Minutes of the Twelfth Meeting of the Canadian National Committee of the CIE

Held at the International Broadcast Center, Montreal, 20 October 1967

Present:

Members and Delegates:

C. Boivin

W. Budde, Secretary

J.M. Chorlton

M.G. Currie

G.F. Dean

W.F. Elliott

D.W. Frick

M. Galbreath

A.T. Orr

C.L. Sanders, President

G. Watters

J.C. Wilson

G.W. Wyszecki

Guests:

A. Robertson (NRC Div. Applied Physics)

A. Whitehead (Dept. Public Works, Ottawa)

Absent:

E.H. Brezina

G.K. Brown

G.E. Davidson

R. Gingles

1. Call to Order

The President opened the meeting at 10.05 A.M. The following members had given notice that they were unable to attend the meeting: E. Brezina, G.K. Brown, G.E. Davidson.

2. Minutes of the last meeting

The minutes of the eleventh meeting were read by the Secretary. On page 7 the letters "TV" were deleted. A motion was made by Mr. Watters and seconded by Mr. Elliott that the minutes be approved. The motion was carried.

3. Secretary's Report

a) The annual fee for Canadian Membership in the CIE in the amount of U.S. $396.00 was paid by the National Research Council.

b) The Canadian Delegation at Washington held a meeting on 19 June 1967 at the Shoreham Hotel. The following members were present: Prof. M. Currie, W. Budde, F. Dean, W. Elliott, D. Frick, C.L. Sanders, G. Wyszecki and Mr. T.J. Kew as guest. G. Davidson was unable to attend. The following points were discussed:

1. The CIE Executive committee had adopted the new CIE budget. The Canadian Membership fee according to this new budget amounts to U.S. $1100.00. The members present resolved that the National Research Council be asked to maintain the sponsorship for the CNC and pay the annual dues.

2. It was announced that for the next general session of the CIE invitations were received from England and Spain. (At the closing Plenary Session the invitation from Spain was accepted).

3. A social evening in honor of the Congress Committee of the U.S. National Committee was proposed. Eleven members and guests of the Canadian Delegation announced their attendance and contribution.

c) A memorandum was sent in November 1966 to Dr. Babbitt, Officer in Charge of International Relations of the NRC concerning the CIE budget as proposed by the CIE Treasurer and the subsequent recommendation made by the CNC. The NRC decided to delay a decision till after the Washington Session. After having received the final figure on the Canadian Membership fee another memorandum was sent to Dr. Babbitt containing this new figure and the resolution of the Canadian Delegation at Washington. This matter will be discussed by the Council at its meeting on 18 Nov. 1967.

d) A letter was received from Mr. G.J. Taylor, Executive Director of the U.S. Congress Committee. A passage from this letter reads as follows:

"When you write your Delegates again would you please extend to them my thanks for their presence at Washington. Also my sincere hope that they found all meeting rooms properly equipped for their convenience. We trust they enjoyed our program of special events and social activities as well.

On behalf of all our Congress Committee members we do hope the Sixteenth Session proved worth attending for technical reasons and pleasurable experiences in our country."

Mr. G.F. Dean made a motion that the Secretary's report be approved. Mr. J.M. Chorlton seconded the motion which was carried.

4. Business arising from the minutes and the Secretary's report

Re: CSA News Bulletin:

The Secretary informed the members that the CSA is prepared to send the CSA News Bulletin to members of the CNC who are interested. A list was circulated to collect the names of the members who do not yet receive the Bulletin.

Re: Press Release:

The Public Relations Office of NRC is, as the Secretary explained, of the opinion that a press release as that prepared in 1965 is only of very limited interest for the press. A revised edition of the CNC/CIE booklet would be much better "public relations".

Re: CNC Booklet:

Mr. J.M. Chorlton proposed that Dr. Wyszecki, who had written the 1961 edition of the booklet, prepare a new edition. Dr. Wyszecki explained that the booklet should be brought up to date by the officers of the CNC but that this would be done subject to his approval since it will be issued again as an NRC Report of the Radiation Optics Section.

Mr. Watters, when asked whether a French version would be desirable, replied that in his opinion such a version would not be necessary.

For a widespread distribution of the booklet mailing lists of relevant organizations (such as IES) and Canadian Libraries will be used. Mr. Frick will obtain the IES list.

5. Discussion of the Reports from Experts and Corresponding Members

"No activities" were reported from Mr. Brezina (for E-3.3.5 Automobile Lighting), Mr. G.K. Brown (for S-3.1.5 Mine Lighting), Mr. F. Dean (for S-3.1.2 Interior Lighting).

In addition to the written reports each member gave further information on the activities of the last year. Several of these reports stimulated lively discussions.

One item of general interest was the question of conflicts between CIE Recommendations and IES Specifications. Some members of the CNC are also members of the IES. These conflicts may create an embarrassing situation for those members of both organizations. No ready recipe could be found for this situation.

6. Discussion on the report: "The metric system in illuminating engineering"

This item had been included in the Agenda on the request of Mr. D. Frick. In the discussion Dr. Wyszecki suggested that reprints of some papers written by Dr. L.E. Howlett

should be made available to Mr. Frick. Mr. Wilson agreed to send a copy of a CSA survey to Mr. Frick.

7. Appointment of new and reappointment of old members and officers.

The reorganization of the CIE Expert and Secretariat Committees was discussed. A new list of Canadian delegates was prepared with proposals on their status within the Committees as "Expert" or "Corresponding Member". Mr. G.F. Dean agreed to ask Mr. G.E. Mulvey to accept the appointment as the Canadian delegate for Committee E-1.6, Fundamentals of Physical Environment. Prof. M. Currie agreed to ask Mr. E. Ketvirtis whether he would accept the appointment as the Canadian Delegate for Committee E-3.3.1, Public Lighting.

Mr. A.T. Orr made a motion that the attached list be approved. Mr. G.F. Dean seconded the motion which was then carried. Dr. G. Wyszecki made a motion that the Secretary of the CNC confirm by letter to each member and delegate the desirability of forming technical subcommittees on subjects of the CIE working committees (see paragraph 11 of the CNC Bylaws on "Subcommittees"). Mr. G. Watters seconded the motion which was then carried.

The President reported that Prof. P.J. Foley had written a letter of resignation from membership in the CNC due to other time consuming commitments.

Mr. G. Watters offered his resignation from the CNC since a change in his position at Hydro Quebec has terminated

his activities in lighting. The President of the CNC accepted this resignation with regret and expressed his thanks for Mr. Watters' lively and fruitful cooperation in the CNC.

Mr. G.K. Brown, in a telephone discussion with the President and the Secretary of the CNC prior to the meeting had offered his membership since the Committee S-3.1.5, Mine Lighting, was discontinued at Washington and his position as Head of Canadian Explosive Atmosphere Laboratory did not involve him very much in lighting matters. Dr. Sanders explained that it may be difficult at meetings of the CNC to have a quorum if members have only a slight chance to attend the meeting. After some discussion the members decided to accept Mr. Brown's resignation with the promise that Mr. Dean would keep Mr. Brown informed on matters of Mine Lighting.

The following members were reappointed as members of the CNC/CIE:

Prof. M.G. Currie
Mr. W. Budde
Mr. D.W. Frick
Dr. C.L. Sanders
Dr. G.W. Wyszecki.

For the appointment of officers, Dr. Sanders explained that he could not accept reappointment as President of the CNC because of an increased number of other commitments.

He nominated Mr. W. Budde as President and Dr. A. Robertson as Secretary. Dr. Wyszecki seconded the nomination and explained that according to Bylaw 4, the officers shall be from the staff of the NRC. Mr. Dean moved that the nomination

be closed. Prof. Currie seconded the motion and the nominated officers were elected by acclamation.

Dr. Wyszecki nominated Mr. C. Boivin, Mr. A.T. Orr and Mr. A. Whitehead as members of the CNC. Mr. W. Elliott seconded the nomination. Mr. Boivin declined, explaining that he would prefer to be a delegate for some time before becoming a full member. Mr. Orr and Mr. Whitehead then were appointed as new members of the CNC by unanimous vote.

Dr. Wyszecki mentioned that the two delegates to the CIE Executive Committee should be elected. Normally the President of the CNC is one delegate. Mr. Elliott, seconded by Mr. Watters, nominated Mr. D. Frick as second delegate to the Executive Committee. Mr. Budde, seconded by Mr. Frick, nominated Dr. Wyszecki. In a secret ballot Dr. Wyszecki was reelected as second delegate to the Executive Committee.

Mr. Watters moved that the CNC express its thanks to the retiring officers for their work during the past four years. Dr. Wyszecki seconded the motion which was carried.

8. Other Business

A request by the Bulgarian Committee on Illumination to be admitted as member of the CIE was presented by the President. Prof. Currie moved that the CNC vote in favour of admission and Mr. Wilson seconded the motion which then was carried.

Dr. Wyszecki presented two CIE recommendations which were sent from the Central Bureau to the National Committees for comments and approval.

A recommendation by Committee E-1.4.1, Photopic, Mesopic, and Scotopic Vision was approved "provided in the English version the term "brightness" is replaced by "luminosity"."
A recommendation by Committee E-1.3.1, Colorimetry, was approved without comments.

Prof. Currie congratulated Dr. Wyszecki and the members of his staff for their successful representation at Washington of the technical and scientific work in the field of illumination in Canada.

9. Meeting Adjourns

The meeting was adjourned at 2.55 p.m.

ADRESSE TÉLÉGRAPHIQUE "RESEARCH"
NOTRE DOSSIER .....

CABLE ADDRESS "RESEARCH"
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12 October, 1967.

Report on the Activities of E-1.2 (Photometry) and E-1.3.2 (Colour Rendering) by C.L. Sanders for the CNC/CIE Meeting October 20, 1967

E-1.2

The final changes to the 'Report on the Principles of Light Measurement' prepared by E-1.2 were decided on in Washington. It was agreed that it should be published as an Informal Report of the CIE. The main body of the report will be in English, but there will be a French and German summary. The complete text is now in the hands of Mr. Chappat. It is expected that it will be published soon and that National Committees will use the report as a basis for establishing photometric practice in their respective countries.

The work on a recommended practice for 'Photometric measurements on high-pressure and low-pressure mercury vapor lamps' was discussed in Washington and several drafts were considered. Another is now being prepared under the chairmanship of Dr. O.C. Jones from the National Physical Laboratory, Teddington, England.

The program for the measurement of absolute reflectance of pressed MgO is proving to be very useful.

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There are still significant discrepancies in the measurements. Mr. Budde has completed one program of measurements using diffuse viewing or diffuse illumination and Dr. Robertson and Dr. Bak are just in the preliminary stages of making extensive directional measurements at NRC.

The international comparison of the spectral sensitivity of photocells is now in its final stages. NRC is coordinating this program and we have results from all except one participating laboratory. Mr. Budde is very active in these measurements and gave the interim report at Washington. The results show some very systematic but, so far, unexplained deviations in measurements between laboratories. This confirms the suspicions which caused the initiation of the program. If the deviations can now be explained the program will be completely successful.

A subcommittee on spectroradiometry was initiated as a common concern of the Colorimetry, Colour Rendering, and Photometry Committees. The suggested program is to prepare a recommendation for a method of spectroradiometry and to make measurements on four types of lamps: incandescent (tungsten-iodide), medium pressure mercury vapour with no phosphor, medium pressure mercury vapour with a phosphor and tubular fluorescent lamp.

As the designated chairman of the subcommittee I have sent out a detailed questionnaire and an outline of a fairly extensive program to twenty-eight people. The program will be adjusted taking into account their suggestions and their willingness to participate actively.

E-1.3.2

Due to an almost complete overlap of the time tables of the meetings of E-1.2 and E-1.3.2 in Washington, I was unable to attend most of the presessional meetings. The committee had on its agenda consideration of practical methods of determining correlated colour temperature

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from chromaticity coordinates. Dr. A.R. Robertson's written report giving one method for this calculation was well received and he was selected to act as chairman of a subcommittee to recommend a method to the CIE.

Because of Dr. Robertson's activity on this project I propose that the CNC/CIE designate him as the Canadian Expert member of E-1.3.2.

ADRESSE TÉLÉGRAPHIQUE "RESEARCH"
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17 October, 1967

Report on the Activities of the CIE Expert Committee E-1.3.1 (Colorimetry)

Prepared for the CNC/CIE Annual Meeting of October 20, 1967

In the period October 1966 to October 1967, the main event for the Colorimetry Committee took place in Washington on the occasion of the 16th Session of the CIE.

The Colorimetry Committee met on June 15 and 16, held a joint meeting with E-1.3.2 (Color Rendering) on June 16, a joint meeting with E-1.2 (Photometry) on June 17, and a joint meeting with E-1.2 (Photometry) and E-1.3.2 (Color Rendering) on June 28. The minutes of these meetings were distributed to all members and consultants of the Colorimetry Committee and a copy of them has been deposited with the Secretary of the CNC/CIE.

The most important work of the Committee presently underway and in its final stages is the preparation of a CIE Document on Colorimetry which will include all official CIE recommendations on colorimetry now in force. The English version is nearly complete and formal voting on this is expected to take place early next year.

Günter Wyszecki
Chairman, E-1.3.1 (Colorimetry)

REPORT TO ANNUAL MEETING

C.I.E. NATIONAL COMMITTEE

October 20, 1967.

E 133 - Signal Colours

The program for the Committee established at Vienna Congress was as follows:

1. Self-luminous Signal Colours.

   1.1. Revision of C.I.E. Publication No. 2 "Colour of Light Signals", particularly in regard to the white and yellow limits of the region of green colours.

   1.2. Introduction of another colour, purple, and the possibility of collecting information on its use by means of a questionnaire.

   1.3. Adoption for self-luminous signals of C.I.E. uniform chromaticity scale (u.v.).

2. Surface Signal Colours.

   2.1. Further discussion of the draft specification proposed by Dr. Jainski, particularly in relation to experimental evidence and to correlation with I.S.O., I.C.A.O., A.S.A. and D.I.N. systems.

   2.2. Consideration of the effects of different possible illuminants on the identification of surface colours, and of the effects of colour and luminance contrasts between signal and background.

   2.3. Consideration of inclusion of a specification for black.

I attended the session meeting in Washington.

The C.I.E. Publication #2 was revised. It was decided not to include another colour, purple, at this time because it had limited use in France only for the designation of ferry crossings and because it lost its colour characteristics if high intensity were attempted.

The C.I.E. uniform chromaticity scale was adopted.

Extensive work was done on a specification for surface colours but the Committee has not advanced far enough to make a recommendation. The work is continuing with close liaison with I.S.O., I.C.A.O. and A.S.A.

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The United States representative described their complex system of highway traffic signs and the significance of colour in these signs.

Dr. Crawford has retired from the National Physical Laboratories. This Committee will amalgamate with Committee E 337 under the chairmanship of the United States.

E.337 - Fundamentals on Traffic Signals

The program reported in C.I.E. Publication #14 was discussed at a meeting in London in December, 1966 which I attended. It was decided that a recommendation for the intensity of signal lights based on threshold values would be suitable for Marine and Railway use but might not be so for Highway and Airport use because of the destracting factors and the high speed of this traffic. Further work is required to determine if the different practices in the countries of the world can be brought together for a suitable recommendation.

A family of curves was presented covering threshold values in different background luminances suitable for Marine and Railway use and close liaison is maintained with IMCO.

Further work was done on the effect of flashing lights and the establishment of uniform constants in the Blondell-Ray formula, especially in very short flashes but the Committee was not able to decide on a recommendation until the work now in hand has progressed further.

The Committee formerly sponsored by Germany will resume its activity under the sponsorship of the United States. It will amalgamate with the work of Committee E.133, Signal Colours. The word "Traffic" has been dropped from the title of this Committee because in the English language, it was generally understood to refer to Highway traffic exclusively.

W.F. Elliott
Member for D.C.T.

ANNUAL REPORT ON WORK OF COMMITTEE E 3.2 DAYLIGHT

The Guide to the Calculation of Daylight which has been the concern of the committee for a number of years has been completed. Translation into French had not however, been completed at the time of the Washington meeting so the Guide was not presented to the C. I. E. at that time. It should however, be available soon.

A standard for lumenance distribution of a clear sky for use in daylight design calculation, prepared by Mr. Kittler has been tentatively adopted by the committee. These will be presented in the form of tables and graphs.

An attempt is being made in collaboration with Committee E 3.2.2 to develop information on the properties of materials used in windows eg. diffusing materials, venetian blinds, clear and dirty glass.

Studies are continuing in several countries on the subject of permanent supplementary lighting of interiors. There was some discussion in Washington on the importance of pschychological factors in lighting and whether windowless buildings are acceptable.

Mr. Rennekamp, South Africa presented a paper describing his work in measuring sky lumenance distribution in Pretoria. Messrs. Lyne, Cuttle and Burt of Britain described a project on measuring the horizontal and vertical components of lighting and its effect on modelling. The method described has been applied to the design of lighting in a lecture theatre so that the speakers face might be

clearly seen. The preferred direction of the lighting vector is at 30° from the vertical with acceptable variations from 25° to 45°.

Continuing work of the committee will include: (1) acceptable variations in daylight level (2) properties of materials used in daylighting (3) effect of dirt on glass etc. (4) study of suncreening devices (5) studies on permanent supplementary artificial lighting.

M. Galbreath,
Corresponding Member Committee E 3.2

/db

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17 October, 1967

Report on the Activities of CIE Committee E-2.1.2
'Sources of UV- and IR-Radiation and Measurement'

No presessional meeting was held at Washington. However, at the General Session (which the undersigned was able to attend) a report on the progress and the activities of the committee was given.

The progress report describes new sources for the UV (mercury and xenon lamps) and for the IR (mainly laser). A new standard source for the UV is mentioned and new instruments for the measurement of UV and IR radiation are discussed.

In the report on the activities, a short resume on the solar constant is given. The distribution of solar irradiation at ground level is given for eight spectrum bands from the far UV to the far IR.

For solar simulators for extraterrestrial conditions a report on the spectral distribution and total irradiance outside the atmosphere was prepared by the committee. Another report on the spectral distribution of daylight at ground level is in preparation. For this second report the distribution temperature of daylight was given as 6000°K. This figure was challenged by members of committee E-1.3.1 as being in contradiction to their work which indicates that the average daylight has a color temperature of 6500°K.

W. Budde

W. Budde

C.I.E. COMMITTEE ACTIVITIES 1966 - 1967

M.G.Currie

E-3.1.1.1. PREDETERMINATION OF ILLUMINATION AND LUMINANCE (Corresponding Member)

This Committee has been very active since the Vienna meeting working on a CIE method for calculating illumination. Mr. Dourgnon presented a method for approval at Washington and it appears to have been accepted in principle, although the text is not settled. I was not able to attend the pre-session meetings of the Committee as they conflicted with the Education Committee on which I am an Expert Member. No minutes of the meetings have been circulated to date although a communication I have received recently indicates that agreement was reached. (Very surprising!)

E-4.1.1 EDUCATION IN SCHOOLS (Expert Member)

At the Vienna meeting of the CIE in 1963 the Education Committee decided to undertake two separate tasks for the following four years. The first undertaking was to continue with the slides for lighting education which had been initiated in Zurich in 1955. The first series of slides had been completed by the Vienna meeting and a draft of the second series was shown at that time. Since 1963 the second series has been completed and a draft of the third series was shown at the Washington meeting.There was considerable discussion at a special meeting of the Action Committee and E- 4.1.1 with regard to the merit of continuing with the slide programme. No definite decision on the fate of this project has been communicated to me at this time.

The second undertaking for the 1963-1967 period was to assess, by means of a questionnaire, the need for some special material for the lighting eduaation of architects. This questionnaire was sent out to during 1963-1964 and considerable interest was shown by the 200 schools that replied. Encouraged by this response, the Swiss Committee made a first draft of 14 sheets of a brochure "Fundamental Concepts of Lighting in Architecture" and these were displayed at Washington; a rough draft of a further 16 pages was shown to the Committee.

It had been my intention to use this material with the architectural students at Toronto this autumn to see how suitable the material was. However the sheets will not be here until too late for this year's class so the experiment will have to be postponed until next year. Several other Committee members are planning to use the draft sheets in a similar way and from this experience we shall be able to make any necessary modifications before the final draft is completed.

There were four meetings of the Committee at the Washington Session and a special meeting with the Action Committee. Several additional meetings were held between individual members to work on the translations.

REPORT TO C.N.C. OF C.I.E.

FROM E3.1.9.2, STAGE AND STUDIO

D. W. FRICK

OCTOBER 20, 1967.

The International Committee met last in Washington.

Subjects covered were:

Luminaire symbols (copy attached) - approved and submitted to the C.I.E. Secretariat.

Definitions of terms for lighting control - no agreement, work is to continue.

Color temperature for color television - agreement was reached in committee that "Lamps of more than 500W. used in color television studios are to be specified as 3200°K ± 100°K when run at their rated voltage.

Other subjects discussed were -

Photometrics of stage and studio luminaires.

Measuring instruments.

Possible use of C.R.I. in film and television.

There were few new developments during the past year in Canada. Several theatres have been built in Canada for the centennial, but nothing new in lighting or lighting control has been offered - merely a few refinements to existing gear.

Tungsten-halogen lamps continue to be offered for stage and studio luminaires, much work has been done, but improvements are slow.

The early enthusiasm for these lamps has been dampened a great deal because of slow development of reflectors and lenses to utilize these sources. Part of the problem has been solved by the lamp manufacturers themselves, who have assembled some of the new lamps to the same filament dimensions and light center positioning as the older lamps.

Color T.V. has pointed up the need for improved equipment. The preferred light source is still incandescent, and the maintained color quality of the tungsten-halogen lamp seems to be the most practical lamp for the purpose.

T.V. color cameras have made some improvement in sensitivity recently which should enable a reduction in lighting of one third from current practice.

Accepted for submission to C.I.E. June 1967.

APRIL 1967.

BASIC SYMBOLS FOR LUMINAIRES.

A		Floodlight	Lantern with a one-half peak divergence exceeding 100° and with a cut-off not less than 180°.
B		Softlight	Lantern of sufficient size to produce diffused lighting with indefinite shadow boundaries.
C		Special Floodlight	Lantern with a specified one-half peak divergence (less than 100°) and a specified cut-off angle.
D		Reflector Spotlight	Lantern with a simple reflector and capable of adjustment of divergence by relative movement of lamp and mirror.
E		Sealed Beam Spotlight	Lantern containing a lamp in which part of the bulb is shaped and metallized so as to give a closely controlled beam of light.
F		Lens Spotlight	Lantern with simple lens with or without reflector and capable of adjustment of divergence by relative movement of lamp and lens.
G		Fresnel Spotlight	Lens spotlight with a stepped lens providing a soft edge to the beam.
H		Profile Spotlight	Lantern giving a hard edged beam which can be varied in outline by diaphragms, shutters or silhouette cut-out masks.
I		Effects Projector	Lantern with optics designed to give even field illumination of slides and well-defined projection of detail using suitable objective lenses. Slide can be moving effects type or stationary.