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

Canadian National Committee Comité National Canadien

MINUTES OF THE 38TH ANNUAL CNC/CIE MEETING

1993-NOVEMBER-12

The 38th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Friday, November 12, 1993 in Room 449, Galbraith Building of the University of Toronto, 35 St. George Street, Toronto, Ontario.

1. Call-to-Order:

The meeting was called to order at 9:30am by J. Roberge, President. Eighteen members and advisory members were in attendance (Appendix A). Each person was asked to introduce themselves to the other attendees. Regrets have been received from five people (Appendix A).

The president announced that the meeting would need to end by 16:15 due to the necessary departure of several members at that time.

The agenda was accepted as circulated just prior to the meeting, with a few additions under 'Other Business'. The President indicated that he wished to leave the agenda open during the meeting so that any items which came up during the meeting could be added when necessary. This was moved by B. Jordan, seconded by K.F. Lin, and passed by the meeting.

2. Minutes of the 37th Annual CNC/CIE Meeting:

Moved by R.W. White, seconded by S.M. McFadden, that the minutes of the 37th annual CNC/CIE meeting be accepted as circulated (mailing of 1992-December-08). Passed. The only matter arising which would not be dealt with later in this meeting was that no Treasurer's report had been prepared and circulated as requested at the 37th annual meeting. B.W. Tansley indicated that this was because no activity had taken place in 1992, and that his report at this meeting would cover that period.

3. NRC Affiliation to the CIE:

A.R. Robertson explained the new relationship of the NRC Institute for National Measurement Standards(INMS) to the CNC/CIE as he had set forward in his letter to the membership of 1993-August-24. He distributed a statement on the NRC International Affairs' *Emerging Vision of International Affiliations* (Appendix B).

3A. Revision of CNC/CIE Bylaws:

This item on the agenda (11.2) was brought forward because of its relationship to the above item. A.R. Robertson presented a draft copy of a CNC/CIE Code of Procedure (Appendix C) for the information of the attendees and for their discussion and further study before a final decision would be taken at a later date. He pointed out the following:

1. The document was called a Code of Procedure rather than Bylaws because it was felt that 'Code of Procedure' was more appropriate for a committee which was appointed (by NRC), whereas 'Bylaws' would be more appropriate for an independent society. In addition, it was intended to include much more detail of procedure than would normally be included in 'Bylaws'.

2. There has been an attempt to clarify the distinction between Members and Advisory Members. Members are appointed by NRC, Advisory Members are appointed by the CNC/CIE. Otherwise there is very little difference.

3. Both Members and Advisory Members have the same voting privileges, with three exceptions:

i. at the discretion of the President,
ii. a quorum is based on the number of Members present,
iii. a change to the Code of Procedure is to be voted on by Members only.

4. the addition of two *ex officio* Members.

5. Division members will be nominated as Members at the first opportunity.

6. Technical Committee members will become Advisory Members.

7. for a letter ballot, it is requested that an explanation be given for a negative vote. This would not be obligatory.

Discussion followed, particularly concerning the value of an explanation of a negative vote. It was suggested we make space available on the ballot for a comment on the reason for the vote. J. Roberge suggested the Secretary make a judgment call, should some new information become available as a result of the voting, on the recirculation of the ballots with the new information, or the transfer of the voting results and the comments to the Central Bureau. Several people asked what information the Central Bureau has concerning the state of National Committees which wish to join the CIE. B.W. Tansley asked what parts of the Code were common to all CNC's. A.R. Robertson replied that items such as the number of Members, quorum, and terms of reference were common. The idea of Advisory Members is not common.

It was agreed that A.R. Robertson would modify the document in the light of the discussion, and send it out for a vote later. Meanwhile, people are to study the document and send him any further comments which they might have.

4. President's Report:

J. Roberge presented his report, enclosed as Appendix D. A.R. Robertson, who had also attended the GA (as a non-voting advisor) commented on the total size of the CIE budgets, pointing out the 10% general increases, which had been approved despite negative votes from Canada, Japan, and the USA. R. Gibbons moved, M.G. Bassett seconded, the acceptance of the President's Report. Passed.

5. Secretary's Report:

A.A. Gaertner presented his report, enclosed as Appendix E. Discussion followed. A.R. Robertson described his experiences with the USNC/CIE e-mail mailing list/discussion group. Some discussion followed concerning publicity: B.W. Tansley suggested our press release of CNC/CIE information be sent to the people on a mailing list he had for sending CIE publications information. This list contains a large number of libraries and he gave the secretary a printed copy on labels. A. Ketvirtis pointed out that he had just attended a large conference about roadway and tunnel lighting where very few of the decision makers(from Canada and the USA) were even aware of the CIE. K.F. Lin offered the use of part of his demonstration booth at expositions for presenting CIE information. E. Wotton stated that "lighting" does not speak out with a clear voice, or any voice at all. J.Roberge summarised, suggesting that we should investigate more exposure, possibly through the mailing lists developed by publications sales. It was moved by B.W. Tansley, seconded by K.F. Lin, that the Secretary's Report be accepted. Passed.

6. Treasurer's Report:

B.W. Tansley presented his report, enclosed as Appendix F. He pointed out that, since all the CIE publications had been transferred to NRC-INMS, and since the treasurer's activities were only

related to sales of CIE publications, there was no need for him to continue as treasurer. He therefore tendered his resignation. He indicated his intention to transfer the funds remaining in his bank account to that maintained by A.R. Robertson, who is presently responsible for the sale of CIE publications in Canada. It was moved by M.G. Bassett, seconded by R.W. White, that the Treasurer's Report be accepted. Passed. On behalf of the Committee, J.Roberge thanked B.W. Tansley for his extensive efforts in handling the sales of CIE publications and his work as treasurer during that time.

7. CNC/CIE Publications Report:

A.R. Robertson presented his report, enclosed as Appendix G. The discussion which followed centered largely on the problem of making these publications known to the lighting community, both from the point of view of disseminating the information therein, and also to help sales of the publications.

E. Wotton suggested that these publications be available on inter-library loan. This resulted in a motion by R.W. White, seconded by B.W. Tansley, that the CNC/CIE recommends that CISTI have a standing order for all CIE publications. In the discussion which followed, B. Jordan noted that our main purpose should be the dissemination of information without adding restrictions; J. Roberge pointed out that a balance must be maintained between the dissemination of the information and the financial supporting of the CIE's existence to be able to create this information; M.G. Bassett noted that we should try to sell more copies to libraries; B.W. Tansley added that we could add a statement to the front of each publication to the effect that 'If you find this document useful, ask your library to order it'; and A. Ketvirtis pointed out that ANSI standards are more important in North America than CIE standards, causing a problem for recognition of the CIE. There was unanimous approval of the motion, and A.R. Robertson and J. Roberge were requested to work on the request to CISTI, with the final letter to be sent by J. Roberge as President of the CNC/CIE.

A.R. Robertson asked the Committee how much stock of CIE publications it felt he should keep. The question was not resolved. It was moved by B.W. Tansley, seconded by B. Jordan, that, if CISTI agrees to maintain a standing order for all CIE publications, we give them a copy of the pre-1986 publications which we received free from the Central Bureau. There was unanimous approval.

A.R. Robertson noted that he has a new list of the CIE publications which will be mailed to all on the CNC/CIE mailing lists. He asked if the present pricing structure was reasonable, and whether we should increase our prices in 1994 when the Central Bureau will be increasing the prices of the publications we receive from them. The Committee felt that we should sell our present stock at the price we are presently asking, and sell any new stock based on the price we pay for it when we receive it from the Central Bureau.

J. Roberge thanked A.R. Robertson for his considerable efforts in reorganizing the sale of CIE publications in Canada, and beginning the steps of reconciling our situation with the Central Bureau.

8. Reports from Division Members:

The president requested that the discussion of the Division Members' reports be focussed on matters of general interest and policy, rather than on details of a specialized technical nature.

DIVISION 1 Vision and Colour — S.M. McFadden

S.M. McFadden presented her report, enclosed as Appendix H. She noted that 12 of the 24 Technical Committees have Canadian representation on them. This is composed of 5 people: W.K. Adrian, W.B. Cowan, P.K. Kaiser, A.R. Robertson, and J.C. Zwinkels. She indicated that she felt that the TC's were moving forward. In the discussion which followed, B.W. Tansley commented that there was considerable potential for many new standards, and wondered whether these will readily come to fruition. B. Jordan commented on the importance of considering indoor sources in the work of TC 1-09, since the fluorescent lighting used has quite a different effect on luminescent materials than does D65. W.K. Adrian commented on some of the more recent work of some of the TC's, noting that for TC 1-19 (pg.8 of report) he was using Weston's work, not Blackwell's; and

that he had asked M.J. Ouellette of NRC-IRC to work on the committee.

DIVISION 2 Physical Measurement of Light and Radiation — J.C. Zwinkels

A.R. Robertson presented the report for Division 2, enclosed as Appendix I, since J.C. Zwinkels was unable to attend. He pointed out the Canadian participation. A very brief discussion followed.

DIVISION 3 Interior Environment and Lighting Design — I.C. Pasini

I.C. Pasini presented his report, enclosed as Appendix J. He indicated some of the highlights and noted the Canadian participation. He pointed out that since ISO will adapt 3 or 4 of the CIE standards, the work we do in CIE is important.

At this point the meeting broke for lunch.

DIVISION 4 Lighting and Signalling for Transport — B.W. Tansley

B.W. Tansley presented his report, a selection of which is enclosed as Appendix K. He noted that the work is in general exclusively automotive applications, and that work in polarizing technology is being initiated. He commented that there are three kinds of activities: rehashing old material, reviewing old material, and starting work on brand new technologies.

W.K. Adrian had been able to attend the Division 4 meetings in Orlando and presented a report, enclosed as Appendix K-a. Discussion followed, with A. Ketvirtis asking for more detail concerning the work of TC 4-15.

DIVISION 5 Exterior and Other Lighting Applications — J. Roberge

J. Roberge presented his report, enclosed as Appendix L. He noted that there is now a competition between various other organizations(such as CEN and IES) and some of our technical committees. CEN is the Comité Européen de Normalisation.

DIVISION 6 Photobiology and Photochemistry — E. Wotton

E. Wotton presented his report, enclosed as Appendix M. He expressed his concern that there was no Canadian representation at Divisional meetings and that he felt he was acting only as a secretary. M.G. Bassett indicated that she had been able to attend some of the meetings in the past, such as the Melbourne meeting.

DIVISION 7 General Aspects of Lighting — R.W. White

R.W. White presented his report, enclosed as Appendix N. A. Ketvirtis expressed his concern that the dissolution of TC 7-07 would mean that information on new light sources would not be available. M.G. Bassett pointed out that these reports were too slow for disseminating information on the latest technology.

9. Nominations and Appointments:

Members:

The Secretary circulated the current list of Members and Advisory Members, enclosed as Appendix O. The committee recommended that the Secretary contact the two Members who had not replied to their letters of appointment. E. Wotton was present at this meeting and indicated that he would look for his letter of appointment and return it at his earliest opportunity. D.K. Tiller indicated that S.M. Kaye might best be contacted by e-mail, and promised to send the secretary the address.

J. Roberge noted that there were two Members with terms expiring, and thus there was

opening for two members. Discussion then followed on the problem of paying for the travel of Members to attend the meetings, especially since we wish to increase our participation from people who live beyond Ontario and Québec. J. Roberge indicated he would contact R.A. Smith (New Brunswick) concerning his potential interest. The committee nominated A.A. Gaertner and T. Nilsson to fill the two openings. A.A. Gaertner was then nominated as Secretary.

The position of Treasurer was then discussed, particularly concerning whether one was necessary. A.R. Robertson pointed out that we may only need a Publication Officer at this time. J. Roberge expressed the the need for a separate Treasurer for our own independence, particularly to avoid having NRC control the finances. K.F. Lin expressed his company's willingness to stand as treasurer, as well as to look after the publications. M.G. Bassett suggested we leave the publications as they are at present, at least for another year, until the present situation stabilises. After more discussion, J. Roberge nominated A.A. Gaertner as Secretary/Treasurer, seconded by D. K. Tiller. Passed.

Advisory Members:

There was some discussion concerning inviting interest in CNC/CIE matters from a wider range of people than we have at present. J. Roberge suggested University of Montréal or LUMEC. R.W. White suggested Hydro Québec (IREQ). J. Roberge volunteered to follow up on IREQ. A.A. Gaertner brought forward from his Secretary's report the name of M.J.Ouellette who had expressed an interest in the CNC/CIE. The committee agreed to appoint M.J. Ouellette as Advisory Member. The secretary also brought forward the suggestions which T. Nilsson had made in a recent e-mail: Biman Das from Nova Scotia and Ross Adams from Memorial University. Mike Michaelian had been suggested last year, but had not yet replied to our letter inviting him to become an Advisory Member. The committee agreed that we follow-up on these suggestions.

10. CNC/CIE Finances:

Sources of Funding:

J. Roberge suggested that there are no general sources of funding available at this time to pay for CNC/CIE matters such as travel. B.W. Tansley pointed out that we should look for funding in other places than NRC. For example, he has requested funding for travel from the Ministry of Transport, whose work overlaps with his in many areas. A. Chrysler suggested provincial governments and utilities, especially in energy efficiency areas. A wide-ranging discussion of the problem of funding followed. J. Roberge summed it up by suggesting: that we will need to establish a link between what we can offer to whomever we request funding from, and what that 'funder' can gain from providing this funding; and that this is best done as individuals since we know best what we can offer and who can benefit from our participation. He would be willing to add a letter of recommendation if that were necessary.

Allocation of Funds:

Since we have no funds at present, this item was not discussed.

11. Other Business:

11.1 Selling Publications in Electronic Form:

D.K. Tiller presented a demonstration of an Electronic Information System which has been developed by the NRC-IRC. This is an electronic library of information based on CD-ROM storage of data. The information is encrypted, and purchasers would pay for the decryptation code to allow them access to the information. A system for the CIE which would first need a list of all the CIE publications, and an abstract of each. The CNC would then need to approach the CIE Central Bureau for permission to include the full publications in subsequent versions of the library. To proceed any farther, D.K. Tiller would need a letter indicating that we have seen his demo, and that we are interested in pursuing it further with the CIE.

11.2 Revision of CNC/CIE Bylaws:

This was discussed earlier as item 3A.

11.3 CORM '95 "Atmospheric Radiometry":

A.A. Gaertner gave a short description of the CORM (Council on Optical Radiation) meeting to be held in May of 1995 at NRC, hosted by INMS. The topic *Atmospheric Radiometry* had been chosen as a subject in which Canadians had particular expertise. He indicated that all were welcome to attend.

Item 11.4 was deferred until later.

11.5 Correspondence:

J. Roberge brought forward six items of correspondence:

1. A letter from T. Nilsson concerning the potential problem of UV radiation at light-houses. J. Roberge indicated that he had replied suggesting some possible courses of action.
2. A letter from E. Wotton (July 26,1993) expressing his concern about the lack of Canadian participation at CIE meetings.
3. A copy of the letter A.R. Robertson had written to W. van Bommel, CIE Director of Division 5, in which he had summarized the Canadian replies to the CIE request for comments on tolerances in lighting design.
4. A letter from J. Roberge authorizing W.K. Adrian to replace B.W. Tansley as the Canadian representative at the Division 4 meetings in Orlando in October 1993.
5. A letter from W. van Bommel (CIE Division 5 Director) requesting information about a lighting study done in Alberta schools, which was passed on to I.C. Pasini for action.
6. A letter from A.R. Robertson concerning the difficulties of the Canadian Society for Colour.

11.6 Nominations for CIE Awards:

There were no nominations at this time. J. Roberge suggested that we might have a small subcommittee to determine possible recipients. A. Ketvirtis and G. Woo were selected by the meeting to be the committee members.

11.7 CIE Conference in Montréal 1999:

This item, discussed at the last annual meeting, was reopened by J. Roberge and W.K. Adrian. W.K. Adrian has talked with J. Schanda of the Central Bureau about this possibility. Several Members pointed out the importance of obtaining significant financial sponsorship, as well as obtaining plenty of volunteer labour to organize and run such a large meeting. J. Roberge summarized the discussion by suggesting that the Members interested should try to find sponsors willing to put the necessary financial and manpower resources into such a meeting. When these are found, we could continue the discussion.

11.8 Other Matters:

The present format of the annual meeting was brought up for discussion. E. Wotton stated that this has been a housekeeping meeting, not a meeting where information on technical matters had been shared. He would like to receive copies of the reports presumably written by people who attend CIE meetings; he would like to discuss changes in lighting generally; he would like to discuss the application of information. A. Ketvirtis agreed, stating that we are missing technical information at these meetings; how do we explain this to the companies which support us in coming to the meeting? He would like more information from the TC members, and the time to discuss it at the annual meeting. J. Roberge pointed out that we come to this meeting for a general

awareness of what is going on, and then we can approach the Division Members for further information. Various other members commented that we would need a two-day meeting for a more detailed discussion of the Division Members reports.

E. Wotton moved that this CNC/CIE arrange an opportunity for presentation by Division Members of major activity in their divisions. Seconded by B. Jordan. After some more discussion, 6 voted in favour, 4 against, and 7 abstained.

11.4 Date and Place for next year's Meeting:

Friday, November the 18th was suggested, and S.M. McFadden volunteered to host the meeting at her place of work(DCIEM) in Downsview.

12. Adjournment:

The meeting was adjourned at approximately 16:30.

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
Building M-36
National Research Council of Canada
Ottawa, Ontario K1A 0R6

1994-January-04

LIST OF APPENDIXES

APPENDIX A

ATTENDEES TO THE 38TH ANNUAL MEETING OF THE CNC/CIE

Werner K. Adrian	University of Waterloo
Marion G. Bassett	University of Toronto
Allyson Chrysler	Lighting Consultant
Arnold A. Gaertner	National Research Council (INMS)
Ronald Gibbons	University of Waterloo
Byron Jordan	Paprican
A. Ketvirtis	Fenco MacLaren Inc.
Barbara Kolesnik	UMA Engineering Ltd.
K. Frank Lin	Lighting Sciences Canada Ltd.
Sharon M. M'Fadden	Defence and Civil Institute of Environmental Medicine
Ivan C. Pasini	Public Works Canada
Jacques Roberge	Infranor Canada Inc.
Alan R. Robertson	National Research Council (INMS)
Brian W. Tansley	Carleton University
Dale K. Tiller	National Research Council (IRC)
Robert W. White	Environmental Lighting
George Woo	University of Waterloo
Ernest Wotton	Lighting Consultant

REGRETS

Andrée Bichon	National Research Council (International Affairs)
J. Bruce McArthur	Environment Canada
Thomy Nilsson	University of Prince Edward Island
Debbie Takeuchi	Public Works Canada
Joanne C. Zwinkels	National Research Council (INMS)

5.1 Emerging Vision of International Affiliations

Canada's participation in international non-governmental scientific, engineering and technological organizations partially meets our desire to contribute in a meaningful way to the world body of knowledge. Exposure of our most talented and gifted people to the global community, enhances our image as a leading nation in many technical domains and improves the access of our young scientists to global networks of expertise. With increased credibility Canada has the opportunity to enhance its ability to compete globally, through strengthened technological capabilities, thus enriching our quality of life.

A Canadian affiliation with an international organization* should:

- enhance the visibility of Canadian competence within the international scientific and engineering (S&E) community;
- provide Canada with the opportunity to influence the direction and interests of international S&E domains toward increased compatibility with issues of national interest;
- enrich international S&E domains through the transfer of Canadian knowledge;
- further the interest of our national science and engineering effort.

The Canadian National Committees designed to support a Canadian affiliation with an international organization* should:

- mobilize the multidisciplined and geographically dispersed resources of the scientific/engineering domains at the national level;
- collect and reconcile the many views of its national S&E community on relevant global issues;
- identify the capabilities and distinctive competences of the Canadian community;
- represent the views and promote the capabilities of the Canadian community internationally;
- enhance the depth and breadth of Canadian community participation in international organizations, their activities and events;
- provide S&E advice at both the national and international levels;
- communicate the views and activities of the international organization to the Canadian community;
- attract and stage international events of value to the Canadian community.

The National Adhering member should:

- create awareness of the Canadian National Mechanisms within the national S&E community;
- identify and facilitate access to Canadian S&E expertise with the assistance of the Canadian National Committees;
- assume stewardship, with the guidance of CISET, over Canadian positions being represented abroad;
- communicate national policies which are relevant and supportive of national goals to Canadian representatives participating in international organizations and at international meetings;
- ensure that appropriate linkages between the Canadian National Committees are established and strengthened;
- ensure that Canadian National Committees effectively support both national goals and their respective communities;
- collect and transmit strategic information on relevant international activities to appropriate Canadian governmental and non-governmental bodies;
- generally provide strong national leadership and/or guidance for international affiliations.

**Initial and continued support for an international organization and its national mechanism should be conditional upon:*

- *evidence that the level of annual dues and expenditures are commensurate with expected benefits to the country and with the importance of the S&E domains to the national science and engineering effort*
- *application of sound management practices*

DRAFT
1993-11-11

Canadian National Committee of the International Commission on Illumination

CODE OF PROCEDURE

1. Background

The International Commission on Illumination (abbreviated as CIE from its French title Commission Internationale de l'Eclairage) is a scientific, technical and cultural, non profit organization devoted to international cooperation and exchange of information among its member countries on all matters related to the science and art of lighting. The national adhering body for Canada is the National Research Council (NRC). NRC International Affairs determines the level of adherence and, subject to the level of the annual Treasury Board grant for international affiliation dues and consultation with the NRC Advisory Committee on International Science, Engineering and Technology, pays Canada's annual subscription to the CIE.

Under an agreement signed in 1993, the NRC Institute for National Measurement Standards (INMS) is responsible for setting up the Canadian National Committee (CNC) to deal with all other matters.

2. Objectives of CIE

The objectives of the CIE, as expressed in its Statutes, are:

(a) to provide an international forum for the discussion of all matters relating to the science, technology and art of lighting and for the interchange of information in these fields between countries;

(b) to develop basic standards and procedures of metrology in the fields of light and lighting;

(c) to provide guidance in the application of principles and procedures in the development of international standards in the fields of light and lighting;

(d) to prepare and publish proceedings, standards, technical reports and other publications concerned with all matters related to the science, technology and art of light and lighting; and

(e) to maintain liaison and technical interaction with other international organizations concerned with matters related to the science, technology, standardization and art in the fields of light and lighting.

"Light and lighting" in these objectives is to be understood in the broad sense of embracing such fundamental subjects as vision, photometry and colorimetry, involving natural and man-made radiation over the UV, the visible and the IR regions of the spectrum, and application subjects covering all usages of light, indoors and out, including environmental and aesthetic effects, as well as means for production and control of light and radiation.

3. Terms of Reference

The Terms of Reference of the CNC/CIE are:

(a) to collect and reconcile the many views of the Canadian lighting community on relevant issues;

(b) to identify, represent and promote the capabilities and distinctive competence of its Canadian lighting community internationally;

(c) to enhance the depth and breadth of the participation of the Canadian lighting community in the activities and events of the CIE and related organizations;

(d) to establish the mechanisms for communicating to the Canadian lighting community the views of the CIE and information about activities of the CIE;

(e) to distribute appropriate documentation, including the newsletter of the CIE;

(f) to attract and stage international events of value to the Canadian lighting community.

The CNC reports to the Director General of INMS.

4. Members

The CNC consists of a maximum of twelve Members appointed by the Director General of INMS. Terms of office are normally four years and are staggered to provide continuity. It is expected that the Membership will be distributed with regards to geography, linguistics and, whenever possible, gender, and that it should ensure adequate representation of disciplines covered by the CIE as well as an appropriate turn-over to encourage the participation of young Canadian scientists and engineers. In making appointments, the Director General takes account of the recommendations of the CNC.

In addition to the appointed Members, the CNC includes the following ex-officio Members:

(a) the Director-General of INMS or his delegate, and

(b) any Canadian who is an Officer of the CIE or a Director or Associate Director of a CIE Division.

5. Officers

The Officers of the CNC are appointed by the Director General of INMS, on the recommendation of the CNC, from among its Members. The Officers include:

(a) a President who is responsible for conducting the affairs of the CNC, calling and chairing its meetings, and reporting to NRC on its activities;

(b) a Vice-President, who is responsible for performing the duties of the President whenever the President is unable to perform them;

(c) a Secretary, who is responsible for keeping the records of the CNC including the minutes of meetings, maintaining mailing lists (of Members, Advisory Members and other interested persons), corresponding with the Central Bureau of the CIE, conducting letter ballots on questions which arise between meetings, and other related duties; and

(d) any other Officers that the CNC deems necessary.

6. Advisory Members

The CNC may appoint any number of Advisory Members to assist it in its duties and to assure adequate representation of all interests. Advisory Members may attend meetings and take part in discussions on an equal basis with Members.

7. Observers

A representative of NRC International Affairs is an observer of the CNC.

8. Secretariat

The Secretariat of the CNC is located at INMS.

9. Meetings

The President shall call a meeting of the CNC whenever he deems it necessary or at the request of at least five Members, or at the request of the Director General of INMS. In any case there shall be a meeting in the last quarter of each calendar year. Members must be given at least three weeks notice of any CNC meeting.

10. Quorum

A quorum shall consist of one-half of the Members, including ex-officio Members. Advisory Members are not counted in determining a quorum.

11. Voting

In dealing with routine matters at meetings and by letter ballots, Members and Advisory Members are treated equally. A simple majority of Members and Advisory Members is required to ensure the passage of a motion.

12. Letter Ballots

At the request of the President or at least five Members of the CNC, or to deal with matters referred to the CNC by the CIE, the Secretary shall send out letter ballots to all Members and Advisory Members to ascertain their opinion on any question which arises between meetings.

The passage of any motion thus submitted shall require:

(a) a simple majority of those Members and Advisory Members who vote,

(b) that the number of Members who vote constitute a quorum, and

(c) that all Members and Advisory Members be given at least three weeks notice of the closing date of the letter ballot.

As a matter of expediency, and at the discretion of the President, some letter ballots may be restricted to Members only.

13. Delegates to CIE General Assemblies

In accordance with the Statutes of the CIE, the CNC shall recommend to the Director General of INMS the nomination of two delegates (one voting, the other non-voting) for appointment by NRC International Affairs to attend CIE General Assemblies. The President of the CNC shall normally be the voting delegate. The delegates are expected to present the policies of NRC International Affairs on issues relating to finances, Statutes and By-Laws, and of the CNC on other matters. The delegates must provide a report to NRC International Affairs with a copy to the Director General of INMS and to the CNC.

14. Members of CIE Divisions

The CNC shall, whenever possible, appoint a voting member to each CIE Division.

If the person appointed is not already a Member or Advisory Member of the CNC, he/she shall automatically become an Advisory Member and be nominated as a Member at the next opportunity.

The duties of the Division members shall be:

(a) to ascertain the views prevailing in Canada and to express these views in the deliberations of the Division either by correspondence or at meetings;

(b) to report to the CNC, at its annual meeting, on the activities of the Division (including a list of the Canadian members of Technical Committees within the Division);

(c) to advise the CNC on matters pertaining to the Division and its associated Technical Committees; and

(d) to encourage Canadian experts to be active members of Technical Committees within the Division.

15. Members of CIE Technical Committees

The CNC, in consultation with the appropriate Division member, may nominate a member for a CIE Technical Committee on which it is not already represented. This right should only be used if a competent person is available and prepared to be active. Any Canadian member of a CIE Technical Committee, whether appointed directly by the CIE or nominated by the CNC, who is not already a Member or Advisory Member of the CNC, shall become an Advisory Member automatically.

16. Consultants

At the request of any Member or Advisory Member, the Secretary shall invite one or more persons to attend any meeting or meetings, and/or to take part in discussions conducted by correspondence. Such persons shall not have the right to vote.

17. Amendment of Code of Procedure

This Code of Procedure may be amended by an affirmative vote of a simple majority of the Members of the CNC at a meeting or by letter ballot provided that notice of motion has been given at least two months before the date of the meeting or the closing date of the letter ballot. Adoption of the amended Code requires the approval of the Director General of INMS.

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

Canadian National Committee Comité National Canadien

CNC/CIE PRESIDENT'S REPORT TO THE 38TH ANNUAL MEETING

NOVEMBER 12, 1993

I would first like to thank all those present at last year's meeting, who unanimously supported my nomination (in absentia) for CNC/CIE President to December 31, 1995.

I would also like to congratulate Sharon McFadden, who accepted to serve as Division 1 member, Werner Adrian appointed Vice- President, Arnold Gaestner who accepted another term for the very demanding position of Secretary, the three new Members appointed, S.M. Kaye, Frank Lin and Robert White, and finally the six nominees to Advisory Member status.

1. NRC/CIE Relationship:

Although NRC International Affairs (IA) will continue funding our annual membership fee of about $8,000 (provided they remain convinced that their sponsorship of CNC/CIE represents a worthwhile expenditure), the administrative aspect of our relationship will be handled by NRC's Institute for National Measurement Standards (INMS), which has fortunately assigned as its representative a person both knowledgeable about and sympathetic to CNC/CIE, Alan Robertson.

You have already received from Alan a letter dated 93-08-24 explaining the details of the arrangements, including a copy of the agreement between IA and INMS regarding NRC's affiliation to CIE. Following last year's discussions on updating CNC/CIE Bylaws (last revised in 1975), Alan has also prepared a draft for a Code of Procedure to replace our Bylaws. The subject appears on this year's agenda.

2. Finance

Also on the agenda is the matter of finances, which has been a concern expressed by many members regarding expenses for their participation in Division as well as Technical Committee meetings. The crunch on budgets available for such activity has been worldwide, both with respect to government as well as company funding. Many CIE meetings are held in conjunction with major commercial or industry related activities for which expenses are reimbursed. As a result many TC's are reverting to mail or fax communications for their work, and those attending the meetings are generally those who can count on personal or job related funds rather than their own National Committee's. Unfortunately, the organizational changes reported above are not likely to bring a foreseeable improvement in the situation, and until the world economy picks up again and money flows a little more freely, imagination and ingenuity will have to make up for lack of expense money. I would suggest that access to a fax machine is a basic requirement to function efficiently within the CIE in this day and age, both at the national and international level.

3. General Assembly Meeting Edinburgh, UK

(see appendix "A" Executive Summary of Minutes) 93-04-03.

Full minutes and attachments (26 pages) are available upon request, from our secretary.

Congratulations to Alan Robertson for his election as Vice President for 1995-99.

Canada took a very active part in the proceedings. One proposal in particular was made by us and discussed at length concerning publications. As a first step, countries wanting to translate publications will be allowed to do so and be supplied with masters for graphs and charts required. They can sell in the currency of their choice and at the price they want, provided that they forward to Central Bureau, for every copy sold, an amount equal to 20% of the current N.C. price in Austrian Shillings. As a second step, CIE publication covers and masters of the English version could be sold to any NC who wants to print locally, provided again that the 20% royalty is paid. Eventually, material could be supplied in electronic format for full local production or inclusion in data banks, always for 20% of the regular publication selling price.

The proposal was welcome by all, especially the countries with "soft" currencies, where the price of Austrian produced material amounts to a small fortune, thereby promoting unauthorized duplication.

This also would allow central bureau to get out of the printing business while retaining an amount equivalent to the profit it made on publications which is essential to its budget. Minimal inventory around the world, faster service, ease of update and lower cost to the users were cited amongst the benefits.

4. Publications:

Brian Tansley indicated that it was getting difficult for him to continue handling publication sales for CNC/CIE. Alan Robertson offered his services, and as a result all the current publication inventory was transferred to NRC. We set a new price formula which allows CNC/CIE to make a reasonable profit on sales while staying in line with the prices asked by the U.S. NC for the same material.

Many orders placed with USNC by Canadians, were forwarded to Canada and filled from our inventory. After we look at our finances, we will make a proposal to Central Bureau regarding the return to Vienna of part or all of the consigned inventory now on hand, if no better way can be found to handle the matter.

Now that we have a fairly comprehensive mailing list of related trade publications (thanks in part to the good work of Ernie Wotton), we can probably issue regular press releases about new publications and even older ones on "hot" topics. This will create, at little expense, an awareness of CNC/CIE's existence, of where we can be reached, and of what we have to offer to the Canadian scientific community.

5. Communications:

I intend to place emphasis in the coming year on communications within the CNC/CIE itself and with the Canadian scientific, engineering, education and lighting business communities, so that we look forward to fulfilling our goals as stated in part 2 and 3 of our proposed Code of Procedures.

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Encl: Appendix A Executive summary of the minutes of the CIE General Assembly Meeting, Edinburgh, UK 93-04-03.

Executive Summary of the MINUTES of the CIE GENERAL ASSEMBLY MEETING

at the Heriot-Watt University, Edinburgh, UK

Saturday, 3rd April 1993, 9:00 - 17:30

1 Opening of the meeting

The President opened the meeting at 9:00, welcomed the observers from Croatia who have already applied for membership in the CIE. Then he asked for a minute's silence to commemorate those members who passed away since the last meeting.

The roll-call of GA Members showed 22 National Committees represented (later the day, one further member joined the GA), more than needed for a quorum (18).

2 Approval of the Minutes of the EXECUTIVE COMMITTEE MEETING, 2nd and 6th July 1991, World Congress Centre, Melbourne

The Minutes were approved without changes and were signed by the President and Secretary.

3-7 Report of the President and of other Officers of the Commission

The President, the Secretary, VPT, VPP, Treasurer, read their reports (see Annex 3, 5, 6 and 7 of the Minutes).

7.2 New system of dues and units

The Treasurer read the proposal as stated in Annex 11 to CLNC 92.12.16/790.

The GA, after some discussion, approved the following text:

> "It is proposed that NC dues be split into two parts. One part should be the same for each country, and be the recognised cost of membership. This fee should establish the rights and obligations of membership of the CIE. The second part should be variable and a function of each member's capacity to pay on a scale based on the UNO Scale of Assessment for the apportionment of the expenses of the United Nations."

7.3 Membership of countries in arrears or not responding

The Treasurer announced that the BA suspended Argentina due to the fact that it failed to pay its dues for two years.

7.4 Report on the 1992 fiscal year

The 1992 fiscal report is attached to the Minutes as Annex 8.

7.5 CIE Budget for 1994 and 1995

The 1994 & 1995 budgets, as accepted by the GA are attached to the Minutes as Annex 9.

8 Report by the Executive Director

The ED read his report (see Annex 11 of the Minutes).

9 Election of Officers for the next Quadrennium

The GA elected the Officers for the next quadrennium as proposed by the BA:

President-Elect for 1993-1995 and President for 1995-1999:	Dr. J. Hsia
VP Technical:	H.-A. Löfberg
VPP Publications:	W. Julian
Vp vp:	W. van Bommel
VP vp:	K. Narisada
VP vp:	A. R. Robertson
Secretary:	J. Bastie
Treasurer:	K. Gmeiner

10 Report by VPT and Org.Com. on the preparation of the CIE Session 1995

The VPT and the Member of the Organizing Committee read their reports (Annex 12 & 13 of the Minutes).

The dates of the Session will be:

Conference:	1995.11.01-03
Division Session:	1995.11.06-08.

11 Time and Place of the next General Assembly Meeting

Late October 1995, New Delhi

was agreed as the date and place of the next GA meeting.

12 CIE Awards

The President handed over to the representatives of the respective NCs the CIE Awards '93 for 19 members.

13 Any other business

Prof. Bodmann, who completed with the election of the President-Elect his official term, thanked the GA & BA for their help and support during his terms of office.

14 Closing of the Meeting

The President closed the meeting at 17:15.

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

Canadian National Committee Comité National Canadien

CNC/CIE SECRETARY'S REPORT TO THE 38TH ANNUAL MEETING

1993-NOVEMBER-12

This report covers the period from 1992-November-13 to 1993-November-11

CIE MATTERS:

1. General Assembly: was held in Edinburgh, Scotland on 1993-April-03. J.Roberge attended as the designated member of the CNC/CIE, with A.R. Robertson as our non-voting Advisor. At this meeting A.R. Robertson was elected to the position of CIE Vice President (without portfolio) for the next quadrennium. He will assume this position at the 1995 (November) Session, to be held in New Delhi, India.

2. CIE Membership of Yugoslavia: At the time of my report to the 37th annual meeting of the CNC/CIE, the international vote concerning the expulsion of the National Committee of Yugoslavia was unknown. The final international vote was in favour of the expulsion of the National Committee of Yugoslavia.

3. CIE Membership of Slovenia: The result of the CNC/CIE ballot was to approve the membership of the Slovene National Committee of the CIE (34 ballots were mailed to Members and Advisory Members, 17 were returned, all in favour). This result was transmitted to the Central Bureau. The final international vote was unanimous approval of their membership.

4. CIE Membership of Croatia: The result of the CNC/CIE ballot was to approve the membership of the Croatian National Committee of the CIE (35 ballots were mailed to Members and Advisory Members, 19 were returned: 15 in favour, 3 opposed, 1 abstention). This result was transmitted to the Central Bureau. The final international vote was unanimous approval of their membership.

5. CIE Membership of Czech Republic: The result of the CNC/CIE ballot was to approve the membership of the Czech National Committee of the CIE (35 ballots were mailed to Members and Advisory Members, 19 were returned, all in favour). This result was transmitted to the Central Bureau. The final international vote was unanimous approval of their membership.

6. CIE Membership of Slovak Republic: The result of the CNC/CIE ballot was to approve the membership of the Slovak National Committee of the CIE (35 ballots were mailed to Members and Advisory Members, 19 were returned, all in favour). This result was transmitted to the Central Bureau. The final international vote was unanimous approval of their membership.

7. CIE Membership of Indonesian Illuminating Engineering Society: The result of the CNC/CIE ballot was to approve the membership of the Indonesian National Committee of the CIE (35 ballots were mailed to Members and Advisory Members, 21 were returned: 20 in favour, 1 opposed). This result was sent to the Central Bureau. The final international vote is not yet known.

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

CIE NEWS # 24, December 1992
CIE NEWS #25, March 1993
CIE NEWS #26, June 1993
CIE NEWS #27, September 1993

CIE Press Releases:

CIE Publication 91: *CIE Proceedings 22nd Session Melbourne 1991.*
CIE Publication 94: *Guide for Floodlighting.*
CIE Publication 98: *Personal Dosimetry of UV Radiation.*
CIE Publication 99: *Lighting Education (1983-1989).*
CIE Publication 100: *Fundamentals of the Visual Task of Night Driving.*
CIE Publication 101: *Parametric Effects in Colour-Difference Evaluation.*
CIE Publication 103: *Technical Collection 1993.*
CIE Publication 105: *Spectroradiometry of Pulsed Optical Radiation Sources.*
CIE Special Publication X005: *Proceedings of the CIE Seminar '92 on Computer Programs for Light and Lighting.*

9. Annual Membership Fee: The annual membership fee of the CNC/CIE as a member of the CIE for 1993 is 70165.00 Austrian Schillings. This is approximately $8000.00 Cdn. The NRC International Affairs Branch is responsible for making this payment.

CNC/CIE MATTERS:

1. NRC Affiliation to CIE: The changes in the NRC responsibility for the CNC/CIE were mailed to the membership on 1993-August-08 in a letter from A.R. Robertson. Further information will be given in his report to this annual meeting.

2. Membership: The following items have taken place:

i. CNC/CIE President: Following the recommendation of the CNC/CIE made at the 37th Annual Meeting on 1992-November-13, Mr. Jacques Roberge was appointed President of the CNC/CIE, effective 1993-April-01, for a term ending 1995-December-31. This appointment was made by A.L. VanKoughnett, Director-General of the NRC Institute for National Measurement Standards(INMS). The position of the NRC-INMS in this regard will be given in the report by A.R. Robertson to this meeting concerning the NRC Affiliation to CIE.

ii. Division Members: Sharon M. McFadden has accepted the position of CNC/CIE member of CIE Division 1 to replace P.K. Kaiser who resigned at the last meeting.

iii. Members: As part of the transfer of responsibility of the operation of the CNC/CIE to the NRC INMS, letters of appointment were sent to all Members of the CNC/CIE by A.L. VanKoughnett, Director-General of INMS. Acceptances have been received from all except two of the appointees: S.M. Kaye and E.Wotton. A list of our Members and Advisory Members is available and will be discussed later in the agenda.

iv. Advisory Members: Letters inviting the six nominees for Advisory Membership made at the last annual meeting were sent. Replies have been received from four of them, all accepting the nomination. They are:

Allyson Chrysler
William B. Cowan
Donald B. McIntyre
George Woo.

We welcome their presence and look forward to working with them.
Mr. M.J. Ouellette of the NRC Institute for Research in Construction has expressed an interest in the CNC/CIE and I recommend his nomination for Advisory Membership.

3. CIE Publications: During the year, responsibility for the sale of CIE publications in Canada was transferred from B.W. Tansley to A.R. Robertson. A full report of this transaction will be available at this meeting in the Treasurer's Report by B.W. Tansley, and the Publications Report by A.R. Robertson.

4. Publicity: At the last annual meeting, A.R. Robertson and A.A. Gaertner were given the task of publicizing the work of the CIE and the CNC/CIE, perhaps using the article by R. Aldworth as a basis. The appointment of J.Roberge as the President of the CNC/CIE and the shift of a large part of the responsibility for the CNC/CIE to the NRC-INMS provided an occasion for this activity. At this point, some new letterhead was also designed showing the INMS involvement in the CNC/CIE. Along with the Press Release for the appointment of J.Roberge, we composed and mailed information concerning the work of both the CIE and the CNC/CIE. This was mailed to all

the Members and Advisory Members, as well as to another list of people generally interested in CIE matters, which I maintain. In addition, E. Wotton had provided us with a list of 21 journals and associations which he felt should be informed of our activities. This list was also sent to the Members and Advisory Members with the request that they inform us of any other potentially interested parties.

I have also continued to send CNC/CIE information to Bryan S. Rogers, editor of *Lighting Magazine*.

5. Mailing Lists: At present I maintain 4 mailing lists: Members(13), Advisory Members(25), General Interest(35), 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) and notices of international conferences. I have recently requested, and now received, from the Central Bureau, extra copies of *CIE NEWS*, so that I may now send copies of these to the 3rd(General Interest) list as well as the first two lists. The 4th list has only received the publicity information mentioned in the item 4 above.

With respect to the General Mailing list, I have recently received mailings back from several people on this list. If anyone knows of their new addresses and whether they are still interested, please inform me:

i. Mr. W.F. Braun, formerly of Honeywell Ltd., Scarborough, Ont.

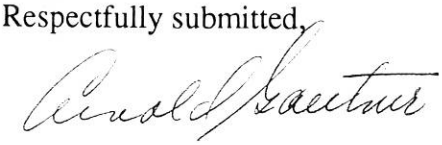
ii.Miss Heideh Omoumi, formerly of Dept.of Geology, Univ.of Alberta, Edmonton, Alberta. She may be with INCO Research in Mississauga.

iii. Mr.N. Hockey has moved, but Roy Kaufmann was able to contact him, and he requested to be taken off the mailing list.

MISCELLANEOUS:

1. USNC/CIE Mailing List: Information was sent out concerning a new E-mail electronic discussion group concerning lighting in general. Has anyone tried it?

Respectfully submitted,



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November 11, 1993

Treasurer's Report:

There has been no activity of the current Treasurer since June of 1992.

The purpose of having a treasurer and all of my activities as treasurer were solely related to publication sales. Since NRC has kindly agreed to handle CIE document sales, I offer my resignation as treasurer. There is currently a balance in our CIE account of about $400. This money will be transferred to the new treasurer when this position is filled.

Publication sales are now formalized within NRC who have assumed responsibility for the financial component as well. All financial activity, of the CNC/CIE has had to do with publication sales. If this is to continue, I suggest that the CNC consider nominating someone within NRC as Treasurer.

APPENDIX G

CNC/CIE Publications Report, November 1993

A.R.Robertson

In April, at the request of Jacques Roberge, I agreed to take over temporary responsibility for the sale of CIE publications in Canada. On 1993-04-30, Brian Tansley (who had asked to be relieved of the responsibility) delivered his stock of publications to me, together with a number of outstanding orders and invoices.

Debt

At the time I assumed responsibility, we were in debt to the CIE Central Bureau (CB). This debt consisted of two parts. The first part was for stock that had been sent to the CNC on consignment from the CB prior to 1992-01-01. On that date the CB had terminated its consignment system and asked each National Committee to return unneeded stock and pay for the remainder. As we did not return any stock by the deadline of 1992-05-15, the CB has assumed that we wish to keep it at a cost of 55218 Austrian Schillings (ATS). This is approximately $6295 in Canadian funds at an exchange rate of 0.114.

The second part of the debt was for publications that had been delivered and invoiced to the CNC since 1992-01-01. Brian Tansley gave me invoices totalling ATS 7599 ($866) but I have since learnt from the CB that there are additional invoices and that they believe we owe them 17969 ATS ($2048) for purchases between 1992-01-01 and 1993-04-30. I have tried to reconcile the CB's figures against the stock. The information is incomplete but my conclusion is that the CB's figures for that period are probably correct.

Since 1993-04-30, I have received and been invoiced for publications worth a further ATS 1404 ($160). I have not made any payments. Thus, in summary, the CNC owes the CB the following amounts:

For consignments before 1992-01-01 $6295
For purchases between 1992-01-01 and 1993-04-30 $2048
For purchases since 1993-05-01 $160

Total $8503

I believe that there is still a possibility that we can return some of the consignment stock to offset this.

Stock

The actual value of the stock I received on 1993-04-30 was ATS 65182 ($7431) which is somewhat less than the amount claimed by the CB ($8343). I

understand from Brian Tansley that the difference was due to thefts and other losses, interim sales, and some discrepancies between his figures and those of the CB. The difference may be partly offset by funds remaining in the CNC bank account administered by Brian Tansley.

Sales

In consultation with Jacques Roberge, I worked out a new pricing structure for Canadian sales. The cost in ATS is multiplied by an exchange rate of 0.114. We then add 10% to allow for exchange rate fluctuations and divide by 0.51 to give a mark-up of 49%. This leads to a price that is less than the USNC Non-Member price but more than the USNC Member price. It gives us some profit that can be used to pay our accumulated debts and, eventually, could be an incentive if we decide to ask an outside organization, such as the Standards Council of Canada (SCC), to handle sales for us.

Since 1993-04-01, I have filled several orders at the new prices and now have $4016 in an account I have opened in the name of the CNC at the Bank of Nova Scotia, 2339 Ogilvie Road, Gloucester, Ontario.

I received several outstanding orders from Brian Tansley. Where there was sufficient information, I have contacted the prospective purchaser. Some of the orders have been confirmed and some have not. Presumably some of the ordered publications were no longer needed or had been obtained elsewhere. In other cases the increased prices may have been a factor.

Conclusion

I believe we are now in a position to negotiate with the CB. We have enough money to pay for the publications purchased since 1992-01-01 with enough left over to pay for part of the pre-1992 consignment. We could return some publications to them for credit (if they will accept them) or we could ask for a further extension for payment of the balance due.

I am willing to continue handling publication sales at least until we have a viable operation with no debts. I am also looking into whether I can use NRC accounting systems. This would be easier for those customers who have difficulty sending money to an NRC address unless it is payable to NRC. It would also avoid problems I have had whereby NRC has intercepted money intended for the CNC. There would be some restrictions on how the money could be spent, but I do not think they would be serious.

Complete lists of sales since 1993-04-30, outstanding invoices, and current stock are attached.

CIE Publications					
Sales 93-05-01 to 93-11-05					
Date	*Client*	*Item*	*Amount*	*Sub-total*	
93-04-30	Forward			$0.00	
93-05-17	McMaster UNiversity	#15.2	$107.00		
		US exchange	$12.87	$119.87	
93-05-17	Techmar Engineering	#49	$62.00		
		US exchange	$8.36	$70.36	
93-06-04	NRC/INMS	D002	$125.00	$125.00	
93-06-04	Hydro Quebec	#12.2	$94.00		
		#15.2	$107.00		
		#17.4	$615.00		
		#18.2	$88.00		
		#29.2	$132.00		
		#30.2	$158.00		
		#32A	$101.00		
		#33A	$94.00		
		#34	$83.00		
		#13.2	$120.00		
		#27	$107.00		
		#31	$74.00		
		#40	$101.00		
		#47	$120.00		
		#52	$183.00		
		#53	$78.00		
		#66	$104.00		
		#69	$88.00		
		#70	$94.00		
		#74	$151.00		
		#84	$94.00	$2,786.00	
93-06-16	Infranor	#88	$90.00		
		#94	$107.00		
		#95	$94.00		
		#100	$101.00	$392.00	
93-08-13	Reid Crowther	#94	$107.00		
93-09-08	O'Neill Scriven	#30.2	$158.00		
		#31	$74.00	$232.00	
93-11-03	DND/QETE	#38	$184.00	$184.00	
Total				$4,016.23	

CIE Publications					
Outstanding invoices					
Assuming exchange rate c		0.114			
	Invoice no.	**Details**	**ATS**	**CDN$**	
Consignment					
92-01-01	Consignment		55,218.00	$6,294.85	
Purchases before 1993-04-30					
92-02-26	#234	3 of #92	994.50	$113.37	
92.03.10	#255	3 of 10526/7	2,258.75	$257.50	
92-04-08	#278	See letter	624.00	$71.14	
92-04-16	#285	3 of #95?	1,150.50	$131.16	
92-06-23	#339	3 of #96?	897.00	$102.26	
92-07-06	#358	1 of #41	344.50	$39.27	
92-08-12	#383	3 of #97	897.00	$102.26	
92-08-21	#408	3 of #93	1,618.50	$184.51	
92-11-10	#471	3 of #91	3,510.00	$400.14	
92-11-23	#489	1 of #99?	253.50	$28.90	
92-12-09	#517	3 of #98?	897.00	$102.26	
92-12-18	#543	3 of #100	1,228.50	$140.05	
93-02-10	#027	3 of #94, 101?	2,067.00	$235.64	
93-05-04	#136	3 of #103	1,228.50	$140.05	
Subtotal			17,969.25	$2,048.49	
Purchases since 1993-04-30					
93-05-27	#173	1 of D002	507.00	$57.80	
93-08-18	#240	3 of #105	897.00	$102.26	
Subtotal			1,404.00	$160.06	
Total			74,591.25	$8,503.40	

CIE Publications

Stock list

Assuming exchange rate of 0.114

No.	Title	Year	Cost (ATS)	Cost (CDN$)	Price (CDN$)	Consign-ment	Purchased 920101 to 930430	Stock 930430	Purchased 930501 to 931105	Sold 930501 to 931105	Stock 931105
1	Urban sky glow	1980	0.00	$0.00	$74.00			5			5
2.2	Signal colours	1975	0.00	$0.00	$120.00			4			4
12.2	Road Lighting	1977	0.00	$0.00	$94.00			5		1	4
13.2	Colour rendering	1988	487.50	$55.58	$120.00	5		5		1	4
15.2	Colorimetry	1986	435.50	$49.65	$107.00	4		2		2	0
16	Daylight	1972	0.00	$0.00	$120.00			5			5
17.4	Vocabulary	1987	2515.50	$286.77	$619.00	4		3		1	2
18.2	Physical photometry	1983	0.00	$0.00	$88.00			5		1	4
19.21	Visual performance - 1	1981	0.00	$0.00	$152.00			4			4
19.22	Visual performance - 2	1981	0.00	$0.00	$120.00			4			4
22	Sky luminance	1972	0.00	$0.00	$82.00			4			4
23	Motorway lighting	1973	0.00	$0.00	$101.00			5			5
24	Luminaire phot. (indoo	1973	0.00	$0.00	$101.00			5			5
27	Luminaire phot. (street)	1973	0.00	$0.00	$107.00			5		1	4
29.2	Interior lighting	1986	539.50	$61.50	$133.00	3		3		1	2
30.2	Calc.&meas. (road ltg)	1982	0.00	$0.00	$184.00			4		2	2
31	Glare (road lighting)	1976	0.00	$0.00	$74.00			4		2	2
32A	Special road ltg (Frenc	1977	0.00	$0.00	$101.00			5		1	4
32B	Special road ltg (Englis	1977	0.00	$0.00	$101.00			5			5
33A	Road ltg depn (French)	1977	0.00	$0.00	$94.00			5		1	4
33B	Road ltg depn (English)	1977	0.00	$0.00	$94.00			5			5
34	Road ltg installn data	1977	0.00	$0.00	$88.00			5		1	4
38	Char. of materials	1977	0.00	$0.00	$184.00			6		1	5
39.2	Surf.colours for signals	1983	0.00	$0.00	$120.00			5			5
40	Interior lighting calcs	1978	0.00	$0.00	$101.00			5		1	4

No.	Title	Year	Cost (ATS)	Cost (CDN$)	Price (CDN$)	Consign-ment	Purchased 920101 to 930430	Stock 930430	Purchased 930501 to 931105	Sold 930501 to 931105	Stock 931105
41	Light as true vis.quantit	1978	344.50	$39.27	$88.00		1	5			5
42	Lighting for tennis	1978	0.00	$0.00	$74.00			6			6
43	Phot. of floodlights	1979	0.00	$0.00	$94.00			5			5
44	Absoloute reflection	1979	0.00	$0.00	$107.00			5			5
45	Lighting for ice sports	1979	0.00	$0.00	$74.00			5			5
46	Material refl. stds.	1979	0.00	$0.00	$133.00			5			5
47	Lighting for wet roads	1979	0.00	$0.00	$120.00			5		1	4
48	Road traffic signals	1980	0.00	$0.00	$88.00			3			3
49	Emergency lighting	1981	0.00	$0.00	$62.00			5		1	4
51	Daylight simulators	1981	0.00	$0.00	$82.00			5			5
52	Interior lighting calcs	1982	0.00	$0.00	$184.00			5		1	4
53	Radiometers & photom	1982	0.00	$0.00	$82.00			5		1	4
54	Retroreflection	1982	0.00	$0.00	$82.00			2			2
55	Discomfort glare	1983	0.00	$0.00	$94.00			3			3
56	Proceedings 1983	1983	0.00	$0.00	$184.00			5			5
57	Lighting for football	1983	0.00	$0.00	$62.00			4			4
58	Lighting for sports halls	1983	0.00	$0.00	$48.00			4			4
59	Polarization	1984	0.00	$0.00	$82.00			5			5
60	Vision & the vdu	1984	0.00	$0.00	$82.00			2			2
61	Tunnel entrance lightin	1984	0.00	$0.00	$120.00			3			3
62	Lighting for swimming	1984	0.00	$0.00	$74.00			2			2
63	Spectroradiometry	1984	0.00	$0.00	$101.00			3			3
64	Spectral responsivity	1984	0.00	$0.00	$107.00			4			4
65	Absolute radiometers	1985	0.00	$0.00	$82.00			4			4
66	Road surfaces	1984	0.00	$0.00	$107.00			3		1	2
67	Photometry of sports lig	1986	195.00	$22.23	$48.00	5		5			5
68	Exterior lighting	1986	435.50	$49.65	$107.00	5		5			5
69	Illuminance meters	1987	357.50	$40.76	$88.00	3		3		1	2
70	Meas. of luminous inter	1987	383.50	$43.72	$94.00	5		5		1	4
71	Proceedings 1987	1987	1898.00	$216.37	$467.00	3		3			3
72	Retroreflectors	1987	396.50	$45.20	$101.00	4		3			3

No.	Title	Year	Cost (ATS)	Cost (CDN$)	Price (CDN$)	Consign-ment	Purchased 920101 to 930430	Stock 930430	Purchased 930501 to 931105	Sold 930501 to 931105	Stock 931105
73	Road markings	1988	396.50	$45.20	$101.00	3		0			0
74	Road signs	1988	617.50	$70.40	$152.00	3		2		1	1
75	Spec. luminous efficien	1988	299.00	$34.09	$74.00	5		5			5
76	Meas. of luminescence	1988	435.50	$49.65	$107.00	5		5			5
77	Electric light sources	1988	617.50	$70.40	$152.00	5		5			5
78	Brightness-luminance	1988	812.50	$92.63	$217.00	5		5			5
79	Road traffic lights	1988	273.00	$31.12	$74.00	3		2			2
80	Observer metamerism	1989	273.00	$31.12	$74.00	5		5			5
81	Mesopic photometry	1989	318.50	$36.31	$82.00	4		4			4
82	CIE history	1989	884.00	$100.78	$217.00	2		2			2
83	Lighting for tv sports	1989	273.00	$31.12	$74.00	5		5			5
84	Luminous flux	1989	383.50	$43.72	$94.00	3		4		1	3
85	Solar spec. irradiance	1989	383.50	$43.72	$94.00	3		3			3
86	1988 spec.lum.eff.funct	1990	253.50	$28.90	$62.00	4		4			4
87	Self-luminous displays	1990	357.50	$40.76	$88.00	3		2			2
88	Lighting for road tunne	1990	364.00	$41.50	$94.00	3		2		1	1
89	Collection 1990	1990	383.50	$43.72	$94.00			0			0
90	Sunscreen testing	1991	253.50	$28.90	$62.00			0			0
91	Proceedings 1991	1992	1170.00	$133.38	$288.00		3	3			3
92	Lighting of urban areas	1992	331.50	$37.79	$82.00		3	2			2
93	Road lighting / accider	1992	539.50	$61.50	$133.00		3	2			2
94	Floodlighting	1993	435.50	$49.65	$107.00		3	3		2	1
95	Contrast & visibility	1992	383.50	$43.72	$94.00		3	2		1	1
96	Electric light sources	1992	299.00	$34.09	$74.00		3	3			3
97	Maintenance/indoor	1992	299.00	$34.09	$74.00		3	3			3
98	Personal uv dosimetry	1992	299.00	$34.09	$74.00		3	3			3
99	Lighting education	1992	253.50	$28.90	$62.00		1	1			1
100	Night driving	1992	409.50	$46.68	$101.00		3	3		1	2
101	Parameters/colour diffe	1993	253.50	$28.90	$62.00		3	3			3
103	CIE Collection 1993	1993	409.50	$46.68	$101.00		3	0			0
105	Spectroradiometry	1993	299.00	$34.09	$74.00				3		3

No.	Title	Year	Cost (ATS)	Cost (CDN$)	Price (CDN$)	Consign-ment	Purchased 920101 to 930430	Stock 930430	Purchased 930501 to 931105	Sold 930501 to 931105	Stock 931105
D001	Phot. & colorim. data	1988	299.00	$34.09	$74.00						0
D002	Colour rend. data	1991	507.00	$57.80	$125.00				1	1	0
D002	Colour rend. data	1991	539.50	$61.50	$133.00						0
ISO10526	Standard illuminants	1991	208.00	$23.71	$62.00		3	3			3
ISO10527	Standard observers	1991	390.00	$44.46	$101.00		3	4			4
x1	SLG-Div.5 Symposium	1989	253.50	$28.90	$62.00						0
x2	SLG-Div.4 Symposium	1989	383.50	$43.72	$94.00						0
x3	CIE-WMO Symposium	1989	539.50	$61.50	$133.00						0
x5	Proc.sem.computer pg	1992	539.50	$61.50	$133.00						0
x6	Japan CIE / Prakash91	1991	253.50	$28.90	$62.00						0
	Invoice #255 (adjustment)		464.75				1				
	Invoice #278 (balance)		624.05				1				
	Total value (ATS)					55,218	17,969	65,182	1,404		57,896
	Total value (CDN$)					$6,294.80	$2,048.50	$7,430.75	$160.06		$6,600.09

APPENDIX H

CIE Activity Report for Division 1: Vision and Colour

Sharon M. McFadden

This was my first year as Canadian member of Division 1. Most of my activity has been limited to familiarizing myself with the work of the Division. I had hope to attend the annual meeting in June in Budapest. However, funding was not available. Fortunately, Alan Robertson was able to represent Canada in my place. Next year's meeting will be held in Japan. Given current funding constraints, it is unlikely that I will be able to attend that meeting either. However, I hope to be able to increase my participation in other ways.

The activities of Division 1 during the past year are reported in the Activity Report distributed in March 1993 and the minutes of the annual meeting. The following summary is adapted from a draft of the minutes. Thus there may be some errors in this summary. You will note that there are still a few inactive Technical Committees. One of these has been disbanded. On the other hand, approximately 50 people attended the annual meeting and 14 countries were formally represented. Given the current status of the world economy, this is a heartening sign. It also appears that many of the Technical Committees are making progress and that there is continuing interest in exploring new issues.

Summary of the Activities of CIE Division 1

I. Membership

Prof Crepinsek, formerly the representative for Yugoslavia, is now representing Slovenia. Other new members are Dr Rudanko for Finland and Mrs McFadden for Canada. Prof Ikeda thanked the retiring members Dr Kaiser, Canada, and Prof. Halonen, Finland, for their contributions to Division 1.

II. Activities of the Vision Section: Associate Director P.L. Walraven.

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

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

Progress: The first draft of the technical report has been completed. This has been generally accepted by members and after editorial modifications will be forwarded to TC members for balloting.

TC 1-23 Visual acuity: P L Walraven

Mandate: To write a technical report to investigate the possibilities to standardize a visual acuity function.

Progress: There have been several discussions with TC members over the past year. The second draft of the report will be available for circulation in a few months.

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

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

Progress: The committee met during the Division meeting in Budapest. The outline of the report is

1. Introduction
2. Data sets of heterochromatic brightness matching for photopic luminance levels
3. Analysis of data sets
4. Proposed simple test of individual characteristics for brightness matching.

TC 1-30 Luminous Efficiency Functions: M Ikeda

Mandate: 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 first draft of the report has been completed. Ikeda said he believed $\bar{y}_{10}$ should be included for use as a photometric function and renamed $V_{10}(\lambda)$ for photometric fields greater than 2°. $V_{b,p}(\lambda)$ the brightness function for a point source is almost exactly the same as $V_M(\lambda)$ so there is no need for a new table, only the use of the name for brightness of a point source. The list of photometric functions is

$$V(\lambda),\ V_M(\lambda),\ V_{10}(\lambda),\ V_{b,p}(\lambda),\ V_{b,2}(\lambda),\ V'(\lambda)$$

Comments: Hunt commented that Stiles had said that $\bar{y}_{10}$ could not be used to give luminance values because it is not an additive function. Ikeda said the committee would consider this point. Trezona said that although what Hunt said was true, several researchers have used $\bar{y}_{10}$ because there is nothing else for a 10° field. There may be a need for a new determination of $\bar{y}_{10}$ using flicker photometry. Nayatani said that the Stiles - Burch $\bar{y}_{10}$ function is a good estimate of the 10° visual function. Adrian said that additivity cannot be expected to hold for any 10° function. Johnson requested coordination with TC 2-35, $V(\lambda)$ and $V'(\lambda)$ CIE Standards. Robertson said that TC 2-35 is not concerned with any change to fundamentals. Walraven noted that some liaison with Division 2 is needed.

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

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

Progress: At present the work is limited to a 2° field. The third draft of the report has been completed and circulated to the Committee. The outline is

1. Introduction

2. Choice of the colour matching functions
3. Derivation of the fundamental response curves
4. Development of a 3 dimensional colour space with a 2° chromaticity diagram
5. Photometric aspects: choice of the $V(\lambda)$ curve
6. Absorption in the ocular media and macular pigment
7. Retinal action spectra - pigment absorption curves + electric signals from isolated cones.
8. Development of a chromaticity diagram like the CIE 1931 diagram
9. Tables and graphs of proposed functions.

Agreement is needed on four points.

1. The set of colour matching functions
2. Consistency with V_M
3. Konigs hypothesis - identity of copunctal points with fitted curves.
4. The S system (short wavelength cones) does not contribute to luminance.

Comments: Adrian said it would be wise not to include the ocular media because of the dependence on age. Walraven said it was not intended to produce an age dependent chromaticity diagram. Hunt suggested that functions should be plotted on a logarithmic scale.

TC 1-37 Supplementary System of Photometry: K Sagawa

Mandate: To recommend a system of photometry to assess lights in terms of their comparative brightness relationship at any level.

Progress: TC 1-37 had its first meeting in Budapest. There are now 15 members and the membership has been formally approved. The new system is to be used for all lighting levels.

Comments: Hunt asked whether colour appearance models would be used as a way of calculating brightness. Nayatani had also raised this matter with Sagawa who said he would like time to consider this point. Schanda asked if the new system would consider monochromatic cases and be consistent with TC 1-30. Ikeda commented that CIE publications must be in harmony. Walraven agreed that the boundary conditions must be consistent with the appropriate functions in the CIE report.

Proposed committee, Extension of $V_m(\iota)$ Beyond 830 nm

Progress: Ikeda proposed Walraven as Chairman. This was approved by 13 votes to nil with no abstentions. The number allocated is TC 1-41. (The title and terms of reference were approved at the Melbourne meeting in 1991). The first draft of a report has been completed. Using data from four sources, a function extending to 1100 nm is being considered. Log $V(\lambda)$ decreases in proportion to $1/\lambda$ in this region.

Proposed committee, Critical Flicker Fusion Frequency

Progress: The title and terms of reference were approved at the 1992 annual meeting. Prof K Ruddock was proposed as Chairman. This was approved by 14 votes to nil with no abstentions. The

number allocated is TC 1-40.

R 1-02 Brightness - Luminance Relations

Progress: Dr F Blommaert has been appointed as Reporter in succession to Prof Roufs.

R 1-08 Colour Appearance in Peripheral Vision: M Takase

Progress: Takase referred to a colour zone map of the Optical Society of America. Although this is widely cited, the data do not agree well with results of recent investigations.

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

TC 1-09 Standard Sources for Colorimetry: D Gundlach.

Mandate: To prepare a technical report listing sources that usefully approximate to Standard Illuminant D65 with particular reference to their suitability for the visual assessment of samples and for the spectrophotometry of luminescent samples and giving their Publication 51 indices.

Progress: It had been agreed at the last meeting that the Chairman would be given until the present meeting to produce a report after which the committee would be closed. Robertson said that no report had been received. Ikeda thanked Gundlach for his efforts saying that it was not his fault that he had been unable to complete a report. There had been major problems in obtaining data from lamp manufacturers. A formal proposal was made for disbandment of the committee. This was approved by 13 votes to nil with no abstentions.

TC 1-13 Colour Appearance Analysis: M R Pointer

Mandate: To derive methods of evaluating the colour rendering properties of illuminants based on colour appearance.

Progress: The report has been published in the CIE Technical Collection 1993, Publication CIE 103. Having published its report the committee is now disbanded. Ikeda thanked Pointer and the committee for their work.

TC 1-24 Field Trails of Television Illumination Consistency: R White

Mandate: To carry out field trials of the television consistency index and to collect data from practical installations

Progress: The British members of this committee met in October 1992 and some work was reported. No report was received in Budapest. Robertson said he would contact the Chairman.

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

Mandate: 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 third draft of "CIE Guidelines for Coordinated Research on Evaluation of Colour Appearance Models for Reflective Print and Self-Luminous Display Image Comparisons" has been completed and forwarded to TC members for approval. This will be published in Color Research and Application. Schanda requested a summary for the CIE News.

Note. The report of this committee will contain the results of their research.

TC 1-28 Parameters Affecting Colour Difference Evaluation: K Witt

Mandate: To study and report on the effect of viewing and sample parameters on the evaluation of colour differences between object colours. Parameters to be studied include, but are not limited to, texture, sample size and separation, illumination level, colour of surround and the effect of specular reflectance.

Progress: The report has been published as CIE Publication 101, Parametric Effects in Colour-Difference Evaluation, 1993. The Committee having completed its report, has been disbanded. Ikeda thanked Witt and the committee for their work.

TC 1-29 Industrial Colour Difference Evaluation: D Alman

Mandate: 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 committee has been very active. A proposed equation has been published in Colour Research and Application. This was accompanied by a request for field trials to compare the performance of the proposed formula with other existing formulae including CIELAB, CIELW, CMC and others. The committee wants to make sure that all changes implemented in a recommendation are a positive step towards better association between numerical colour difference measurement and visual perception. It is considered important to work positively towards international acceptance of one colour difference recommendation and to implement change only when justified by significant improvement. Prof Berns said it was not clear when the committee would be able to make a recommendation, he could only say it would be in the next several years.

TC 1-31 Colour Notation and Colour Order Systems: C McCamy

Mandate: To study and report on colour order systems in response to a request from ISO for preparatory and background work which must be completed before an ISO standard in the field of colour notation can be drafted.

Progress: The Committee has reached a general consensus but with a few exceptions. These are all from Sweden and include the ISO Committee Chairman. These members have been asked for a specific proposal to try to achieve a report that is acceptable to all members. If this is not possible the CIE procedures allow for a minority report.

TC 1-32 Prediction of Corresponding Colours: Y Nagatari

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

Progress: The report has been completed and approved by TC members. This fall it was distributed to Division members.

TC 1-33 Colour Rendering: W Walter

Mandate: 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 committee met in Budapest. The outline of the report will be

1. Choice of skin colours - at least two must be included
2. Form of the formula
3. Colour appearance models - the recommendations of TCs 1-32 and 1-34 are awaited
4. Reference illuminants - five standards
5. Calculations

Comments: Hunt asked if the u'v' diagram could be used for correlated colour temperature in place of the uv diagram. Schultz said correlated colour temperature was not needed for colour rendering. Robertson said a change in the definition of correlated colour temperature would lead to problems. McCamy suggested that the number of skin colours may need to be increased. Verrill asked to what extent the recommendation would be dependent on the report of TC 1-34. Chalmers said it would be possible to complete a report for TC 1-33 but it would not satisfy everyone. Halstead said that a recommendation on relative colour rendering could be made without the results from TC 1-34 but that for absolute colour rendering the results from TC 1-34 would be essential.

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

Mandate: 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: Data have been received from several sources, Mori, RIT, LUTCHI and others. Methods of analysis are under development.

TC 1-35 Selection of Light Sources for Colour Vision Examination: S Dain

Mandate: To provide a procedure and criteria for the identification of appropriate light sources for colour vision examination using reflecting samples.

Progress: There has been no report in 1993. Robertson will write to the Chairman.

TC 1-38 Compatibility of Tabular Data for Computational Purposes: C McCamy

Mandate: To prepare guidelines for tabulating CIE spectral data to provide compatibility of sets of data for computational purposes, considering such factors as spectral range, spectral interval, bandpass function, truncations, interpolation, extrapolation and number of digits.

Progress: The committee met in Budapest. The subject of spectral range and interval was discussed and tentative agreement reached. Interpolation and extrapolation still need to be considered. The calculation of colour data from 10 nm and 20 nm data will be considered. McCamy agreed to forward a list of names of committee members to the Secretary who would then conduct a membership ballot.

R 1-04 Colour Difference Evaluation: T Maier

Report: The 1992 report is to be published in the CIE Collection. An update on recent publications is given in Maier's report for 1993.

R 1-09 Practical Daylight Sources: J Zwinkels

Progress: A bibliography of relevant papers has been prepared. The papers have been reviewed and various strategies for simulating daylight sources have been identified. Software has been developed for calculating visible and ultraviolet range metamerism indices, correlated colour temperature and colour rendering index so that data provided by manufacturers of daylight sources can be properly evaluated. When data have been received from manufacturers and analysed a report on the feasibility of a recommendation will be prepared.

Comments: McCamy commented that it would be necessary to distinguish between daylight sources for colorimetry and daylight sources for viewing. Halstead commented that the irradiance on the sample is the necessary quantity, not the spectral power distribution of the source.

CIE Symposium on Colorimetry 7-9 June 1993

Dr Robertson said that two suggestions for further work had arisen from this symposium.

1. A review of observer metamerism. Since CIE Publication No 80 Observer Metamerism, there have been further publications. A recent paper by Norton and Fairchild was mentioned.
2. The effects of rod intrusion on colour matches. The Symposium had drawn attention to the failure of prediction of the 10° observer in some (extreme) circumstances. Stiles and Burch had made a correction for rod intrusion. The case for making such a correction was in need of review. Robertson said that the CIE recommend the 2° functions for fields up to 4° and the 10° functions for fields above that.

IV. Activities of Visual Ergonomics Section: Associate Director Mr T Takeuchi

TC 1-14 Lighting Effects on Vision: P Boyce

Mandate: To produce a report, usable by intelligent laymen, describing the effects of lighting conditions on visual capabilities and demonstrating how this knowledge can be used to determine

appropriate lighting conditions for the performance of specific tasks.

Progress: Boyce wrote to say that he is unable to complete the work and has suggested employing a student for the purpose. The CIE has considered this but ruled it out. The only possibility for completing the report would be if one of the committee members agreed to the necessary work. It was decided not to disband the committee at this meeting but to seek a volunteer prepared to complete the report. Whatever the outcome, the material already collected will not be dispersed but, if necessary, archived for future researchers.

TC 1-18 Disability Glare: J Vos

Mandate: To recommend a revised Stile-Holliday formula which could be named the CIE Standard Disability Glare Formula.

Progress: The draft report is being finalised. Van den Berg has been particularly helpful to the Chairman. The Division looks forward to circulation of the report.

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

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

Progress: The first meeting of this committee was held in Budapest. Adrian is using a paper by Blackwell as a basis for the work, together with results from more recent papers. Halonen has joined the committee. Some of the other members appear to be inactive. Ikeda said the membership should be reviewed to make it more realistic. If necessary, the CIE procedures relating to inactive members could be used. Walraven commented on the relationship between TC 1-19 and TC 1-17 and suggested former members of TC 1-17 might wish to join.

TC 1-25 Fundamentals of Discomfort Glare: M Perry

Mandate: To define, identify the origins of, and to develop and assess methods of measuring discomfort glare.

Progress: The Chairman has agreed to discuss problems with TC members in the near future.

TC 1-39 Discomfort Glare Experienced by Elderly People: S Kanaya

Mandate: To survey published data on discomfort glare and to recommend standards for maximum tolerable levels of discomfort glare for elderly people.

Progress: The committee met in Edinburgh. The working programme has been agreed as follows.

1. Survey recent data concerning discomfort glare for elderly people.
2. Analyse these data in order to prepare recommendations.
3. Write a report.

The membership was proposed as follows, S Kanaya (JP), B Merz (Au), L Halonen (FI), L

Rudanko (FI), D Gall (DE), K Ichikow (JP), E Einhorn (ZA), M Perry (GB), E Noell (US), H Sorensen (DK), Consultant P Boyce (US). This was approved by 12 votes to nil with one abstention. Ikeda requested a postal ballot in accordance with the usual procedures.

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

Progress: Takeuchi is working on two methods, one subjective and one objective and will report results to the next meeting of the Division.

R 1-06 Transient Adaptation: S Kokoschka

Progress: Kokoschka reported on recent experiments performed by Bodmann, Greule and Kokoschka, 1988-1992. There is a visibility loss after a drop in luminance. Results have been compared with a model of Fry (1973) but the agreement is not good. Kokoschka believes that although the results are of interest to the CIE it is too early to propose a new Technical Committee.

R 1-07 Visual Fatigue: E Megaw

Progress: Megaw hopes to complete a review of the literature by the end of August 1993. He is hoping to be able to propose the formation of a Technical Committee at the next Division meeting.

V. Proposals for New Work

Proposals for new Technical Committees.

Title: Colour Appearance in Peripheral Vision
Chairman: Dr 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.
Action: The title, chairman and terms of reference were put to the meeting as a single motion and approved by 13 votes to nil with no abstentions. The number allocated is TC 1-42.

Title: Rod Intrusion in Metameric Colour Matches
Chairman: R Berns
Terms of Reference: 1) To write a report giving a step by step procedure for calculating the effect of rod intrusion on a trichromatic colour match. 2) To use the procedure to calculate the effect of rod intrusion on typical industrial metameric colour matches.
Members: R Berns, V Smith, A Robertson, J Schanda
Actions: The title, Chairman, terms of reference and membership were put to the meeting in a single vote and approved by 13 votes to nil with no abstentions. The Chairman will seek other committee members and a postal membership ballot will follow in the normal way.

Proposal for a new Reporter

Title: Observer Metamerism
Reporter: Y Nayatani
Terms of Reference: To review CIE Publication No 80 in the light of recently published data and to recommend whether a new version is needed.
Action: The title, reporter and terms of reference were put to the meeting in a single vote and approved unanimously by 13 votes to nil with no abstentions. The number allocated is R1-10.

VI. Liaisons

1. Mr Bleasly is the Division 7 Reporter for Energy Conservation. A volunteer for liaison with Division 7 was sought. P Walraven volunteered. This was approved without a ballot.

2. ISO/IEC/JTC1/SC18 Text and Office Publishing Systems: Alessi has resigned as liaison officer and a replacement is sought. The ISO TC was due to meet next in Colorado Springs in July 1993. Maier said he would ask Alessi to enquire if any member of TC 1-27 might take over the liaison task. A general request was also made for anyone to attend the Colorado Springs meeting.

VII. Next Meeting

Prof Ikeda invited the Division to meet in Japan on the 29th and 30th of July 1994. The place of the meeting will be announced later, though a research institute near Tokyo was mentioned as a possible venue. The Division 1 meeting would follow the 1994 Annual Conference of the Illuminating Engineering Institute of Japan on 26-28 July in the Tokyo suburban area. This meeting will include a international symposium. Prof Ikeda is also planning a symposium in Kyoto on 1 August 1994 with the provisional title Colour Appearance and Applications. The invitation to hold the next Division 1 meeting in Japan on 29, 30 July 1994 was accepted by the meeting.

VIII. Other Meetings

Dr Schanda announced a three day meeting to be held at the CIE Central Bureau, Vienna

CIE Symposium '94 on Advanced Photometry: Lighting Quality and Energy Conservation

The meeting is open to all concerned with lighting technology, illumination engineering, energy conservation, environmental science and vision science. The capacity of the accommodation at the Central Bureau means that the attendance will need to be limited to around 40.

APPENDIX I

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 12, 1993

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The most recent Activity Report of CIE Division 2, dated February 1993, is attached. This report covers the activities for the period from the June 1992 Sopron meeting to February 1993. It includes progress reports from the TC Chairmen and Reporters for this period.

The most recent CIE Division 2 meetings were held in Gaithersburg, MD, May 16-17, 1993, in conjunction with CORM93. Dr. Robertson and I participated in these meetings. Some important items to note are:

1. Mr. Norbert Johnson of the U.S.A. has been elected to replace Dr. Jack Hsia (new President of the CIE) as an Associate Director for Division 2.

2. The following technical committees met: TC 2-19 (Retroreflection), TC 2-29 (Detector Linearity), TC 2-30 (Diode Array Radiometry), TC 2-33 (A and D_{65}) ,TC 2-34 (LED Measurements), TC 2-35 (V_λ and $V_{\lambda'}$), TC 2-25(Fluorescence Measurements). The work of TC 2-33 is essentially complete: the committee members have voted and the report is to be sent to the Central Bureau for submission as an ISO standard. TC 2-35 is at the final ballot stage.

3. No new technical committees were formed.

4. A proposal was put forward for a new reporter to compile all the new terms appearing in TC reports, eg. distribution temperature, and relay this information to Division 7. It was alternatively suggested that this function be included in the Editor's duties. No new reporters have been appointed.

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5. In the general discussion period, Dr. Schanda noted that the IMEKO journal "Measurement" will be merged with "Industrial Metrology" to publish topical issues. This could be used by the Division to publish symposium proceedings.

6. The next CIE Division 2 meeting will be held in Berlin, Germany, September 1994, in conjunction with the Absolute Radiometry meeting.

Other Division 2 Notes:

I received a Division letter ballot for TC 2-21 (Spectroradiometry of Flashing Lights). I approved publication of this document as a technical report with suggested editorial changes.

The report "Distribution Temperature - A Revised Definition", from TC 2-05, chaired by Dr. Robertson, has been approved by Divisional ballot and is in the final stages of publication.

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)
	Dr. A.R. Robertson
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

ACTIVITY REPORT

DIVISION 2

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February 1993

CONTENTS

This report covers the activities of Divison 2 for the period from the June 1992 Sopron meeting to February 1993.

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, TC2-28, TC2-29, TC2-31, TC2-34, R2-05, R2-10

Hsia (USA) TC2-11, TC2-14, TC2-19, TC2-25, TC2-26, TC2-30, TC2-32, TC2-33, TC2-35, TC2-36, R2-06, R2-08, 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) The minutes of CIE Division 2 meeting held at Sopron 1992 have been circulated along with two reports from R2-10 (non-selective detectors; RP: Nettleton) and from R2-12 (retroreflection; RP: Rennilson). Comments on R2-10 should be sent to the secretary by **20 March 1993**. A new 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
UNITED STATES OF AMERICA Fax: 619-560-5107

c) Please note the new fax number for the division secretary above; the address is otherwise unchanged.

II COMMITTEE MEETINGS SCHEDULE

The Division 2 meeting is scheduled for May in conjunction with CORM93. Broadcast of this to interested parties in your country is appreciated.

Notice of a meeting (concurrent with the divisional meeting) of TC2-25: *Calibration Methods and Photoluminescent Standards for Total Radiance Factor Measurements*, has been received from the CM, Dr Zwinkels.

All TC CM intending to hold meetings concurrently with the Division meeting are requested to advise the secretary by **20 March 1993** so that times and venues may be allocated.

III COMMITTEE WORK IN PROGRESS

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

Technical Committees

2-01 Measurement of High-Pressure Mercury Vapor Lamps
CM: Poppe (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 report is in preparation 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 end 1992/early 1993 and will eventually be published as a CIE Report.

2-05 Definitions of Distribution Temperature
CM: Robertson (Canada) DE: Moore (UK)
ML: Azaryonok (USSR), Geutler (FRG), Hengstberger (SA), Moore (UK), Saunders (USA), Watarai (Japan)
TR: Formulate precise, technically useful definitions of distribution temperature, ratio temperature, and related quantities, in anticipation of a later intercomparison of measurements.
ST: The report is presently with the DE. The DD to discuss with BA the final form of this report.

2-10 Photometry and Goniophotometry of Luminaires
CM: Vandermeersch (Belgium) AD: Vandermeersch (Belgium)
ML: Arai (Japan), Almassy (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: The draft report is with the editor and almost ready for TC ballots. Expected publication date is end 1992/early 1993. This report is required urgently by a number of standardising agencies.

2-11 Gonioreflectometry of Standard Materials
CM: Hsia (USA) AD: Hsia (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: The proposed method for preparing pressed PTFE powder is being tested. Two prepared samples each from ten laboratories have been received. 45/o reflectance factors of these twenty samples are being measured at 380, 450, 600, 700, and 770 nm. The first draft is delayed and will be sent to TC members after the completion of the measurement and data analysis.

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: Hsia (USA)
ML: Bianchini (Italy), Bostick (USA), Gundlach (FRG), Hisdal (Norway), Hsia (USA), Mashkovskaya (USSR), Morren (Belgium), Polato (Italy), Terstiege (FRG), Vaillant (France)
TR: Define the standard geometric conditions for the measurement of transmittance and reflectance (CIE Standard)
ST: Dr Polato has accepted to chair this TC with Dr Bianchini as TC member.

2-16 Characterization of the Performance of Tristimulus Colorimeters
CM: Rastello (Italy) AD: Goodman (UK)
ML: Billmeyer (USA), Cogno, Fillinger (Hungary), Geutler (FRG), Hengstberger (SA), Krochmann (FRG), Matveer, McLaren, Moore (UK), Nielsen (Denmark), Robertson (Canada), Sueiyama (Japan, Walker
TR: Complete the technical report on tristimulus colorimeters started by TC 2.2.
ST: A request is to go to instrument manufacturers to invite them to join in the work of this TC.

2-17 Recommendation for Integrated Irradiance and Spectral Distribution of Simulated Solar Radiation
CM: Kockot (Germany) AD: Goodman (UK)
ML: Aydinli (FRG), Ingatyev (USSR), Justus (USA), Kaase (FRG), Kasten (FRG), Kockot (FRG), Moore (UK), Richmond (USA), Zerlaut (USA)
TR: Revise and update CIE Publication #20 (1972)
ST: A first draft of Part II on solar simulators is with members for comment. A new CM (Dr Kockot) appointed following Dr Kok's retirement.

2-19 Measurement of the Spectral Coefficient of Retroreflection
CM: Johnson (USA) AD: Hsia (USA)
ML: Brekke (Norway), Fisher (USA), Hsia (USA), Hubert (France), Kurioka (Japan), Price (UK), Rendu (France), Rennilson (USA), Richey (FRG), Schreiber (FRG), Sugiyama (Japan), Terstiege (FRG), Vandermeersch (Belgium)
TR: Identify the critical measurement parameters, tolerances, and requirements for, and conduct an international intercomparison of, the spectral coefficient of retroreflection.
ST: Intercomparison carried out. The data analysis is to be completed soon.

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: The eighth draft was approved by TC members and has been sent to Division 2 members and council for approval for publication as a CIE report.

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 Luminaries

CM: Vandermeersch (Belgium) AD: Vandermeersch (Belgium)

ML: Almasi (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 luminaries.

ST: Work will start when the report of TC2-10 is done. A first report is to be prepared for May 1993.

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

CM: Moore (UK) AD: Goodman (UK)

ML: Budde (Canada), Burghout (Netherland), Corrons (Spain), Dezsi (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 new CM has been selected for this TC; he is J R Moore (UK).

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

CM: Zwinkels (CA) AD: Hsia (USA)

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

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

ST: A new CM has been appointed (J Zwinkels — Canada). A meeting is to be called in May 1993.

2-26 Measurement of Color of Self-Luminous Displays

CM: Berns (USA) AD: Hsia (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: After a discussion of the proposed outline of the guide during a workshop session at the Melbourne conference, it was decided to add a chapter on the proper electronic setup of displays. Otherwise the outline was adopted and a first draft will be prepared on this basis.

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 was held at Princeton to discuss the revised draft.

2-29 Measurement of Detector Linearity
CM: Goodman (UK) AD: Goodman (UK)
ML: Bastie (France), Budde (Canada), Dezsi (Hungary), Mihailov (USSR), Mostl (FRG), Ohno (Japan), Parr (USA), Bittar (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 second draft is expected to be circulated to TC members. New members were coopted to this TC at the Sopron divisional meeting.

2-30 Diode-Array Radiometry
CM: Wychorski (USA) AD: Hsia (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: A new draft to be prepared for end 1992/early 1993 with bibliography of articles in the fields of Radiometry and Spectrometry.

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), Pastiels (Belgium), Bittar (NZ), Wilkinson (Australia), Reiter (Austria), Sarytchev (USSR), Steck (FRG), Vaillant (France).
TR: Prepare a CIE Standard on characterizing the performance of actinic radiometers.
ST: New CM is M Poppe (Hungary). A meeting was held in Sopron to discuss a new work programme and the eventual report format.

2-32 Measuring Wet Retroreflectance of Horizontal Road Markings
CM: Dejaiffe (USA) AD: Hsia (USA)
ML: Johnson (USA), Lundquist (Sweden), Meseberg (FRG), Rennilson (USA), Schmidt-Claussen (FRG), Schreuder (Netherland), Serres (France)
TR: Prepare a guide for the methods of measuring coefficient of retroreflected luminance (specific luminance) of horizontal road markings under wet weather conditions.
ST: TC Chairman is prepared to write the first draft. An outline of the work was presented at the Division 2 meeting, Sopron 1992.

2-33 Re-formulation of CIE Standard Illuminants A and D_{65}
CM: Mielenz (USA) AD: Hsia (USA)
ML: Hsia (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 is to be circulated to TC members.

2-34 LED Measurements
CM: Muray (USA) AD: Goodman (UK)
ML:
TR: Investigate and recommend standard LED measurement methods including parameters to be measured.
ST: An outline and questionaire has been circulated to prospective committee members for comment. A TC meeting was held at Sopron in June 1992. Collaboration from LED manufacturers is being sought.

2-35 V(λ) and V'(λ) CIE Standards
CM: Mielenz (USA) AD: Hsia (USA)
ML: Robertson (Canada)
TR: Prepare a new CIE Standard on the present V(λ) and V'(λ) functions.
ST: The plan is to complete the draft by 1993 Division 2 meeting.

2-36 Revision of CIE Publication #54: Retroreflection
CM: Rennilson (USA) AD: Hsia (USA)
ML:
TR: To revise and update CIE Publication #54 and prepare an ISO/CIE joint standard on *Retroreflection, Definition and Measurement.*
ST: A new list of contents for consideration by members of the TC has been submitted by the CM. A timetable has been tentatively drawn up; the expected completion date is 1995.

Reporters

R2-03 IR Reflectance
RP: Sheffer (Israel) AD: Hsia (USA)
ST: This was closed at Division 2 meeting, Sopron 1992.

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 was appointed as the Reporter.

R2-06 Standardization of Measuring Geometry for the Colorimetry of Metallic Coatings
RP: McCamy (USA) AD: Hsia (USA)
TR: Advise and inform Divison 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: Hsia (USA)
ML: Wychorski (USA), Parr (USA)
TR: Investigate detector-based methods of Photometry for providing improved traceability for industrial measurements. A report is to be produced by end 1993.

R2-09 Absolute Cryogenic Radiometers
RP: Parr (USA) AD: Hsia (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.

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.

R2-12 Revision of publication #54 (Retroreflection)
RP: Rennilson (USA) AD: Hsia (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.

IV COUNTRY REPORTS

No country reports have been received.

V DIVISION 2 ROSTER

Current rosters of CIE Division 2 Officers, Country Members, TC Chairmen, and Reporters are being updated. A listing as of 1992-12-01 is included for checking purposes. Changes from the present listing should be with the secretary before **20 March 1993**.

VI NEXT DIVISION MEETING

The next division meeting is scheduled for 17 May 1993, Gaithersburg, Maryland, in conjunction with CORM93.

APPENDIX J

Canadian National Committee of the CIE

38th Annual Meeting
Galbraith Building - University of Toronto
Division 3 Member's Report

Division 3 Member:
Mr. Ivaldo Pasini, P.Eng.
A&E Services
Government Services Canada
Tupper Building, Room C-561
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Ottawa, Ontario
K1A 0M2 Tel: (613) 736-2255, FAX (613) 736-3178

For the second 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 they appeared at the last meeting in Edinburgh on April 1 and 2, 1993 on the occasion of Lux Europa.
The annual meeting was held in conjunction with the quadrennial session of the CIE in Melbourne, Australia, during the period of July 9-12, 1991.

1. There is a vacancy for the position of Division Secretary. Interested parties are welcome to apply.

2. Professor Peter Tregenza has replaced Derrick Kendrick as Associate Director: daylighting.

3. A single divisional editor to replace Kit Cuttle was not found. The Central Bureau will help in finding an editor for each new technical document, as needed.

4. <u>Reporters:</u>

   N. Ruck: A meeting will be arranged with Vienna to decide what to do with the publication "Daylight Guide for Interior of Buildings".

   K. Poulton: He has completed the first draft of "Overview of quality aspects of Lighting".

   Gerry Irvine: Reported that NIOSH data shows that 5%of all industrial accident in USA are attributed to poor lighting and 25% has lighting as a contributing factor.

J. Aizenberg: Requires more information from Shachparunianz before recommending the creation of a TC on Daylight Guides.

Ackerman: A theatrical lighting seminar and a technical pamphlet have been completed.

M. Smith: Computer calculations procedures for lighting metrics and visualization.

W. Schnider: Conventions and methods for computer programs for lighting.

5. Liaison:

CEN/TC 169: Several lighting standards are in process of being coordinated with CIE for use in the European Common Market.

CIB/CIE: No work currently being organized as Kendrick has resigned.

IALD/CIE: J. Murdoch did not provide any report.

ISO/CIE: Hentschel has provided information to prepare a guide on Lighting E. Ergonomics. He has retired, however, and the work will continue with C. Bernecker.

6. 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
A new publication has been approved by the TC and submitted to Vienna. It is expected that the UGF (Unified Glare Formula) will be adopted by CIE. The IESNA is committed to investigate the possibility of integrating the VCP formula with UGF.

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 3-05 "Industrial Lighting and Safety at Work"
Mr. I. Pasini, advisory.
Report balloted and approved; TC disbanded

TC 3-07 "International Collaboration on Daylighting Availability

Measurements". Dr. A. Mc Arthur.
Guide on measurements techniques is almost ready for balloting; once completed TC-25 will continue work in this area. Canada is a participant in the International Daylight Measurement Program which is sponsored by this TC. The station is located at the University of Calgary, Alberta and is operated by Dr. J. Love with support from Dr. A Mc Arthur. Financial support is provided by PERD (Panel on Energy Research and Development). The station begun collecting data on August 9, 1993. More detailed information is attached to this report.

TC 3-09 "Average Sky as a Standard". This document has been recently balloted and is expected to be approved. In this case this TC will be disbanded.

TC 3-10 "Maintenance of Lighting Systems"
I. Pasini
TC report published, TC disbanded

TC 3-11 "Daylighting Calculation Methods"
Work 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"
Work is continuing but limited to daylighting and solar radiation data for buildings.

TC 3-13 "CIE Discomfort Glare Evaluation System"
The work of this TC is almost completed. It is expected it will be ready for balloting next spring. The minutes of the Edinburgh's meeting ara attached for the reader's convenience.

TC 3-14 "Three- dimensional Forms of Illuminance"
Chairperson resigned and a new one is being sought.

TC 3-15 "Standard and Intermediate Skies Luminance"
Raw data being collected in Japan and Europe to verify a new model.

TC 3-16 "Psychological Aspects of Lighting Review"
Dr. D. Tiller
Draft was circulated and final version will soon be ready for balloting.

TC 3-18 "Rational Use of Solar Radiance for Energy Efficient Daylighting"
Committee's work has been almost non-existent. Director of Division 3 asked chair for a quick resolution of this impasse or fold the TC.

TC 3-19 "Sky Simulation for Daylighting for Atria"
New TC, no progress report yet available.

TC 3-20 "Daylighting and Architecture"
Report is in progress and will be ready for discussion next spring.

TC 3-21 "CIE 29/2 Interior Lighting"
I. Pasini
Work is awaiting for final resolution of CIE UGF and Lighting Maintenance documents before it could proceed, as it is closely relates to them. ISO will endorse this work as an international standard.

TC 3-22"Museum Lighting"
New committee, work started last fall., no report yet.

TC 3-23 "Variability of Interior Luminous Environments
Little work done by this committee.
TC 3-24 "Energy Aspects of Lighting"
New committee, work in progress, no progress report available at this time.

TC 3-25 "Interior Daylighting Measurements proposal and data collection"
Chair resigned, little work done.

TC 3-26 "Development of Post Occupancy Questionnaires"
Dale Tiller
The committee's chair has gathered numerous examples of post-occupancy evaluation questionnaires used to evaluate lighting, and several texts describing questionnaire methodology. These will be reviewed in the next eight months, and a preliminary draft document will be prepared for circulation to the committee.

TC 3-27 "Evaluation of Exit Markings"
New committee, no progress report to date.

TC 2-28 "Revisions of Calculation Procedures for Interior Lighting"
This will result in a CIE/ISO standard. Work has started but no progress report is available at this time.

7. Next Divisional Meeting
Division 3 is tentatively scheduled to meet in New York, on May 2 and 3, 1994.

The International Daylight Measurement Program

The Canadian Measurement Site

The Canadian component of the International Daylight Measurement Program consists of one station located at the University of Calgary, Calgary, Alberta (51.05N, 114.05W). It is operated by Dr. J. Love, Faculty of Environmental Design in conjunction with Dr. L. Nkemdirim, Department of Geography who provides on-site weather data. The station if financed by Environment Canada and the Panel on Energy Research and Development (PERD).

The station is classified as an upgraded Basic Class station with measurements of global and diffuse illuminance, global illuminance on 90° surfaces in the cardinal directions, global and diffuse irradiance, irradiance on 90° surfaces in the cardinal directions plus direct normal incidence irradiance. Plans are underway for the measurement of direct illuminance and zenith luminance. Those measurements on the vertical are shielded from extraneous reflectance by a blackened artificial horizon. The illuminometers used are manufactured by Hagnar and are temperature stabilized at 40C and ventilated. Measurements of irradiance are made using ventilated Kipp and Zonen CM11 pyranometers with an extended temperature range to -40C. The direct beam irradiance is measured using and Eppley Normal Incidence Pyrheliometer. Suntracking is accomplished using a computer controlled COSMOS tracker manufactured by Sci-Tec Instruments. All illuminance/irradiance measurements are made on the top of the Environmental Design Building, the tallest structure on the University of Calgary campus. This provides a completely unobstructed horizon with the exception of the Rocky Mountains some 60 km distant (less than a 2° elevation above the horizontal). Data are collected every second and stored as one minute means along with minimum, maximum and standard deviation values as part of the data set.

A complete set of climate variables are obtained from the University of Calgary weather station approximately 500 m away from the building on which the radiation/illuminance measurements are collected. These measurements are being merged into the overall data set in the suggested IDMP format.

The station began operation on August 9, 1993. Daily maintenance on all instruments is performed on week-days. Quality control of the data will follow the methods devised by the Group for Applied Physics (GAP), University of Geneva as well as verifying individual signals for time/intensity structure. This latter software is still being developed by the Atmospheric Environment Service. Preliminary tests on selected subsets of the data indicate that the data is reasonable.

Minutes of the TC 3-13 Committee Meeting, held at Heriot Watt University in Edinburgh, April 1st, 1993, at 1.30pm.

Welcome :

The Chairman, Mr.K.Poulton, welcomed the delegates and thanked them for their efforts and attendance.

Attendance :

Mr.K.Poulton, Chairman (Australia), Mrs.S.Kenaya (Japan), Dr.H.Einhorn (South Africa), Mr.K.Sorenson (Denmark), Mr.I.Passini (Canada), Mr.C.Bernecker (USA),Mr.A.Slater (UK), Mr.L.Bedocs (UK), and Professor K. Gall (Germany).

Apologies :

Apologies were received from Mrs.P.Chauvel (France), Dr.D.Fischer (Germany), Mr.W.Blitzer (USA), Mr. H.A. Loftberg (Sweden), and Mr.E.H.Hansen (Norway).

Mr.C.Bernecker acted as proxy for Mr.B.Blitzer but Mr. I.Passini and Professor K.Gall were unable to vote as they were only observers.

Opening Remarks :

The Chairman emphasised the importance of this meeting and reminded the delegates that from it, a statement on the present state of Discomfort Glare knowledge must be made, along with offered methodology for **reasonable application.**

He outlined the international differences in understanding of the problems, and asked for honest and frank discussion, keeping in mind the needs of **all countries.**

Discussion suggested that although some further exploration and research was necessary, this meeting must finalise this report, and then " live " with the outcomes of it.

Results of Postal Ballot :

9 responses asking that the Report be forwarded on to Division 3 were received from the Postal Ballot.

Of these, 6 approved of the present form, but 3 requested editorial change.

6th Draft Final Report :

Much discussion regarding this matter evolved between the delegates, during which the following points emerged.

A) The UGR System

1) No delegate is completely " comfortable " with the Report and it was felt that comment in the Introduction should be made to this effect.

2) Although some difficulties have been encountered with the Luminance Limiting curves, they should be included in the Report as an Appendix. There is considered to be some conflict as the LL Method does not sit comfortably with the Tabular Method.

3) Japan has accepted the CIE interim glare evaluation since 1983, and much work has been done based on this method. Although additional change may be difficult to introduce, the UGR system **will** be adopted at a later date.

4) The CEN Interior Code Meeting in Venice was concerned at the lack of cohesion with the various methods, and considered that the UGR should be of primary importance, and the other methods of secondary importance.

5) Some problems regarding various types of luminaires were discussed, but the present glare evaluation system has tried to accommodate these difficulties. Although further refinement may come later, it was felt that with the present state of knowledge, this is the best system which can be arrived at to give a **reasonable** proposition.

B) Position Index

1) The Position Index formula needs to be included in the calculation systems, as pure mathematical calculation may be preferred for some countries. (There was some disagreement regarding this point.)

2) The newly proposed Position Index formula would be very useful for those people unable to use computer technology, and gives a good approximation. The older formula published in the CIE Publication 55 was based on older information, but it is now understood that the new formula agrees with the Table of Position Index Data. (Refer Figure A1.2)

It was agreed that this formula should be included, so providing a choice of methods for the users.

Three major decisions were finally reached after these discussions.

1) A note must be included in the Foreword to the effect that, " upon current knowledge, this is the best system for the limitation of Discomfort Glare which can be arrived at. "

2) The Basic Formula is the primary method, but the following approximate approaches - The Tabular Method and the Graphical Method - may be used for some computational purposes.

3) Certain " grey areas " need to be reported to Division 3 for further investigation.

Editorial Changes to the Draft :

Following a short coffee break, possible changes to this Draft 6, November 1992 Technical Report were addressed.

Mr.Slater reported that the Board would vote primarily on broad policy issues since it is believed that technical issues are solved at Committee levels.

Much discussion ensued regarding possible changes to the format of the report, and historical difficulties which have been responsible for some misunderstanding and unhappiness were noted.

Two options were eventually outlined :

1) For the report to go forward with no changes to be made.

2) For the report to be divided into two parts, with the basic formula, and two appendices including the Tabular and Luminance Limiting systems.

Despite warnings from Mr. Sorenson regarding the difficulties in editing the report, the folowing motion was put by Mr. Slater and seconded by Mr. Bedocs.

Motion - " That the present document be split, with the UGR formula being presented as the basic Report, and from page 7 onwards to become Appendices.

Following further discussion between the delegates, a vote was taken which resulted in the following :

1 Abstention
1 Against
and 5 For the proposal.

It was further agreed, that a special Motion of sincere appreciation to Mr. Kai Sorenson for his very intensive work on the Report, be recorded in these Minutes.

Future of TC3 - 13 :

1) This Report must be finalised as a matter of urgency, and the responsibility for editing lies with the Chairman.

2) The work of this Committee is now complete, but there was a good deal of discussion regarding ongoing possible interest of Committee members.

3) The Position Index Formula needs to be further investigated, so as to contain inclusion of Tables for computer programs. (The matter of Table inclusion was not generally agreed.)

4) The possibility of including VCP in future work was discussed.

5) The problem of the calculation of Luminance also needs to be addressed.

Further Business :

1) Ballot results are with this Committee which now agrees on all technical aspects. Further changes must be **purely editorial.**

2) Dr. Einhorn asked for expressions of interest from individuals in ongoing Committee work, but all delegates felt that they could not commit themselves. Further work will become a CIE responsibility.

3) The possibility of Dr. Einhorn acting as a Reporter, and/or extending the calculation of source luminance work into his TC3.01 Committee's responsibility was discussed, and it was agreed that the Chairman should raise the matter at the Division 3 Meeting.

4) The Chairman suggested that no further work should be done on Glare Methodology until Division 1 has thoroughly investigated the Fundamentals of Discomfort Glare. Further work is underway however in Ilmenau and Berlin, Germany, and these results may effect the glare limits chosen by application comittees such as TC3.21.

5) In closing the Meeting, the Chairman thanked all delegates for the work which has been done over many yers. He registered his very real personal appreciation of, and sincere thanks to Mr. Kai Sorenson for his excellent work on behalf of of the Committee, especially over the pst months since the Chairman's illness. This Vote of Thanks was carried with acclamation from the delegates.

Since there was no further business, the Meeting was closed at 6.20pm.

APPENDIX K

Annual Activity Report for
Division 4:
Lighting and Signalling for Transportation:

Brian W. Tansley,
Departments of Psychology
and
Systems and Computer Engineering
Carleton University, Ottawa, Ontario, K1S 5B6
613-788-2600 ext. 2707

Summary:

Division 4 activity this year consisted ongoing TC work, mainly by correspondence. A review of Division 4 publications was undertaken to determine which need revision. For a significant number of Division 4 derived publications, the issue of revision is intimately linked to the acceptance of a new Visibility Model. This issue is under active discussion at the moment and was one of the topics covered at the Road Lighting and Visibility Symposium held in Orlando in conjunction with the Div. 4 annual meeting this year. I was unable to attend this meeting. However, Dr. Werner Adrian did so and he has agreed to provide a brief report of the meeting and symposium.

General activity in the areas of road lighting, visual conspicuity, variable message signs and revision to the CIE Signal Colour Report were among the active topics of the Division. A number of other topics, such as light trespass, the use of polarized headlamps for motor vehicles and methods of evaluation of new signalling technology were also studied by various technical committees and reporters.

In addition, ICAO has asked for cooperation in studying the properties and uses of dichroic filters in surface mounted ground signalling systems (in particular for taxiway and apron signage).

A review is underway of Colour Vision Standards for Transport. This is a new committee which will consider the issue from a fresh perspective, given the events of the past decade or so in many countries regarding various cases in which colour vision standards were subject to legal challenges. In Canada there is an active group devoted to the consideration of improving colour signalling for drivers who may be colour deficient.

A proposal was introduced for defining terms and basis for specifying lighting levels for lighting design as part of the ongoing effort to upgrade the vocabulary document.

REVIEW OF DIVISION 4 PUBLICATIONS

I have gone through all the published documents and have divided them into two sections -

a. Road Lighting
b. Signalling

Apart from 12.2 which Ron Simons is handling, I am afraid that there is a lot of work that needs to be done. Much of the revision work will however need to be delayed until we can decide on the acceptability of the Visibility Model. Perhaps the Symposium arranged in Orlando will help.

a. ROAD LIGHTING

No 23 International Recommendations for Motorway Lighting, Published in 1973. This document could well do with revision/up dating. It is a useful document which goes into many of the rather special aspects of motorway lighting which can be of value to anyone involved with this type of design. I do however feel that these aspects should have been covered in more detail and some aspects certainly need to be expanded. As, in my copy, no details are given of who were on this committee, I must assume that the original was drawn up in French or German as the English version certainly needs a lot of editing. As with other documents, changes will have to be made to line up with the revised 12.2 document. We could however, get someone to start on the less contentious issues.

No. 30.2 Calculation and Measurement of Luminance and Illuminance in Road Lighting. Published in 1982. The calculation aspects of this document are probably being replaced by the new TC 4-07 Design Methods document. The same applies to the measurement aspects which are, no doubt, being covered by Rossi's TC 4-26. Perhaps this document should be referred to both the above for comment. It could also involved Merle Keck's TC 4-16 document! Merle has sent me his comments on this document, a copy of which is enclosed for your information.

No 31 Glare and Uniformity in Road Lighting Installations. Published in 1977. As it is proposed in the revised 12.2 document to drop the discomfort glare, G mark, this document will also have to be revised. Again this should wait until this item has been resolved.

No 32 Lighting in situations requiring special treatment. Published in 1977. This document could also do with revision and an English version printed with all the illustrations. Duplication with the revised 12.2 must also be avoided. I could perhaps assist here.

No 33 Depreciation of installations and their maintenance. Published in 1977. This is basically a good and useful document which needs revision

and updating. As it was one of the fields in which I was actively involved I would be prepared to offer my services. Please let me know if you want me to start or should this wait for Florida? I would need assistance from other members, what about Nigel Pollard? (? Division 5 may be working on this).

No 34 Road lighting lantern and installation data. Published in 1977. According to the "preliminary Remark" at the beginning of the document, this was not an officially agreed CIE recommendation so should be looked at again. One item in the document of concern is the C- system of co-ordinates. When a luminaire is photometered the 0 value is immediately below the luminaire but in the I-table it is at the top. Perhaps this could be looked into, but presumably this would have to be done in conjunction with Division 2. This would mean a possible revision of their document No. 27 of 1973. I note in the Div 2 report that Vandermeersch of Belgium is, under TC 2-10, preparing a report on the "Measurement of the photometric characteristics of luminaries and their measurement". This document is almost ready for TC ballots. When completed he will start to prepare a technical report on the photometry of street lighting luminaries. We need to make an input to this TC.

No 47 Road lighting for wet conditions. Published in 1979. I am afraid that this is not a subject that I have much experience in so I am not really qualified to comment. However, if the G-mark is to be removed from 12.2, this would also have to be removed from table 7.

No 66 Road surface and lighting. Published in 1984. According to my notes made at Prague, Anne-Marie Serres is to look into this matter in view of the great number of new surfaces being introduced. Perhaps this is the time then to revise this document.

b. SIGNALLING

No 39-2 Recommendations for surface colours for visual signalling. Published in 1983. I am not sure about this document and its international acceptance. Perhaps members of the original committee could comment.

No 48 Light signals for road traffic control. Published in 1980. Barry Cole seems to have been the chairman of the committee which compiled both this document and 39-2. Perhaps he could comment on whether or not the two documents need revision/updating.

That, I think, covers all Div 4 documents of 10 years and older. Newer publications could be left on the shelf for a bit longer unless some other members would like to comment.

One more matter that I said I would look into is the history of High Level Affairs. I am afraid I cannot give much detail but perhaps the following may help.

Report on CIE Div. 4 Activities and the LRI Symposium, 1993 Orlando

The CIE Div. 4 meeting took place on October 28 to November 1, 1993 in Orlando, Florida. It was preceded by a Symposium on "Visibility and Luminance in Roadway Lighting" sponsored by the LRI, New York. The scientific program and the organization of this event was done in Canada. In all modesty, it can be called a success. The topic of the symposium followed from the need to clarify controversial views on the applicability of the newly proposed quality criteria VL or STV for Roadway Lighting.

Status: The problems arising around the calculation of the correct target luminance that is fundamental to STV are resolved. It was also shown by computer visualization and actual road experiments that VL is indeed usable as criteria for visibility. VL=6 seems to be necessary to provide such. Certain light distribution and a degree of non-uniformity seem to enhance VL. This had an impact on the CIE 4-15 paper: "Roadlighting for Motorized Traffic" that is chaired by R. Simons, UK.

After disenchanting and mostly politically motivated discussions, the visibility concept for Roadway Lighting was introduced into the CIE document as an equal alternative to the traditional luminance method.

TC 4-25 + 27	Road Surface and Road Markings Reflection Characteristic. The chairman, K. Sorensen, Denmark, continued the work started at the Prague and Edinburgh meetings and presented a design of an instrument that measures q_D (diffuse) to replace q_o that is difficult to obtain. He also gave two papers in the symposium on that topic, and as it stands now we may use in future q_D instead of q_o.
TC 4-19	Road Visibility in fog met only in Edinburgh and the draft following from the meeting was distributed in Orlando. It is a mathematically very demanding report. The chairman J.S. Debuisson, France, used our ΔL model as a basis for the calculation of visibility distances in fog.
TC 4-20	Nighttime Visibility of Retro-reflective Signs, chaired by H. Woltman, 3M, Minnesota, has produced a final report that incorporates also our input regarding Visual Resolution, Contrast, and Luminance as well as the influence of age.
TC 4-21	Public Lighting: Interference with Astronomical Observations. It's an on going and uphill battle against light pollution lead by D. Crawford, USA, with no solution in sight.
TC 4-24	W. Riemenschneider , Switzerland, tries to mobilize the fragments of the former Tunnel Committee that has finished their work. The terms of reference are rather nebulous.

I had no chance to attend:

TC 4-17	Visual Aspects of Variable Message Signs chaired by Mme. Serres, France, speaking in a captivating franco-angloise modification of English. The completion of a draft is imminent.

TC 4-17	Jenkins, Australia, started to work on the difficult topic of conspicuity of objects in complex backgrounds.
TC4-29	This is a small group working on a ISO Standard for Road Traffic Lights that is based on CIE - Publications 79. No further information could be obtained.

New Committees

2 new committees had been established. One glare evaluation in Roadway Lighting. In TC 4-15 it was felt, that the problem of glare evaluation is not properly described. For disability glare as well as the missing discomfort glare, no methods are handy, according to the opinion of the members. However, there are such, which I pointed out. As a punishment, I was appointed chairman to this glare committee.

A second committee has to deal with visibility and the methods for evaluation. D. Stark, the appointed chairman, asked for my cooperation.

This brought the Division Meeting to a close with the audible overtones of concern for the future of Div. 4 voiced by the Director, R. Holmes. This concern was based on the CEN-Activities that seem to render those of Div. 4 redundant.

W. Adrian

Nov. 11 93

CIE DIVISION 4 - LIGHTING AND SIGNALLING FOR TRANSPORT

DIVISION DIRECTORS REPORT - ORLANDO, USA, 1 November 1993

1. GENERAL

The Division last met in Prague, Czecholslovakia on 7 and 8 September 1992. 12 TC's met and good progress was achieved and the social events were very successful.

Since the Prague meeting we have published the report on *Fundamentals of the Visual Task for Night Driving.* Attached at Annex A is a list of all Division 4 publications since the CIE reorganisation. This shows that since 1983 we have published an average of one report per year and we have a further six through, or in, the voting stage and near to publication.

However I sense a difficult time ahead. CEN, increasingly, is drawing resources away from CIE and the general economic outlook continues to be uncertain. There is also a shortage of young participants in Division 4 work. It is vital therefore we plan carefully now for the next quadrennium, to ensure Division 4 does not falter.

2. TECHNICAL COMMITTEES FORMED BEFORE THE START OF THE 1987 QUADRENNIUM

TC 4-10 Automobile lighting systems

This TC remains until

Front Fog Lamps
Definition of Cut-Off

reports are published.

TC 4-13 Daytime running lights

The report has now been voted upon and will be published soon. The TC will then produce an ISO standard based on the report.

3. TECHNICAL COMMITTEES FORMED AT VENICE SESSION MEETING IN 1987

TC 4-14 Colours of light signals

The TC report and ISO standard are now nearly ready for voting in both the Council and Division and will then be published.

TC 4-15 Lighting of roads for motorised traffic

This is proving to be a controversial topic.

Voting has been completed in the TC now on the 11th draft of the technical report, (8 in favour and 2 against).

The TC and the Division must now decide in Orlando how to proceed. This technical committee has also to produce an ISO standard and revise Publications 30.2, 31, and 32.

TC 4-16 The transfer of photometric data for road lighting

Voting is now complete in TC, Division and Council and the report will be published shortly. Work can now commence on the ISO Standard.

TC 4-17 Visual aspects of variable message signs

The 6th draft technical report has now been produced. It is hoped to agree it in Orlando and to publish in 1994.

TC 4-18 Conspicuity of objects in complex backgrounds

This TC is meeting in Orlando and a first draft report is being prepared.

4. TECHNICAL COMMITTEES FORMED DURING 1988-91

TC 4-19 Road visibility in fog

This TC met in Edinburgh on 2 April 1993. The contents sheet for the report is at Annex B. Good progress is being made on this important topic for road safety.

TC 4-20 Maintaining night-time visibility of retroflective road signs

It is hoped to finalise the technical report in Orlando and that the report will be voted upon and published by early 1994.

TC 4-21 Interference of public lighting with astronomical observations

This TC met at Edinburgh Observatory on 3 April 1993 and was followed by a very successful symposium on 'sky glow'. The TC will meet in Orlando.

TC 4-22 High-intensity discharge (HID) headlights

A draft technical report has not yet been received from TC 4-22 but GTB but GTB has already proposed an ECE Regulation to WP 29.

TC 4-24 Calculation and measurement of tunnel lighting quality criteria

This TC is meeting in Orlando and a first draft report is being prepared.

TC 4-25 Road surface reflection characteristics

This TC is meeting in Orlando and a first draft report is being prepared.

4. TECHNICAL COMMITTEES PROPOSED IN MELBOURNE

TC 4-26 Systems for measurement of photometric quantities on road lighting installations

This TC is meeting in Orlando and a first draft report is being prepared.

TC 4-27 In-service visibility requirements for road markings

A work plan, contents list and bibliography has been prepared and a meeting is to be held in Orlando.

TC 4-29 ISO Standard - Road Traffic Lights

A draft standard has been produced by G Fisher, Dr Schreuder, R Schwab and Prof Cole based on Publication 79.

TC 4-31 Colour Vision Standards

The terms of reference and TC members have been agreed by Council and are attached at Annex C.

5. ENERGY AND THE ENVIRONMENT

This item is for discussion in the Division meeting. Mr P Bleasby of Osram, USA is reporting on this topic to the Council. For the present I am the Division 4 contact but I would welcome a volunteer to take over this liaison with Mr Bleasby.

So far I have indicated to him that there are 3 issues

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 this year Symposium in Orlando highlights that the basic design criteria has a direct bearing on the amount of light required for adequate visibility and hence energy consumption.

6. 'PUPIL LUMENS' ISSUE

I attach a paper on this topic by Dr Berman. The Council felt that CIE should react to this issue and a symposium on 'Advances in Photometry' has been arranged for 1-3 Dec 1994 in Vienna.

7. TOLERANCES IN LIGHTING DESIGN

Division 5 have proposed a TC on this topic (Annex E). We need to consider therefore whether Dr Blaser be asked to become our representative on the new Division 5 TC rather than continue as a Reporter.

8. LIGHTING RESEARCH OVERVIEW

Please note Annex F and the request to submit abstracts of current and emerging research.

9. REPORTERS

I have been making enquiries and the Reporters for

- Special Applications of Traffic Signals
- Rear Fog Lamps
- Requirements for vehicle front lights in lit streets

all feel that there is little new to report and little prospect of new material. My proposal to the Division therefore is that these are dropped.

This leaves us with six topics

- Use of Ultraviolet Radiation to Improve Visibility in Transport
- Use of Flashing Lights in Road Transport
- Road Lighting and Accidents
- Solid State Signalling
- Conspicuity and Visibility in Road Works with Temporary Guidance Devices
- The Feasibility of Using Polarized Lighting Systems with HID Headlights.

10. NEW DIVISION MEMBERS

There are some new CIE member countries and some new Division 4 members. These are at Annex G. Please note both the new Members who are marked with an * and also the gaps. If anyone has any corrections to the list please let me know as soon as possible.

R W HOLMES
Director Division 4

APPENDIX L

CNC/CIE 38TH ANNUAL MEETING
November 12, 1993 - 9:30AM TO 5:00PM
U.OF T. GALBRAITH BUILDING

DIVISION 5 ACTIVITY REPORT

Date: October 26, 1993

From: Jacques Roberge, Eng., Canadian Member, Div.5, CIE
C/O INFRANOR CANADA INC.
5650, Trudeau
St-Hyacinthe, QC.
J2S 1H4
Phone: (514) 773-5503
Fax: : (514) 773-0936

TO: Members and Associate Members, CNC/CIE

The "winter 1993" Division 5 activity report from Division Director W.J.M. Van Bommel was received in the latter part of March 1993, just before my departure to attend the mid-Quadranium CIE session held from March 29 to April 3 in Edinburgh. I did not circulate the report at the time since the bulk of it, dealing with the progress of the technical committees was scheduled to be updated at the Division 5 meeting to be held a few days later on April 2. Only the general part of that report is attached as appendix 1, since an updated progress report on committee work is part of the minutes of the April 2nd Division 5 meeting, attached as appendix 2. (Copies of the full activity report and of the appendixes to the April 2 Division meeting minutes will be available in Toronto for people interested).

Twenty-two people from 15 countries attended the Division 5 meeting, thirteen of those beeing Div. 5 members.

Comments:

- Item 3-c: It appears that the Board may buy the idea that, since Central Bureau can generate a net profit of 20% of their net selling price for publication, production of any CIE publication in any country should be authorized provided a royalty of 20% of C.B's net selling price is paid to the CIE. This policy would probably create more revenue for the CIE since more publications will most likely be sold if they can either be translated by various countries or the English version produced locally, especially in countries not enjoying favorable exchange rates.

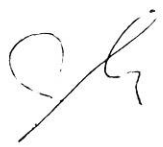
- TC 5-13 - Outdoor Working Areas: A meeting did take place as planned on April 1, 1993, chaired by Mr. Horvath and attended by 8 other members including myself, out of a total membership of 15 people.

The members from Finland and Norway made very significant contributions by presenting existing work already done in their respective countries.

I am to collect and provide equivalent data for North American practice, basically from the editor of the recent edition of the IES Handbook. Any existing National, Provincial or State standards is also of interest: please let me know if you are familiar with any.

- R 5-04: Tolerances in Lighting Design and Measurements. Mr. Michel Jacobs submitted a report, copy available at Nov. 12 meeting. I took significant part in the discussion, was proposed for chairman of TC to be formed to follow-up Mr. Jacobs'report after he declined to continue his Reporter's work by chairing the committee to be formed. I declined as well because of all the attention expected to be required over the next few years regarding the "changing of the guard" at Infranor.

In the future, I intend to circulate information of interest to members soon after it reaches me, rather than wait for our annual meeting to do so, as has traditionnally been the case.



A-1

ACTIVITY REPORT OF CIE DIVISION 5, WINTER 1993

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

With a plenary Division 5 Meeting coming up soon I asked myself whether it is wise to prepare an Activity Report just before or just after the Meeting. Because any how the Minutes of the Meeting will be send out quickly after the Meeting, I decided to have an Activity Report circulated to all Division members (and via the TC Chairmen to all TC members) to offer a good possibility to all to prepare seriously for our Division Meeting, April 2 in Edinburgh.

I am happy, with the Chairman of TC 5-06 Mr. Prieur, that after some delay because of translation and editing problems the "Guide for floodlighting and decorative lighting" has been published this month as CIE Publication No. 94.

The last draft Report of TC 5-04 "Glare evaluation system for outdoor sports- and area lighting" has been voted upon with a positive result by the TC and is now for final editing with the editor. This long-awaited report will most probably be published this year.

Two new TC Chairmen, Hans-Henrik Bjorset and Jozeph Horvath, succeeded in making quite some experts in their fields enthusiastic for participating in the CIE work.

Next to this good news I have to report also about new delays as you will see from the progress reports. We are all so occupied with our daily jobs that we have little time to spare for voluntary CIE work. Combined with lower travelling budgets this really becomes a problem for CIE and other professional Institutions. I hope that our Meeting in Scotland will show that notwithstanding these hurdles we have good possibilities to progress further. I am looking forward to our Division Meeting and the TC Meetings and to discuss with you about lighting and the lighting business.

Wout van Bommel
Eindhoven, February, 1993.

L-4

A-1

CIE DIVISION 5

MINUTES OF THE DIVISION MEETING
Held On
FRIDAY 2ND APRIL 1993
At
HERIOT-WATT UNIVERSITY, EDINBURGH

Chairman:			
Van Bommel, Wout	(Division Director)	(m)	Netherlands
Present:			
Askeland, Richard			Norway
Audestad, Jan-Hendrik		(m)	Norway
Bandyopadhyay, Pranab	(Chairman TC 5-03)	(m)	India
Beckford, Richard			USA
Bjorset, Hans-Hendrik	(Chairman TC 5-08)		Norway
Culley, Dennis	(Editor)	(m)	South Africa
Hargroves, Bob	(Secretary, Chairman TC 5-11)	(m)	Great Britain
Horvath, Josef	(Chairman TC 5-13)	(m)	Hungary
Jacobs, Michel	(Reporter)		Netherlands
Lecocq, Jacques		(m)	France
Lemons, Tom	(Chairman TC 5-09)	(m)	USA
Lofberg, Hans Allan	(VP Technical)		Sweden
Philippot, Paul		(m)	Belgium
Pollard, Nigel			Great Britain
Prieur, Jean	(Chairman TC 5-06)		France
Pylvanainen, Pertti			Finland
Roberge, Jacques		(m)	Canada
Shikakura, Tomoaki		(m)	Japan
Spearing, Peter			Great Britain
Weis, Bruno		(m)	Germany
Wittwer, Ernst		(m)	Switzerland

Note: (m): Division 5 member.

(The numbered items in these minutes correspond to the agenda items).

1 Opening of the Meeting

The Director welcomed the delegates and each delegate introduced themselves.

Apologies for absence have been received as follows:

Bermingham, A		Great Britain
Colvin, D R		Great Britain
Di Fraia, L		Italy
Fisher, A	(Ch: TC 5-12)	Australia
Hemp, R	(Ch: TC 5-01)	South Africa

Isomura, M	Japan
San Martin, R	Spain
Yoshida, H	Japan

The Japanese vote was delegated to Mr T Shikakura.

Changes in membership - None.

The Director announced that the date of the next CIE session is now to be in the first part of November 1995.

2 Minutes of last meeting: Melbourne.

Corrections: Mr T Lemons had proposed that the TC 5-09 report should be published in the CIE collection. This had not been minuted, but the Director explained that this was a decision for the Board.

Mr Pylvanainen pointed out that in paragraph 8 (last sentence) the message reported in Melbourne was subsequently found not to be correct.

3 Director's Report.

Mr van Bommel said that although there had been difficulties over the last two years concerning a reduction in activity owing to members' work pressures, there had been several areas of very good progress. An Activity Report had been issued in March 1993 and the Director summarised the items relating to each committee from that report. The highlights included the publication of CIE 94, the report of TC 5-06 on Decorative Lighting for Exteriors. (Other items regarding Committee progress given by the Director are not minuted here as they can be read in the Activity Report already circulated).

In a short discussion, Dr. Weis emphasised the importance of the liaison between TC 5-13 (CIE/ISO Standard for the Lighting of Exterior Working Areas) and the corresponding CEN Committees.

Mr van Bommel then reported on the CIE Board meetings:

a) One Activity Report and one set of minutes per Division are to be issued each year, but the two must be separated in time.

   Division Members must see that Activity Reports are circulated in each Country through National Committees. Technical Committee Chairmen also are responsible for issuing to their members.

b) The Board feel the CIE is not sufficiently recognised in having expertise on energy and environmental aspects of lighting. A Reporter in Division 7 (Mr P Bleasby USA) is to make a short report on this situation. Each Division is to appoint a representative to input to Mr Bleasby. Mr N Pollard was agreed for Division 5 and Mr Bleasby will be informed.

c) Translations of reports: the possibility of a French version of TC 5-06's report will be discussed between Mr Prieur and the Director. The French version would be sold with 20% royalty. Mr Roberge proposed this should be 20% of the English price. Also the availability of translations should be noted in the publications list. These points will be put to the Board by Mr van Bommel.

d) Copies of TC reports will be made available to TC members.

4 Secretary's Report.

Mr Hargroves said that since being appointed Secretary of the Division in 1991 he had not been able to devote all the time he would have liked to CIE matters owing to pressure of work and a relocation of job. However, lack of time for CIE work was now a common experience for most people and this was the main difference he had experienced between the past two years when compared with his previous term as Secretary from 1983-87. Mr Hargroves said it was more important than ever that CIE work, in the Technical Committees particularly, was delegated amongst all the members and not left to a few very willing people. In this way everyone has the satisfaction of contributing and the job can still be done to schedule.

5 Editor's Report.

Mr Culley said he follows the code of procedure in carrying out the Editor's job and he urged Chairmen to read this too.

There have been 2 reports under consideration since the last meeting:

TC 5-09 : edited, but a few small points to be cleared.
TC 5-04 : editing by end of May 1993.

Review of Publications: the following are currently valid:

42, 43, 45, 57, 58, 62, 67, 68, 83, 89: (Technical Collection - TC 5-02 report), 94, (37 has been removed).

Mr Hargroves read a letter from Mr J Holmes referring to the publicity and promotion of publications and the possibility of providing a decorative cover for publications such as 94. Mr T Lemons showed a book advertising CIE Publications produced by the NAIES. Mr H H Bjorset suggested a trial book version of publication 94 to be sold through book shops etc.

Several publications could be grouped according to subject and the greater volume of sales could cover colour printing costs. Mr Roberge proposed local printing with an identifying cover, using efficient modern methods.

Mr T Lemons and Mr Bandyopadhyay will make contact with local Universities and architects to establish the interest in such a publication.

These suggestions will be discussed with the VP Publications by Mr van Bommel.

6 Technical Committee Reports.

TC 5-01: Underground Mine Lighting (R Hemp).

The Director recalled the history of this committee. From TC 4-10 (pre 1983) it became TC 5-01. The Chairman was changed in 1988 and Mr Hemp took over. A meeting was held in 1990. Now Mr Hemp has had to resign: his letter was read out.

The Division wished him every success and a letter will be sent thanking him for his contribution to the committee. The Director stated that if the Division could not support

this TC, it must be disbanded. Mr B Weis will try to get someone from the European Mining Industry to take the job on: there is considerable interest in CEN in this and related topics.

T Lemons proposed that if a Chairman could not be found, the present draft should be edited for publication. The Director disagreed as discussion is needed on the current draft.

Mr Bjorset said that if a Chairman is not found, then the present draft could be published in the Technical Collection as a personal paper.

Mr B Weis said it would be a great pity if all this work were lost.

The following action was agreed unanimously: that immediate suggestions for a Chairman for TC 5-01 will be given to Mr van Bommel. Then, if a Chairman cannot be found, the Director will ask Messrs Hemp, Peretiakovich and Weis if they would finalise the report quickly. This assumes the Division does not accept the resignation of Mr Hemp regarding this task, but the Director would take over the administrative part of the Chairman's job (ballot etc). If this is not agreeable to the three people concerned, then Mr Weis will look for a new Chairman and failing that, he will compile a personal paper from the draft.

TC 5-03: Open Cast Mine lighting (P K Bandyopadhyay).

Comments on the draft report should be sent in by June 1993 (see Appendix 1).

TC 5-04: Glare in Outdoor Areas (A Stockmar).

The Division Director said the report was with the Editor who will complete in May and then a ballot can be held.

Date of 6th draft in December 1992.

Title of report: Glare Evaluation System for Sports and Area Lighting.

T Lemons queried the practice of quoting a CIE method appearing in a draft report only. If this is done, the situation must be stated and referred accordingly as a draft only.

It was pointed out that glare relates to users of the installation and not to people outside ie. it is not a measure of obtrusive light.

The title should bring out this distinction and it was proposed to alter the title to "Glare Evaluation System for use within Sports and Area Lighting". The Chairman of TC 5-04 will decide on whether to accept this alteration (A Stockmar).

TC 5-06: Guide to Decorative Floodlighting (J Prieur).

Mr Prieur was thanked for his work - with acclamation - and with good wishes for his retirement.

TC 5-08: Lighting and Signalling for Off-Shore Gas and Oil Rigs (H-H Bjorset).

India 1995 is the goal for completion of the technical report (see time schedule in Appendix 2). Committee members appointed are listed in Appendix 2 and were agreed by the Division unanimously. A member from USA or Canada is needed as the current person can only be a corresponding member. Suggestions to be forwarded to the Chairman. IESNA to be approached.

Visits have been made to Companies and information promised.

A meeting was held on 1st April 1993 and the contents list of the report is also shown in Appendix 2.

It was agreed that the title be changed to: "Lighting for Off-Shore Gas and Oil Structures", and the terms of reference changed to: "Review the existing situation and make recommendations and a reference list".

The Chairman is to advise the Director of Division 4 that "signalling" has been omitted, as signalling is the responsibility of Division 4.

A symposium on off-shore lighting was proposed which would be organised independently of Division 5.

TC 5-09: Illuminance Levels for Sports Events (Tom Lemons).

The report is attached as Appendix 3.

The question of the definition of maintained illuminance has been discussed by the Board and a statement issued (see Appendix 4).

Mr Roberge agreed with the Board's statement, but queried what is meant by 'new' installation. Metal halide lamps, for example, depreciate considerably in 100 hours. Comments on the definitions should be sent to TC 7-06 c/o the Central Bureau, Vienna.

The feedback on the TC 5-09 draft has been minimal. Of 11 members, 3 were favourable and 3 others queried illuminance definitions.

Mr Lemons is to confer with Mr J Lecocq regarding CEN work and reach agreement.

Mr Roberge pointed out that CIE should be in advance of CEN because CIE represents world opinion.

TC 5-10: Exterior Security Lighting (P C Joye).

There has been no progress on this committee. Few members could attend meetings, so they were cancelled. Mr T Lemons said Mr Arthur Birch of the US was willing to attend meetings.

The proposed work is very important, so the Director will ask Mr Joye to form a new committee. However, if Mr Joye declines, as he probably will, Division 5 members should suggest names of a new Chairman. Mr Roberge will approach Mr Peter Boyce.

TC 5-11: Practical Design Guidelines for Sports Lighting Installations (R A Hargroves).

The Chairman explained that owing to his own commitments over the past two years, progress had been limited to several new contributions from members to the report. It was only now that these and other comments had been incorporated into a 2nd draft. This was due to be discussed at the meeting arranged for the next day. One of the main items for discussion was a uniform format for the report bearing in mind that some sections were much longer than others. The layout of example installations needed formalising, too. Several members of the committee have retired, so new members will be sought. The aim is to complete the work by November 1995.

TC 5-12: Obtrusive Light (Dr. A Fisher).

In the absence of the Chairman, Mr Pollard presented the report. A meeting held in Melbourne, Australia in 1991 had decided to use headings for the draft report based on Australian work. A second meeting held in October 1992 in London had developed these headings. (See Appendix 5).

The aim is to complete the work by November 1995.

TC 5-13: CIE/ISO Standard for the Lighting of Outdoor Working Areas (J Horvath).

Dr. Horvath stated that he was not revising the whole of CIE 68, but is making a short version to give the essential values.

An up to date list of members (11 + 3 corresponding members) is given in Appendix 6.

The first meeting was held to establish a table of contents (see Appendix 6).

Recommendations of average illuminance are related to characteristics of areas in 9 categories. Also 11 specific types of area (eg. car parks....) will be linked to the categories. Work will be carried out by correspondence, with perhaps another meeting when the next Division meeting is held.

7 Reporters' Reports.

R 5-02: Maintenance of Outdoor Lighting Systems (N Pollard).

The Report is attached (Appendix 7) with the conclusion that there is enough up-to-date information to produce a technical report of the format of CIE 97.

The establishment of TC 5-14 with Chairman Mr N Pollard was decided unanimously.

The Director recommended asking Dr. A M Marsden and Mr L Bedocs to become members.

R 5-03: The Lighting for Sports Events for High Definition Television.

Mr D Ogle who had originally taken this job, has since retired before producing a report. The Secretary said that Mr Steve Cockaigne of the BBC (UK) would be willing to be a reporter.

Agreed unanimously.

Mr Shikakura will ask Mr Yoshida to approach someone from Japan to get in contact with Mr Cockaigne.

R 5-04: Tolerances in Lighting Design and Measurement (M Jacobs).

Mr Jacobs referred to a paper published in 1991 by Prof. W Julian entitled 'Playing The Numbers Game' in which the problem of tolerances in lighting design and measurement was discussed. This was followed by Mr Robin Aldworth who proposed concrete tolerance values in a letter to all CIE National Committees and members of the Board of Administration, with an invitation to comment.

This present report gives a survey of the main elements of these comments together with a recommendation for a follow-up. A copy of the full report can be obtained from the

Division Secretary, but the conclusions are reproduced in Appendix 8.

In general discussion, Mr Roberge explained how if a luminaire, say, has all its components on lowest tolerance, the overall effect can be only one third of specified output! There are so many factors involved.

Mr Lemons said several companies guarantee the output of their schemes and can manufacture to a close tolerance and meet minimum tolerance within $1/_{10}$%!

Mr Bandyopadhyay said that 98% of the time we are safe because tolerances "balance up".

Mr Jacobs recommended qualitative factors should be examined in future work.

The Director stated how important this topic is - it should not be ignored.

A Proposal to establish a new TC to indicate the "players", to describe tolerances and how to proceed was passed: 9-1 in favour with 1 abstention.

Mr Jacobs would not accept nomination for Chairman, so Mr van Bommel will seek a suitable Chairman: suggestions should be given to the Director.

8 Liaison Officers' Reports.

No liaison officer appointed.

9 Work Programme.

TC 5-06 dissolved.

New TC's: as already agreed.

Reporters: Mr Jacobs was thanked for an excellent job.

Liaison Matters: Mr N Pollard liaising with Mr P Bleasby who is the new Reporter in Division 7 on Lighting and the Environment.

Mr Culley (Editor) is on TC 7-06 regarding vocabulary.

10 Date and venue of next meeting:

Agreed to be before 1995.

New York in April / May 1994 to coincide with Lightfair was proposed by Mr T Lemons, who will liaise on arrangements.

11 Close of Meeting.

The Director thanked everyone for attending.

Typed: 12th May 1993

APPENDIX M

November 5, 1993

CIE Division 6: Photobiology and Photochemistry

Division Director: David Sliney, PhD.
Laser Microwave Division
U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, MD 21010-5422

Tel: (01)(410) 671-3002
Fax: (01)(410) 671-2084

Report to CNC-CIE, November 12, 1993
by Ernest Wotton
78 Earl Grey Road
Toronto, Ontario M4J 3L5

Tel: (416) 463-5395

The Annual Meeting of CIE Division 6 was held at Munich, May 2-3, 1993. Those taking part were from Australia, Austria, China, France, FRG, Italy, Netherlands, UK, USA. Again, Canada was not represented at the meeting.

(I again raise this question for CNC-CIE: In view of the international interest in the work of CIE Division 6, can Canada afford not to be represented at its meetings?)

A copy of the Minutes of the above Annual Meeting is held by Ernest Wotton. Some of the subjects addressed at the Meeting are outlined below.

- TC 6.11 Information on the systemic effects of light on humans is being collected.
- TC 6.14 The blue light hazard committee has produced a draft report for comment.
- TC 6.16 The chairman of this committee, concerned with the psychobiological effects of light, has completed an annotated bibliography of papers on the subject.
- TC 6.17 This committee deals with the subject of temporal and spatial variability of optical radiation on human behaviour. The chair of the committee (Ronchi) has produced a document of 200 pages on the subject. The Meeting decided that the document needed revision to make it less diffuse and more focussed on particular topics.
- TC 6.18 This committee has published a report on the hazard potential of tungsten-halogen lighting.
- TC 6.20 A draft report on photosensitization has been completed.
- TC 6.24 A draft report on UVA sunscreens has been completed.

- TC 6.27 The report on the proposed CIE reference action spectrum for UVR induced erythema in human skin is expected to be completed by the end of 1993.

  (Documents, such as those referred to above in the items relevant to TC 6.16 and TC 6.18 have not been sent to Ernest Wotton, by CIE).

- TC 6.36 A meeting of TC 6.36 discussed the subject of "Photobiological Evaluation of Materials used for UVR Shading (Non-Applied Sunscreens)." The discussion centred on the development of standardized measures of effective filtration of shading materials within the spectral region between 290 nm and 400 nm.

- TC 6.12 A joint meeting was held with representatives from a number of groups testing sunscreens. The discussion centred on the differences in testing methods recommended by the various groups.

- TC 6.38 This new committee met to discuss the scope of work involved in producing a document dealing with the current status of optical radiation safety standards applicable to lamps.

Division 6 Director, Dr. David Sliney attended the Eleventh International Congress on Photobiology, Kyoto, September 7-12, 1992, and a satellite meeting in Tokyo, September 14, 1992. The Director reported on the Congress in a memorandum dated October 28, 1992, for members of CIE Division 6. The primary objective of the Congress was to obtain the latest information on photocarcinogenesis of ultraviolet radiation (UVR) and to negotiate with international scientists for new occupational exposure limits for UVR and laser exposure and protective filters.

An International Symposium on Environmental UV Radiation and Health Effects was held in Munich, May 4-6, 1993.

APPENDIX N

L'ECLAIRAGE ENVIRONNEMENTAL
ENVIRONMENTAL LIGHTING

1980 ouest , rue Sherbrooke, Suite 600
Montréal, Québec H3H 1E8 CANADA
Tel. (514) 931-7501 Fax (514) 931-7503

October 22, 1993, Rev. November 1, 1993

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:	J. Vermeulen, The Netherlands
Editor:	J.T. Grundy, South Africa
Canadian division member:	R.W. White

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.

TC 7-03 **Development of Lighting** - V. Dvoracek, Chairman; No Canadian Representative.
While the committee is continuing in its work, there has still been no report from the chairman since the Melbourne meeting.

TC 7-05 **Lighting Education** -
Dissolved upon publication of CIE-Publ. No. 99 titled "Lighting Education".

TC 7-06 **Lighting Terminology** - H. Maglock, Chairman (Austria); no Canadian representative.
Submissions have been received from other divisions (notably Division 3 and 5) for the next edition of the International Lighting Terminology (Vocabulary).

TC 7-07 **Light and Radiation Sources** - (now dissolved)
The committee has been dissolved after a report was published as CIE Publication no 96/1992 "Electric Light Sources State of the Art - 1991".

TC 7-08(rev) **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. Members as of January, 1993 included the United Kingdom, Hungary, USA, Japan, Sweden and Poland. A database on current CIE and other world wide research in lighting using guidelines established in the Edinburgh meeting. Abstracts of current work are solicited by Mr. Vincent using the "Guidelines".

Reportership **Environmental Impact of Lighting** - P. Bleasby, (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.

Respectfully submitted,

R. White

APPENDIX O

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

Canadian National Committee Comité National Canadien

CNC/CIE MEMBERS

CNC/CIE			TERM (expiry)	CIE
President	J. Roberge	Québec	1995-12-31	Division 5, Finance Com.
Vice President	W.K. Adrian	Ontario	1994-12-31	
Secretary	A.A. Gaertner	Ontario	1993-12-31	
Treasurer	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.	1993-12-31	
	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
ex officio	A.R. Robertson	Ontario		Division 1 (Assoc.Dir.)

(?) = have not returned letters of acceptance.

ADVISORY MEMBERS

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