Flashing Lights in Road Transport.
R4-14	Pentti Hautala,	Road Lighting and Accidents.
	Report has been given at the Liège-meeting.	
R4-15	vacancy	Solid State Signalling.
	A new reporter is sought as successor of Granville Fisher.	

R4-16 H. Houghton

Conspicuity and visibility in road works with temporary guidance devices.

This reporter function is abolished.

Reporters appointed in Prague:

R4-17 D.A. Schreuder

The feasibility of using polarized lighting systems with the new HID headlights.

R4-18 P. Blaser

Tolerances and accuracy in measurement and calculation in lighting and signalling for transport.

Reporters appointed in Orlando:

R4-xx Prof. Bassett ?

New collections of specular diagrams that do exist for many different types of road surfaces.

This appointment will not take place. Adrian is to send a survey to Holmes.

Reporters appointed in Liège:

D.A. Schreuder

Lighting requirements for visually impaired traffic participants

Liaisons:

Chr. Donizeau
Pieter L. Walraven
Hans J. Schmidt-Clausen
and
H.A. Westermann
Duco A. Schreuder
Brian W. Tansley
Michael Bernhard

CEN/TC 226: Road equipment
GTB
GTB "Steering Committee on new worldwide dipped beam"

IAU, Intern. Astronom. Union
ICAO, Intern. Civil Avionics Org.
ISO/TC22/SC8: Road vehicles, Lighting and Signalling

Report on activities 1993 available at the secretariat
Chr. Donizeau

of ISO/TC22/SC by LO (4 pages) of Div 4.

Pieter L. Walraven

PIARC, Permanent International Association of Road Congresses
ECE/Inland Transport Com./WP 1, Road Traffic Safety

vacancy due to resignation by Kåre Rumar
Pieter L. Walraven

ECE/Inland Transport Com./WP 29, Construction of Vehicles
IAAEL, Int. Ass. on Energy Efficient Lighting

Liaisons within CIE:

Duco A. Schreuder,

Division 7

Mr Bleasby is reporting on this item to the Council.
Mr Holmes was the Division contact, but this is now taken over by Pieter Walraven.

In Division 4 there are three items:

1. Sky Glow is an adverse environmental impact. There is some dispute concerning whether improved optical control of the light to prevent sky glow saves energy or uses more energy.
2. Of course road lighting can be made more energy efficient by the use of new developments in lamp, lantern and control gear technology.
3. The subject of the 1993 Symposium in Orlando highlights that the basic design criteria have a direct bearing on the amount of light required for adequate visibility and hence energy consumption.

"PUPIL LUMENS" ISSUE

The CIE arranges a symposium on "Advances in Photometry" 1-3 December 1994 in Vienna. This issue is important in relation with the evaluation of Road lighting.

TOLERANCES IN LIGHTING DESIGN

Dr Blaser (CH) is Division 4 representative.

PUBLICATIONS

List of Division 4 Publications since Amsterdam Session 1983

1983-87

- Publ. N 61 Tunnel Entrance Zone Lighting, 1984
Publ. N 66 Road Surfaces and Lighting (Joint with PIARC),
1984

1987-91

- Publ. N 73 Visual Aspects of Road Markings, 1988
Publ. N 74 Road Signs, 1988
Publ. N 79 Design of Road Traffic Lights, 1988
Publ. N 88 Lighting of Road Tunnels and Underpasses, 1990

1991-present

- Publ. N 92 Lighting of Urban Areas, 1992
Publ. N 93 Road Lighting as a Night Time Accident
Countermeasure, 1992
Publ. N 100 Fundamentals of the Visual Task for Night Driving,
1992
Publ. N 102 Recommended file format for electronic transfer of
luminaire photometric data, 1993
Publ. N 104 Automobile Daytime Running Lights (DRL), 1993
Publ. N 107 Review of the official CIE recommendations for
the colours of signal lights, 1994
Publ. N 111 Visual aspects of variable message signs, 1994
Publ. CIE X Urban stray glow, a worry for astronomy
008-1994

Near to Publication:

Definition of Cut-off of Vehicle Lights

Front Fog Lamps

Colour of Signal Lights (CIE/ISO Standard)

Criteria for night time visibility of retroreflective road signs

CIE/ISO standard - Road traffic light roundel signals, luminous intensity distribution

Recommendations for the lighting of roads for motor and pedestrian traffic

CNC/CIE 39TH ANNUAL MEETING
November 28, 1994 - 9:00AM TO 5:00 PM
DEFENCE AND CIVIL INSTITUTE OF ENVIRONMENT MEDICINE
NORTH YORK, ONT.

DIVISION 5 ACTIVITY REPORT

Date: November 4, 1994

From: Jacques Roberge, Eng., Member, Div.5, CIE
c/o INFRANOR CANADA INC
5650, Rue Trudeau
St-Hyacinthe, QC.
J2S 1H4
Phone: (514) 773-5503
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TO: Members and Associate Members, CNC/CIE

The Division 5 Activity Report attached is dated March 1994 and has been submitted by our director W. van Bommel in preparation for the Division meeting that took place in Newark, N.J. on May 3rd, 1994.

Nine Div.5 members were present including myself. Ten members had sent regrets, two of which delegated their vote to a representative amongsts eight guests who also attended.

The minutes of the meeting are attached (A-3) and are self-explanatory:

I may be able to help with further questions on the subjects covered, either from memory or personal notes.

On the same occasion I attended a meeting of TC5-13 (CIE/ISO Standard for the Lighting of Exterior Working Areas) of which I am a member with over 13 other people. Eight members were present at the meeting plus a few guests.

Work proceeded well on the second draft which resulted in draft 3 dated August 1994, and plans were made for another meeting which actually took place on September 19, 1994 in Lancaster U.K. where draft No.4 was worked upon.

The members present adopted unanimously two definitions of uniformity of illuminance, which represent a compromise between European and North-American views. The two criteria will be:

Emin/Eav
and
Emax/Emin

as detailed in appendix (A-4) attached.

Basically Emin/Eav is smaller than 1 and has been used in Europe and by the CIE. North Americans usually employed Eav/Emin.

On the other hand Emax/Emin is larger than 1 and has been favored in North-America (IESNA).

Europe and the CIE has used Emin/Emax, also called diversity. The members mandated TC5-13 Chairman J. Horvath to forward the adopted definition to Div.5 Director van Bommel for presentation to the next Board meeting and potential adoption by other divisions.

Work on TC5-13 is mainly based on the previous standards, updated and modified in some places by more recent empirical data gathered in Norway and Finland, by two committee members. Glare limitation recommendations will be an important addition to the standard. Final draft and balloting will probably be pushed back to 1995.

Three other Div.5 committees also met in Newark:

- TC5-08: "Lighting for Off-Shore Gas and Oil Structurer"
(H.H. Bjorset)
- TC5-11: "Practical Guidelines for Sport Lighting Installations of TV"
(R.A. Hargroves)
- TC5-14: "Maintenance of Outdoor Lighting Systems"
(N.E. Pollard)

I attended only parts of those meetings, as a guest, since some of them were running concurrently.

In Lancaster, UK, 3 other committees were scheduled to meet, besides TC5-13:

- TC5-10: "Exterior Security Lighting" (Joye):
did not take place because of absence of Chairman.

- TC5-12: "Obstrusive Light" (Pollard):
Only the Chairman and one member (Fisher) were present. Four to six guests attended at various times: I managed to catch two half days out of the two-day session, which proved most interesting.
Will be pleased to give verbal summary or answer questions, if any, from handwritten notes.

- TC5-15: "Tolerances and Accuracy in Lighting Design" (Fisher):
Having volunteered the week before to join this committee, I attended a full day workshop, which unfortunately turned out to be more of a lecture than an exchange of ideas, and a half-day committee meeting with eight members present out of about a dozen, with four guests. Title, terms of reference and the outline of the future report were agreed upon. Martin Gierse (Austria) and myself agreed to take care of part 3: "Sources of variation in lighting and how the total variation may be computed". Targets were established as follows: Draft 1 to follow Lancaster meeting (late 1994); Draft 2, March 1995; Draft 3 in New Delhi, Nov 1995; publication for mid-quadrannial (1997). Contributions and suggestions are welcome.

Our Division director Mr. van Bommel confirmed that he will not continue in his functions after November 1995. Attempt at finding him a successor had not been successfull as of Sept. 94: suggestions welcome.

I realize at this time that the Division 5 Activity Report, received in April, and the Minutes of the Division Meeting, received in June, might have been more usefull to you if they had been transmitted immediately rather than stored untill now.

Will update and automate mailing list of interested parties and once more attempt to improve communications, in 1995.



J. Roberge



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

ACTIVITY REPORT

DIVISION 5

DIVISION 5

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ACTIVITY REPORT OF CIE DIVISION 5, SPRING 1994

NOTE: It is the responsibility of division members to circulate this Activity Report to interested people in their country.
TC Chairmen, please send a copy to your TC members!

GENERAL

Many CIE meetings, let it be TC or Division meetings take place in Europe. This has to do with the fact that Europe has so many National CIE Committees and consequently many experts, often of different "schools". It was 1986 when Division 5 had its last meeting in North America. Many of us still have very good memories of that Houston meeting. Now we will have again a meeting in North America. The final details of this meeting in Newark (New Jersey) have been send out. As in Houston, the meeting will take place in the same hotel as where all or most participants will stay. This means that we not only have the formal meetings to exchange ideas but also the social hours are very much available for that purpose. I hope that many guests from the USA will attend our meetings. We have to realize that the Newark meeting is the last meeting before the next CIE Session to be held in November 1995 in New Delhi. Our Indian colleagues started already with the detailed preparations. Not much time is left to finalize all the TC work that we promised to have ready for that Session! International standardization in the lighting field is important for the community as a whole, just think of the energy and environmental issue, and for the lighting community, to promote better, more efficient and advanced lighting solutions. Since CIE is recognized by ISO as the international standardization body in the lighting field we have obligations to fulfill.

The choice to have the Division 5 meeting in Newark just prior to Lightfair International (May 4-6 in New York City) makes it possible to interact with thousands of lighting professionals from around the world. Complete program information can be requested at fax number (1) 214 245 8700.

Wout van Bommel
Eindhoven, March 1994.

PROGRESS of TECHNICAL COMMITTEES

TC 5-01 Underground Mine Lighting

Terms of Reference: Complete the draft document initiated by the former TC 4.10 on lighting recommendations for underground mines.

Type of publication: Technical Report

Expected date of complete draft:

Chairman: until 1988: Peretiatkowi

from 1988: Hemp

Members: Bell, Einhorn, Ganchev, Gecchele, Grave, Munro, Pawlowski, Peretiatkovicz, Riechert, Sakai, Trotter, Wachnik, Weis

Status:

The Chairman, Roger Hemp has written just prior to the Edinburgh Meeting (1993) that it is not longer possible for him to give sufficient attention and resources to this TC to finalize the work. At the Division 5 Meeting in Edinburgh it has been proposed to ask Roger Hemp to finalize the Report together with Bruno Weis without many alterations and without new TC Meetings. We try to get a definitive answer from Roger Hemp before the Newark Divisional Meeting.

TC 5-02 Underground Mine Lighting Measurements

Work finished and published (1990); TC dissolved.

TC 5-03 Open Cast Mine Lighting

Terms of Reference: Study procedures and prepare a guide for the design of lighting for open cast mines.

Type of publication: Guide

Expected date of complete draft: 1995

Chairman: Bandyopadhyay

Members: Hemp, Peay, Zhang Hai-Cong

Status:

An advanced draft is available. A TC Meeting scheduled for Edinburgh had to be canceled because only the Chairman could (and did) travel to Edinburgh for attending the Divisional Meeting.

TC 5-04 Glare in Outdoor Areas

Terms of Reference: Study glare evaluation methods for outdoor areas.

Type of publication: Technical Report

Expected date of published Report: 1994

Chairman: until 1985: van Bommel

from 1985: Stockmar

Members: Einhorn, Gudum, Lecocq, Narisada, Poulton, Pritchard, Pylvanainen, Rogers (until 1988), Van Bommel

Status:

The Report describing a glare rating and evaluation system for outdoor floodlighting installations has been edited by our Division Editor and the Report has been sent around for final balloting in both Division 5 and the Board. Ballot results will be available at the Division 5 Meeting in Newark. With positive result the Report can be published without delay because it is in "printing-ready" shape available with the Central Bureau in Vienna.

TC 5-05 Lighting for Sports Events for Colour Television

Work finished and published (1990); TC dissolved.

TC 5-06 Decorative Lighting for Exteriors

Work finished and published (1993); TC dissolved

TC 5-08 Lighting for Off-Shore Gas and Oil Structures

Terms of Reference: Review the existing situation, including signalling, make recommendations, prepare a bibliography.

Type of publication: Guide

Expected date of complete draft: 1995

Chairman: until May 1990: Van Malland

from June 1991: Bjorset

Members: Askeland, Cochran, Elsebutangen, Van Malland, Pawlowski, Rowley, Stub, Taylor, Weis

Advisors: Bieker, Reimertz

Status:

Two meetings have been held, one in conjunction with the Division Meeting in Edinburgh in 1993, and one in February 1994 in Eindhoven. Advanced text is available for most Chapters. Although work is slightly behind schedule, the goal still is to have the Report available for final discussion in New Delhi 1995. A further TC Meeting in conjunction with the Division Meeting in Newark is planned.

TC 5-09 Illuminance Levels for Sports Events

Terms of Reference: Produce a technical report listing lighting levels for all commonly known sports for different categories of use.

Type of publication: Technical Report; ISO/CIE Standard

Expected date of complete drafts: 1994

Chairman: Lemons

Members: Audestad, Baldrey, Baxter, Bjorklund, Burghout, Horvath, Lecocq, Saito, Tsarkov, Vassilev

Status:

The draft report with an overview of different national recommendations for different kinds of sports for different purposes of use, has been with our editor for editing. The Chairman is evaluating the editing comments received. Based on this report another draft report (CIE/ISO Standard) has been prepared in which a set of tables is given specifying CIE/ISO recommended illuminance values for different types of sports, each for some different categories of use (e.g. recreation, training, club competition, professional competition). The terms of this committee are similar to the terms of a CEN committee. The CEN committee plans to have its last meeting in June of this year. Jacques Lecocq, Convenor of the CEN committee and member of the CIE committee, will be able to report in Newark about the final draft CEN Report.

TC 5-10 Exterior Security Lighting

Terms of Reference: Study and consider matters of exterior security lighting for private houses, residential areas, office buildings, banks, airports, prisons, exterior working areas, energy supply facilities, international boundaries, etc., as a deterrent to crime and to enable detection, as part of an integral security installation, with the intention of producing a guide beyond the scope of Chapter 11 of Publication No. 68.

Type of publication: Guide

Expected date of complete draft:

Chairman: Joye

Members: Audestad, Boyce, Cahn, Culley, Descheres, Diepenbroek, Horvath, Kasurinen, Prieur, Weis, Yoshida

Status:

There has been no further progress in this committee. According to the decision of the Edinburgh meeting, the Chairman, Phillipe Joye has organized a meeting. However, once again this meeting was cancelled because too few people would attend. Phillipe Joye has been elected Director of Public Works and Energy of the Swiss Canton Geneva. He will attend the Newark meeting where decisions about the future of this TC will be taken.

TC 5-11 Practical Design Guidelines for Sports Lighting Installations of TV

Terms of Reference: Prepare a technical report as an addition to Publication 28.2 giving a comprehensive guide to the layout of lighting installations suitable for CTV; also including a section on spill light and, if realistic, a section of semi-cylindrical illuminance.

Type of publication: Guide

Expected date of final draft: 1995

Chairman: Hargroves

Members: Allegue, DiFraia, Hargroves, Horvath, Kasurinen, Lecocq, Lemons, Ludwig, Potter, Schnor, Stockmar, Van den Beld, Verbitskaya, Wittwer, Yoshikawa, Zieseniss

Status:

The guide being prepared by this TC will give practical advice on the realization of the recommendations for sports lighting for colour television and filming laid down in CIE Publication No 83 (see Section 3.5). Many comments and proposals have been received during the Edinburgh TC Meeting. The Chairman will try to incorporate comments and additions in the third draft.

TC 5-12 Obtrusive Light

Terms of Reference: To study the effects of obtrusive light from exterior lighting to residents and traffic; and to prepare a Technical Report that gives measure(s) to describe the effect(s), restricting values for these measures, and measuring methods; excluding the problem for astronomers.

Type of publication: Technical Report

Expected date of final draft: 1994

Chairman: until July 1991: Julian
from July 1991: Fisher

Members: Matsumoto, Van Oosten, Pollard, Shotbolt, Tenner, Wilson, Wittwer, Wylie, Eberbach.

Status:

A relative complete draft report is available. What is still missing are limiting values for avoiding obtrusive light. Limits for restricting obtrusive light are available based on theoretical considerations. For an international recommendation more information on limits following from "best practice" is needed. In the discussions, German research (Eberbach) and recent Australian comparisons of practical occurring values with desirable limits, have been taken into account. At this moment an Australian investigation is running on practical acceptable limits. An Australian Standard will be published within short. Alec Fisher is planning a next meeting for his TC in August of this year in Europe (probably Eindhoven). At this meeting the results of the Australian investigation will be available. The Chairman plans to have for that meeting a complete draft of the CIE Report.

TC 5-13 CIE/ISO Standard for the lighting of exterior working areas

Terms of Reference: To produce a CIE/ISO Standard for the lighting of exterior working areas, by extracting and updating where relevant, the lighting requirements from CIE Publication No. 68/1986, adding to it the glare restriction values as given in the Technical Report of TC 5-04.

Type of publication: CIE/ISO Standard

Expected date of draft for balloting: 1994

Chairman: Horvath

Members: Audestad, Bandyopadhyay, Beckford, Breda, Deri, Dijon, Isomura, Pylvanainen, Queré, Roberge, San Martin, Spearing, Vincze, Weis.

Status:

A second draft of the proposed Standard will be made available by the Chairman early March 1994. A TC meeting in conjunction with the divisional Newark meeting is foreseen.

TC 5-14 Maintenance of outdoor lighting systems

Terms of Reference: To produce a Technical Report according the format of CIE Publication No 97, describing the parameters influencing the depreciation process and the procedure for estimating the maintenance factor for outdoor lighting systems and providing information on the selection of equipment, estimation of economic maintenance cycles and advice on service techniques.

Chairman: Pollard

Members: Chan, Dijon, Iizuka, Lain, Oerkvitz, Yates.

Type of publication: Technical Report

Expected date of complete draft: 1996

Status:

Based on his own Reporters report, prepared for the Edinburgh division meeting, the Chairman has now sent out a first draft Technical Report which will be discussed at the committee's first meeting in conjunction with the Division Meeting in Newark.

TC 5-15 Tolerances in lighting design and measurement

Terms of Reference: To describe the parties responsible for and involved in tolerances of lighting designs and to describe and to their relations and the uncertainties in these relations. To describe how existing standards on tolerances play a role in these relations. To give a qualitative (not quantitative) list of parameters which contribute to the uncertainties. To give recommendations for the terminology to be used.

Type of publication: Technical Report

Expected date of complete draft:

Chairman: Fisher (to be confirmed by the Division Meeting in Newark)

Members:

Status:

In 1991 Warren Julian discussed in a paper the problem of tolerances in lighting design. CIE President Robin Aldworth then asked CIE people and interested bodies to give their proposals and comments on this subject. As a result of this a reportership was established. The reporter, Michel Jacobs, prepared a report that was discussed in both the Board and Division 5 in Edinburgh. As a result a Technical Committee with the above Terms has been established. When this decision was taken in Edinburgh a Chairman was not available. Consequently the Division Director sent out a letter to all National Committees with a request to give proposals for a candidate Chairman. Now Dr. Alec Fisher from Australia has been approached and he is willing to accept the chairmanship. Division 5 formally has to confirm his chairmanship at the Newark meeting.

Alec Fisher has prepared a background paper on the subject which will be available to Division 5 members at the Newark Division Meeting. He will also prepare an outline for a CIE Technical Report that will be available in Newark for discussion. He plans a first meeting in conjunction with a TC 5-12 meeting in August 1994 in Europe (probably in Eindhoven, the Netherlands).

Reporter R 5-03 The lighting for sports events for High Definition Television

Task: To study whether a Technical Report can be produced as an Annex to Technical Report No. 83/1989, specifying those lighting requirements for High Definition Television deviating from conventional Colour Television.

Reporter: Cockaigne

Status: After problems finding a Reporter earlier, Steve Cockaigne from BBC Television Centre accepted the Reportership.

NEXT MEETING

TC meetings: May 2 and plenary Division meeting: May 3 1994 in Newark (N.J) USA.

A-3

CIE DIVISION 5

MINUTES OF THE DIVISION MEETING held on TUESDAY 3RD MAY 1994 at the COURTYARD BY MARRIOTT HOTEL, NEWARK, USA

PRESENT:

Van Bommel, Wout	(Division Director) Chairman	(m)	Netherlands
Askeland, Richard			Norway
Audestad, Jan-Henrik		(m)	Norway
van den Beld, Gerrit			Netherlands
Bjørset, Hans-Henrik	(Chairman TC 5-08)		Norway
Hargroves, Bob	(Secretary, Chairman TC 5-11)	(m)	Great Britain
Horvath, Dr.József	(Chairman TC 5-13)	(m)	Hungary
Jerleke, Jan-Erik		(m)	Sweden
Joye, Philippe	(Chairman TC 5-10)	(m)	Switzerland
Lecocq, Jacques		* (m)	France
Lemons, Tom	(Chairman TC 5-09)	(m)	USA
Pollard, Nigel	(Chairman TC 5-14)		Great Britain
Pylvänäinen, Pertti		(dv)	Finland
Roberge, Jacques		(m)	Canada
Schwarcz, Peter			Hungary
Spearing, Peter			Great Britain
Stockmar, Axel	(Chairman TC 5-04)	(dv)	Germany

Note: (m) = Division 5 member
(dv) = Delegated vote
* = Vote delegated to R A Hargroves after early departure

1. Opening of the Meeting

The Director welcomed delegates to the first Division 5 meeting in the USA since 1986. Each delegate introduced themselves.

Apologies for absence had been received from:

P K Bandyopadhyay (Chairman TC 5-03)	(m)	India
P Baxter	(m)	Australia
R R Cochran		Great Britain
S Cockaigne		Great Britain
L di Fraia	(m)	Italy
Z Hai-Cong	(m)	China
L Ludwig		Germany
S Neumüller	(m)	Yugoslavia

P Nilanen	+ (m)	Finland
P Philippot	(m)	Belgium
R San Martin	(m)	Spain
B Weis	+ (m)	Germany
E Wittwer		Switzerland
R Yates		South Africa
H Yoshida	(m)	Japan

+ = vote delegated as shown on attendance list.

Change in Membership: Mr Pasi Nilanen has taken over the membership for Finland upon the retirement of Mr E Kasurinen.

The Agenda was accepted, but the report on TC 5-15 was moved to the beginning of item 6, the Technical Committee Reports.

2. Minutes of Last Meeting : Edinburgh, April 1993

These were accepted.

3. Division Director's Report

Mr van Bommel said that as an Activity Report had been issued in March, he would not repeat items reported there. He therefore summarised the main items from the CIE Board Meeting held two weeks previously in Vienna.

- a) Preparation for the New Delhi Quadrennial meeting was well advanced. (for dates see item 10).
- b) Central Bureau Vienna: although finances are limited, these premises will be retained. The staff at Central Bureau can carry out some of the editing work for TC's where there are particular difficulties, and especially at the last stage when the report is being prepared for publication.

Janos Schanda, the CIE Secretary, will be retiring within 2 years and a replacement will be sought from within the CIE. A letter will be sent to all National Committees asking for possible candidates.

- c) The President (Robin Aldworth) has received a letter from the US National Committee on the status of the definition of maintained illuminance. It was detailed at the Edinburgh meeting and published after agreement from Divisions 3 and 5 in the CIE News. No proposals for a change to this definition have been received by Division 7, whose responsibility this now is, so the CIE Board has concluded that we can work to the definition as published.
- d) A new CIE publication has been proposed called "Light Highlights". This will recount the history of work that has gone in to certain reports or lighting topics and include reprints of relevant documents. Possible subjects

would be colour, luminance in road lighting. Suggestions from Division 5 are needed. ←

In discussion, it was stated that historical surveys could be useful for those unfamiliar with certain aspects of lighting development, but on the other hand would it not be better to look forward to where lighting should be in 2000?

To increase sales of CIE publications, it was opined that practical guides, better advertising, reviews in other journals and better quality were needed.

The Director stated that preparation of historical surveys would not be the responsibility of Divisions, but of certain retired members.

4. Secretary's Report

Mr Hargroves explained how important it is that information on the CIE is disseminated throughout the whole memberships and to everyone who has a reason to be interested in our work. Thus it is essential that when members and TC Chairmen receive notices of meetings, Activity Reports etc. from the Secretary, they should make sure their National Advisory Group and TC Members respectively receive copies. By seeing that we all play our part in maintaining these lines of communication so we promote the interest and enthusiasm that is essential for our work to proceed effectively.

5. Editor's Report

In the absence of Mr Culley, the Director presented his report. Over the last 12 months, the draft reports from TC 5-09 (Illuminance Levels for Sports Events) and TC 5-04 (Glare Evaluation System for use within Outdoor Sports and Area Lighting have been edited).

To reduce problems in editing final committee drafts TC Chairmen should send earlier drafts to the Editor so that any necessary guidance can be given at the first opportunity. Where a CIE Standard is to become an ISO Standard, the ISO procedure is followed. The final CIE draft (after normal CIE balloting procedure) is circulated to all countries again for approval as an ISO Standard. The proposal now is to call the final CIE draft a DIS (draft international standard) whereby if anyone wishes to make comments, then the country has to buy it. Any comments made have to be taken account of before the document is sent out for ISO voting. This procedure will offset loss of income due to drafts being retained for use and reducing sales of the final publication.

It was pointed out that when ISO circulates a CIE draft to member countries, it is sent to the National Standards Organisations, but they may not be aware of the relevant people to consult (ie. the local National Committee of the CIE). All National Committees should therefore contact their National Standards bodies to ensure that they receive all relevant drafts.

For ordinary CIE drafts circulated to member countries it was proposed that the word "DRAFT" be stamped across the cover to discourage people from retaining the draft for use and not buying the published document. The Director will propose this to the Board.

6. Reports on Technical Committees

TC 5-01 Underground Mine Lighting

The Director recalled the history of this committee up to the resignation of the Chairman, Mr Hemp, at the last Division meeting. It has not been possible to comply with the proposal in April 1993 that Mr Hemp edit the current draft as it is for publication. It was pointed out that in any case there would probably be dissension on the contents. As all attempts to appoint a new Chairman had failed, the Director proposed that TC 5-01 be dissolved.

Voting was 9 for, 0 against with 1 abstention. The Director will write to Mr Hemp and the members informing them of this decision and requesting all the collated material for the archives in Vienna.

TC 5-03 Open-cast Mine Lighting (P K Bandyopadhyay)

The Director presented the Chairman's report. A draft report had not been received, but the Director will see the Chairman later this year and urge him to call a meeting in Europe. Interest has been aroused in several countries, but new members would be welcome, particularly those who have general lighting expertise.

TC 5-04 Glare Evaluation System for use within Outdoor Sports and Area Lighting (A Stockmar)

The result of the ballot conducted by the Central Bureau was : In favour 16, In favour with comments 3. The main issue in the comments was that because the formula only applied to viewing directions below the horizontal, it was not applicable to aerial sports and that this should be stated either in the title, the text or both.

After lengthy discussion it was decided that the title should be unchanged and that the Chairman will edit the introduction to emphasise the restriction in the applicability of the formula.

TC 5-08 Lighting for Off-shore Gas and Oil Structures (H-H Björset)

Two meetings have been held during the last year. The meeting held in the USA provided the first opportunity for contact with American activity.

The aim is to finalise the next draft by June 1994 and the complete report by Autumn 1995.

A summary of the technical progress is given in appendix 1.

TC 5-09 Illuminance Levels for Sports Events (T M Lemons)

It had been decided at the Oslo meeting in 1990 that this report would first be published in the Technical Collection. Since then, however, several new National and International recommendations or standards have appeared and the values in the CIE report need revising. It was therefore decided that the Oslo resolution be rescinded.

Voting: 8 for, 0 against, 2 abstentions.

The essential aim is to produce an ISO Standard and work since the last Division meeting has been to revise the illuminance values where necessary. The main difficulty is that different countries may quote maintained values, initial, minimum, or target values and it is not clear how they are related.

A similar document is being compiled as a CEN standard. J Lecocq, Chairman of the CEN Working Group, summarised its contents. Maintained illuminance values have been agreed for about 50 sports played in Europe.

It is likely that the CEN values would provide a good basis for the CIE/ISO standard, but agreement with other countries must be achieved. An initial draft will be produced within 6 months, with an ISO proposal by November 1995.

TC 5-10 Exterior Security Lighting (P Joye)

Committee meetings have been held in Budapest and USA. Although there are only a few members, they are sufficient to proceed. Chapter headings have been agreed. The next meeting is scheduled for September 1994, probably before the ILE Conference in Lancaster, UK. The first draft will be available then.

New members would be welcome. Mr P Spearing will send copies of articles by John Baker to Mr Joye and ascertain whether Mr Baker could join the committee.

TC 5-11 Practical Design Guidelines for Sports Lighting Installations for Television and Film (R A Hargroves)

Although some progress had been made since the last committee meeting in April 1993, it had not been possible to issue a 3rd draft. At the meeting held in the USA in May 1994, material for completing all the General Sections was assembled and delegated for compilation. Further detailed information for sections on specific sports will be sought and the 3rd draft issued by 1st September 1994 for all committee members to give critical and constructive criticism. The 4th draft will then be prepared by 1st February 1995. A draft fully approved by the TC will be presented to the India meeting in November 1995.

The TC had agreed that although the primary aim of the report is to give guidance on meeting the criteria and values contained in CIE 83, the report will be generally valid for other lighting specifications such as may be laid down by specific Broadcasting Unions.

The possible need to revise CIE 67 on layout of calculation and measurement grid points was raised, as it may be necessary to include specific grids for each sport. CIE 67 does not give unambiguous guidance for all the sports concerned. A proposal to check whether a new version of CIE 67 is needed and which sections should be amended was passed : Voting 7 for, 0 against, 1 abstention.

TC 5-12 Obtrusive Light (Dr A Fisher)

A report sent by the Chairman stated that there is already an advanced draft produced in Australia. Dr Fisher warned of possibly far-reaching implications of this report and members of the Division should stay fully aware of the contents of the drafts and comment where necessary.

A 2 day meeting is planned for September 1994 in either Eindhoven or Lancaster UK. The US National Committee has requested that David Crawford be invited to this committee. The Director will speak to Dr Fisher.

TC 5-13 CIE/ISO Standard for the Lighting of Exterior Working Areas (Dr J Horvath)

A large committee has been formed as a result of the response to a questionnaire. The 2nd draft was discussed at the TC meeting held in Newark. It is hoped that the 3rd and final committee draft will be completed by September '94 when the next meeting will be held.

The most important part of this report is the table of General Recommendations. It will be necessary to define measurement grids for certain working areas. This will follow the principles proposed in CEN TC 169 WG4 (Sports Lighting). Mr A Stockmar is on both committees and will liaise.

TC 5-14 Maintenance of Outdoor Lighting Systems (N Pollard)

The 1st draft was discussed at the TC meeting held the day before. All members had sent in contributions. The contents include maintenance of columns, luminaire maintenance factors and definitions of pollution categories. Data is needed particularly for tunnels and arcades.

The 2nd draft is scheduled for September 1994.

TC 5-15 Tolerances in Lighting Design

At the Edinburgh meeting, a report on this subject was presented by Mr M Jacobs, in his capacity as a Reporter. This report was accepted by the Board for publication in the CIE collection. The TC was established, but it was sometime before a Chairman, Dr Alec Fisher, could be proposed. Dr Fisher had written a paper on Tolerances for Lux Pacifica and this paper had been circulated to the present meeting earlier, so that all members could read it.

A letter from the Publications Board had stated that Dr Fisher's paper would be published in place of Mr Jacobs' in the CIE collection. In view of this the

following actions were agreed:

- a) Division Director will write to the Central Bureau urging them not to accept the letter from the Publications Board and to publish the report by Mr Jacobs.
- b) Division Director will recommend to Dr Fisher that he publishes his paper in the UK (ILE Journal), in the USA (NAIES) and elsewhere.

The vote on the proposal for Dr Fisher as Chairman was : for 10, against 0, abstentions 1.

Members are needed to serve on this committee. (Please reply to the letter attached to these minutes). The CIE Board has agreed that this TC covers all aspects of lighting and therefore aspects concerning Divisions 3 and 4 must be included.

Dr Fisher is proposing a 2 day workshop in Eindhoven on 7th-8th September 1994, but as this is not convenient to the USA, the Director will discuss with Dr Fisher whether it can be held either with the ILE Conference in Lancaster, UK, or the Division 4 meeting in Liège, Belgium.

7. Reporting Topics

R 5-03 Lighting of Sports Events for High Definition Television

The Reporter appointed at the last meeting, Mr S Cockaigne has had to give it up owing to new commitments. He had recommended that Mr John Livingstone, recently retired from the BBC, take on the job. Mr Livingstone has offered to compile a short report using immediately available material and this was accepted by the meeting. It was hoped that this report would be available for circulation with these minutes. A decision will then be made on appointing Mr Livingstone as a Reporter to compile a full report.

8. Liaison Officers' Reports

None.

9. Work Programme

Technical Committees dissolved:

TC 5 -01. The Director will write to Mr Hemp and members informing them of the meetings decision and ensure that the records go to the archives in Vienna.

TC 5-04. As soon as publication is effected.

10. Date and Venue of Next Meeting

This will be during the 23rd Session in New Delhi in November 1995.

Preliminary programme is:

Tuesday 31st October (evening) Welcome Reception.

Wednesday - Friday 1st, 2nd, 3rd November - Conference.

Monday - Wednesday 6th, 7th, 8th November - Division Meetings.

This promises to be a very impressive Conference. Registration will be in two parts for those who can only attend in one week. Several members felt this was too long for a Conference.

A proposal that the Division 5 meeting be held on 31st October 1995 with TC's on 30th October and the previous week-end was proposed by Mr Roberge and seconded by Mr Joye.

In favour 7, against 3, abstentions 1.

The Director will convey this vote to the Board and await their decision.

A call for papers for the 1995 session has been issued and all Division 5 members are urged to propose papers relevant to the Division. Submissions should be made through National Committees.

11. Any Other Business

Mr Roberge asked for guidance on the definition of 'uniformity' and 'diversity'. Several functions are in current use including Max/Min, Min/Max, Min/Average. The Director will raise this at the Board Meeting.

Mr van Bommel explained the position regarding future officers of the Division. He would be retiring as Director at New Delhi. Although several people have been asked about taking the job, there is no clear choice where the person is both willing and supported by their Company. Next Spring (1995), the Director will therefore write to all members asking for proposals in writing. Members are asked to discuss their possible proposals with Mr van Bommel before the Spring, though.

12. Close of Meeting

Mr van Bommel thanked Mr Lemons for organising the meeting venue and will write to the US National Committee thanking them for their sponsorship.

R A Hargroves
Secretary CIE Division 5

UNIFORMITY OF ILLUMINANCE

CIE defines the uniformity of illuminance as E_{min}/E_{av} and E_{min}/E_{max} , the latter also called diversity.

The Committee TC 5-13 is preparing a CIE/ISO standard for Lighting of Exterior Working Areas. As the adaptation from high to low luminances (and vice versa) takes time, it is important to limit the uniformity of illuminance according to work task and viewing task, thus preventing too high luminance differences in the viewing field from generating adaptation difficulties and poor visibility.

The Committee TC 5-13 suggests that the uniformity of illuminance be limited as follows:

- 1) E_{min}/E_{av} , permitting an easy calculation of the minimum illuminance E_{min} with the average illuminance, E_{av} known: $E_{min} = E_{min}/E_{av} * E_{av}$. E.g., $E_{min} = 0.25 * 20 \text{ lx} = 5 \text{ lx}$.
- 2) E_{max}/E_{min} . The value yielding directly the uniformity. E.g. $E_{max}/E_{min} = 8$ (uniformity, 8/1). The respective E_{min}/E_{max} value = $1/8 = 0.125$ is unclear and difficult to interpret. It does not describe directly the uniformity, as E_{max}/E_{min} does. Furthermore the value of E_{min}/E_{max} may be confused with the ratio E_{min}/E_{av} their numerical value being close to identical.
With E_{av} and E_{max}/E_{min} known, it is easy to calculate E_{max} : E.g. $E_{max} = E_{max}/E_{min} * E_{min} = 8 * 5 \text{ lx} = 40 \text{ lx}$.



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

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EINGEGANGEN

29. Juni 1994

Erl.....

SUBJECT: Annual Meeting of CIE Division 6, "Photobiology and Photochemistry"

1. The subject meeting of the International Committee on Illumination (CIE), Division 6 was held at the French Society of Illuminating Engineering in Paris, France, 16 May 1994.
2. Dr. D. H. Sliney (USA), Division Director, opened the meeting and each participant for the morning business meeting was introduced:
 - a: Lucia Ronchi (Florence, Italy)
 - b: Alistair McKinlay (Didcot, U.K.)
 - c: Pierre Thomas (Lille, France)
 - d: David Sliney (Aberdeen Proving Ground, MD, USA)
 - e: Gerald Smith (Lower Hut, New Zealand)
 - f: Hans Alan Lofberg (Stockholm, Sweden)
 - g: Christine Hermann (Vienna, Austria; CIE Central Office)
 - h: Jan Grzonkowski (Warsaw, Poland)
 - i: Charles Mulemanns (Eindhoven, Netherlands)
3. H. A. Lofberg, the CIE Vice-President (technical) spoke on the plans for the CIE's Quadrennial Conference to be held in New Delhi, India. The deadline for the submission of papers to the CIE National Committees was no later than September 1994. The National Committees will decide which papers will be forwarded to the CIE's Central Bureau (CB) and the Board of Administration (BA) will meet in December 1994 to decide which papers would be accepted and which papers would go to which workshop or perhaps provided to Divisions for other meetings. The general scientific sessions are 1-3 November 1995, with Board meetings before that and technical committee (TC) meetings on Saturday and Sunday 4-5 November and Division meetings on 6-8 November. There may be parallel division meetings which could pose a problem for some, but the Quadrennial Meeting cannot be extended to a longer

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period. TC Chairs must decide soon if they will have a TC meeting at New Delhi. Dr. Cesarini suggested that the discussion of workshop topics await the discussion of the status of work of each active Technical Committee and this was agreed.

4. There was an extensive discussion of the status of TC 6-04, the Glossary of Terms, and whether it was realistic to publish a list of terms with simplistic descriptions and not scientifically rigorous. Dr Sliney suggested that Muelemanns draft some introductory explanation that clearly stated the intent of the document and perhaps the Division Editor (Prof. Wolbarsht) and others could agree with the project in principle.

5. There was a presentation by L. Ronchi on a greatly revised and condensed draft report from TC 6-17. She was complimented for this effort and it was agreed that the draft should be carefully reviewed within the TC prior to distribution to the Division.

6. Dr. Cesarini spoke on the progress of TC 6-20 and noted that the testing protocol and list of phototoxic compounds was to be edited and put into a report format at a meeting scheduled this year in Dundee, Scotland.

7. There was a discussion of standards and the status of TC 6-27 and 6-28. Both were now in draft and perhaps could be completed this year. Dr. McKinlay explained that the Erythema Action Spectrum standard would be far shorter than the CIE booklet on how to prepare a standard. He also explained that it had taken time to accumulate information on how widely used was the current proposed CIE standard action spectrum.

8. This led to a discussion of the procedures and working relationships of liaison officers assigned to coordinate activities between the CIE and with the IEC or ISO. H. A. Lofberg noted that there had been some "concern" within the IEC about CIE activities in TC 6-38. It appeared to be due to a lack of understanding of the terms of reference for that lamp safety project, since TC 6-38 was only concerned with a general review of current regulations and standards related to photobiological safety, and not to electrical and explosion safety of lamps. Dr. van der Leun said that he would forward to Dr. Sliney information on IEC and CEN norms on photobiological safety of lamps. Dr. McKinlay was concerned that the TC 6-29 report had not yet been issued and that a standard test procedure was urgently needed for clothing protective factors. Furthermore, this report should be a follow-up standard. McKinlay moved and the motion passed to expand the terms of reference to lead the effort toward standard development following the production of a TC report.

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was discussed

9. The current concern about the use and misuse of so-called UV Indices being used in a number of countries to inform the general public about day-to-day UVR exposure conditions? It was decided to wait developments of a meeting in July in Switzerland sponsored by the World Meteorological Organization, to see if a clear international standard would evolve and whether CIE Division 6 should propose a CIE TC to develop a standardized action spectrum and index definition for this purpose.

10. After extensive discussion, it was decided that the Division would propose to the Board that a workshop in New Delhi be held on the subject of "UVR and lighting design." Both interior lighting design and daylighting would be considered. Papers on UVR measurement for photobiological purposes, risks of solar and artificial UVR sources, and UVR standards would be solicited. 2 ✓

11. The afternoon scientific session was opened by a welcome to the 18 participants of this session from the French National Committee of the CIE. The welcome was delivered by Prof. Bastie (also Division 2 Director). The afternoon meeting was devoted to a discussion of the work of the photodermatologic TCs (TC 6-20, 24, 26, 31, 32, 33, and 34). Dr. Cesarini led the discussion. The afternoon participants (in addition to those listed in paragraph 1 above) were:

- a. Frederick Urbach (Philadelphia, PA, USA)
- b. A. Folurtanier (Clichy, France)
- c. R.E. Mascotto (Clichy, France)
- d. Jan C. van der Leun (Utrecht, Netherlands)
- e. Frank de Gruijl (Utrecht, Netherlands)
- f. B. E. Johnson (Dundee, Scotland, U.K.)
- g. Jim Ferguson (Dundee, Scotland, U.K.)
- h. Alain Chardon (Clichy, France)

12. The dividing lines of CIE UVR spectral bands (UVA, UVB and UVC) was reviewed by TC 6-26. It was emphasized that the bands were simply for approximate, short-hand notations, and could obviously vary depending upon application and specialty, but in the end, a standardized, compromise on the bands was needed. After a discussion it was decided that the current dividing lines of 100, 280, 315 and 400 nm were still the best choices. Furthermore, it was agreed that UVA should not be divided at this time into UVA-1 and UVA-2, although 350 nm was the best justified dividing point of the two fundamental types of photochemical interaction mechanisms in that spectral region. It was agreed to send the document to Division 6 members for a formal vote.

13. Dr B. E. Johnson (U. K.) was asked to provide comments on in vitro testing of the photocarcinogenetic potential of industrial ingredients and the general testing of chemical compounds. He felt that there was a good chance that a standard test method

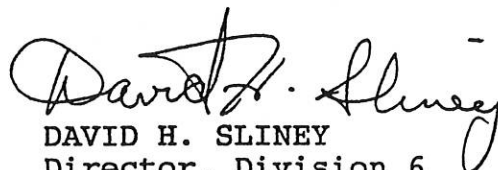
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could be developed for screening test. A meeting will be held in Dundee, Scotland of this TC next October or November to consider this question.

14. Alain Chardon (France) reported on the US Food and Drug Administration (FDA) meeting on UVA Protection Assessment. The FDA would only consider an in vivo testing procedure for sunscreens in the UVA. Chardon had presented the proposal of CIE TC 6-31 for using the 24-hour immediate pigment darkening (IPD). Chardon felt strongly that the test spectrum be limited to the spectral region between 320 nm and 400 nm. Chardon drew the action spectra of IPD (determined in skin types I, II, and III) and permanent pigment darkening in skin type III. These were monotonically decreasing functions from 330 nm to 400 nm and the IPD function was a factor of ten more sensitive. The photochemistry of IPD was thought to be due partly to photo-oxidation of pre-melanin and partly to other photochemical reactions. A meeting of TC 6-24 on UVA sunscreens and TC 6-31 on the Action Spectrum of IPD would be scheduled for early 1995.

15. TC 6-32 and TC 6-34 on photocarcinogenesis met in Washington DC last December and agreed on a harmonized action spectrum for murine photocarcinogenesis; and Dr. DeGruijl stated that this could be extrapolated to an estimated human action spectrum by considering the attenuation of the human stratum corneum. Dr. Urbach was highly skeptical of such an extrapolation. These TCs would meet in Scottsdale, AZ in June during the time of the annual meeting of the American Society of Dermatology.

16. Dr. Sliney thanked all of the participants and the host organization. The very worthwhile meeting adjourned at 17:30.


DAVID H. SLINEY
Director, Division 6

Division 6
Photobiology and Photochemistry
Photobiologie et photochimie
Photobiologie und Photochemie

Director of Division: Dr. D. H. Sliney
Associate Director: Mr. Jean-Pierre Césarini
 Prof. Dr.-Ing. Maxim F. Mutzhas
Secretary of Division: Dr. Ambler Thompson
Editor of Division: Dr. Myron L. Wolbarsht

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AUSTRIA	Alexander Cabaj	BELGIUM	P. Salu
BULGARIA	R. Andreichin	CANADA	Ernest Wotton
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NETHERLANDS	Charles C.E. Meulemans	NEW ZEALAND	I. J. Warrington
NORWAY	Kjell Inge Daae	POLAND	Jan Grzonkowski
RUSSIAN FEDERATION	L. B. Prikupets	SOUTH AFRICA	R. Summers
SPAIN	Alicia Pons	SWEDEN	Torkel Fischer
SWITZERLAND	Laszlo Gloetzer	U.S.A.	George C. Brainard

= Technical Committees:

No.	Chairman	Title
6-04	Charles C.E. Meulemans	Selected Photobiological Information
6-08	Dieter Kockott	Guidelines for Obtaining Action Spectra
6-11	George C. Brainard	Systemic Effects of Optical Radiation on the Human
6-13	G. S. Sarytchev	Lighting Aspects of Large-Scale Plant Growing in Completely Protected Environments ("dark rooms")
6-14	Kohtaro Kohmoto	The "Blue Light" Hazard (BLH)
6-15	Nils Svendenius	A Computerized Approach to Reflection, Transmission and Absorption Characteristics of the Human Eye
6-16	R. Küller	Psychobiological Effects of Lighting
6-17	Lucia R. Ronchi	Spatial and Temporal Variability of Radiation Exposure and Human Behavior
6-20	Jean-Pierre Césarini	Phototoxicity in Domestic and Industrial Environments
6-21	D. H. Sliney	Low Level UV-A Cataract

6-23	Donald T. Krizek	Develop Generalized Action Spectra for Plant Responses to Wavebands from 280 to 1100 Nanometers
6-24	Jean-Pierre Césarini	Sunscreen and UVA
6-25		The Conventional Solar Day Weighted by UV Action Spectra
6-26	Jean-Pierre Césarini	Standardization of the Terms UVA-1 and UVA-2
6-27	A. F. McKinlay	Standardization of the Erythema Action Spectrum
6-28	Jean-Pierre Césarini	Standardization of Sunscreen Testing: Method for UV-A sunscreen testing
6-29	Peter Gies	UV Protective Index for Clothing
6-30	C. F. Wong	Dosimetry of UVR Exposure of the Human Cornea
6-31	Jean-Pierre Césarini	Immediate Pigment Darkening
6-32	P. Donald Forbes	Action Spectrum for Photocarcinogenesis and Connective Tissue Damage
6-33	Edward C. de Fabo	Photoimmunological Effects Mediated through the Skin
6-34	P. Donald Forbes	Testing Protocols for Photocarcinogenesis
6-35	Richard L. Vincent	UVR Disinfection
6-36	Maxim F. Mutzhas	UVR Protective Materials Used in Shading
6-37	D. H. Sliney	Light and Retinal Disease
6-38	D. H. Sliney	Lamp Safety Standards

Reports:

No.	Reporter	Title
R6-02	Eliyahu Ne'eman	Actinic aspects of daylight utilization indoor
R6-05		Actinic properties of sunlamps
R6-07		Diffuse transmission and reflectance of clothing
R6-15	E. H. Hansen	Lighting in fish farming
R6-18	Maria Luisa Mattiello, de	Reflectance of natural materials
R6-19		Influences of UV radiation on colored surfaces
R6-20	Kohtaro Kohmoto	State-of-the-Art Report on UV Disinfection
R6-22	Rodolfo Sferlazzo	EGG and vigilant reactivity
R6-23	Henry J. Wald	Health-related institutions or buildings and radiant exposure
R6-25	Masaaki Morita	Light adaptation of insect eye and protection of fruit-piercing moth
R6-26	Jean-Pierre Césarini	Measurement of skin color for clinically normal and certain pathological conditions
R6-29		Quantification of environmental exposures: limitations of the concept of risk-to-benefit ratio
R6-34	Heinz Terstiege	UVR emitting car headlamps

Liaisons

Organisation	Liaison Officer
Assoc. Internat. de Photobiologie	Frederick Urbach
Am.Soc.Photobiol.	George C. Brainard
Eur. Photochem.Assoc.	Jean-Pierre Césarini
Europ.Soc.Photobiol	Jean-Pierre Césarini
IEC/TC34: Lamps & rel.equipm.	Maxim F. Mutzhas
IEC/TC61/WG16: Household appliances	Lucia R. Ronchi

ISO/TC 94: Personal safety

Kohtaro Kohmoto

Japan.Soc.Photobiol.

Kohtaro Kohmoto

WHO

Michael J. Suess

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November 6, 1994

C.I.E. Division 7 - GENERAL ASPECTS OF LIGHTING **Report to the Canadian National Committee of the C.I.E.**

Director: M. Seidl, Germany
Secretary: H. Vermeulen, The Netherlands
Editor: J.T. Grundy, South Africa
Canadian division member: R.W. White
Canadian Rep. TC 7-06 G. Woo

The activity of Division 7 has been quiet during the past year. Little information has been sent by the Committee chairmen regarding the activities of the TCs however minutes of the Edinburgh meeting were circulated (too late for last years' report).

TC 7-03 Development of Lighting - V. Dvoracek, Chairman; No Canadian Representative. The Main task of the TC is to "contemplate (understand?) the development trends of general lighting systems in cooperating CIE countries.. following 57 selected parameters". According to the TC chairman's report, the committee has gathered statistical data compiled separately from some countries. With no common terms of reference the statistical correlations are difficult to make between these surveys. The political changes in countries have also hampered the analysis of comparative data. A new questionnaire will be circulated to gather data in a more uniform manner. To date this questionnaire has not been received in Canada.

There is some doubt by Division members as to the usefulness of the work of this TC.

TC 7-06 Lighting Terminology - H. Maglock, Chairman (Austria); Professor George Woo, Canadian representative.

Submissions relating to problems encountered about questions of terminology have been received from other divisions (notably Division 3 and 5) for the next edition of the International Lighting Terminology (Vocabulary).

TC 7-08 Lighting Research Overview - R.L.Vincent, Chairman; no Canadian representative however W. Adrian indicated that he was a member of Vincent's Research Advisory Committee. No recent information is available about this committee following the Edinburgh meeting.

Reportership Environmental Impact of Lighting - P. Bleashy, (US) Reporter The terms of reference are to establish the contribution of the CIE to the international environmental debate as it affects light and lighting and to highlight specific areas where new technical activity is required to respond to this debate.

Next meeting: CIE-Session 1995 in New Delhi.