Minutes of 22nd Annual Meeting of the Canadian National Committee of CIE

(Held in the Physics Building,
National Research Council, Ottawa
27 October 1977)

Present

Members: Prof. M.G. Bassett (University of Toronto), President
Mr. W. Budde (National Research Council)
Mr. G.F. Dean (Consulting Engineer)
Mr. D.W. Frick (Consulting Engineer)
Mr. A. Ketvirtis (Foundation Company of Canada)
Mr. C. Labrecque (Holophane)
Mr. S.W. McKnight (Westinghouse Canada)
Mr. G.E. Mulvey (Mulvey Engineering)
Mr. A.T. Orr (Orcons)
Dr. A.R. Robertson (National Research Council), Secretary
Dr. C.L. Sanders (National Research Council)
Prof. D.A. Trotter (McGill University)
Dr. G. Wyszecki (National Research Council)

Guests: Mr. G.W. Clark (Sylvania Lighting Center, President USNC/CIE)
Dr. G.C. Dutt (Environmental Protection Centre)
Mr. R.E. Jennings (Public Works Canada)
Dr. A.W. Levy (National Research Council)

1. Call to order and approval of agenda

The President opened the meeting at 10:00 a.m. The Secretary introduced the guests and new members and indicated that apologies for absence had been received from Messrs. Davidson, Kaiser, Moreland, Subotich and Wotton. The agenda was approved with the proviso that some items might be taken out of order to accommodate members who had to leave early.

2. Minutes of 21st Annual Meeting

The Secretary read the minutes, which were then approved on a motion by Mr. Ketvirtis, seconded by Mr. Budde.

The Secretary announced that, following the last meeting, Professor Trotter had agreed to become the delegate to TC-4.10 (Mine Lighting) and that it had been ascertained that the new Chairman of the CSA Sectional Committee on Illumination was Mr. A.W. Henschel of Shore Tilbe Henschel Irwin. The Secretary said that he would invite Mr. Henschel to become a member of the CNC/CIE.

Mr. Ketvirtis said that the RTAC-CNC/CIE Seminar in Toronto had been attended by about 30 people, but that the Calgary Seminar had been cancelled because of insufficient registration. Mr. Ketvirtis said that he had been surprized and concerned to receive a letter from the President of the CIE apparently reprimanding him for using the CIE name in promoting the Seminar. Dr. Wyszecki explained that there had been a misunderstanding. The Board of Administration and the Action Committee appreciated Mr. Ketvirtis' efforts on behalf of the CIE and recognized the value of the Seminar. However to prevent possible abuses by other people, they like to be informed in advance of the use of the CIE name. No censure of Mr. Ketvirtis was intended.

3. Secretary's Report

The Secretary read his report, which is attached to these minutes. It was accepted unanimously on a motion by Mr. Mulvey, seconded by Mr. Orr.

Mr. Orr proposed and Mr. Budde seconded a vote of thanks to Dr. Robertson for his work as Secretary of the CNC/CIE. This was approved unanimously.

The President announced that she had written a letter of sympathy to Mr. Shearer's widow.

It was agreed that in future the CIE Bulletin would be distributed to all members of the CNC/CIE and the Roster only to those listed in it.

The President announced that she had received a letter of thanks from Professor de Boer for the CNC/CIE editorial comments on CIE Publication 12.2 (Lighting of Public Thoroughfares).

4. CIE Executive Committee

There have been no activities in the past year.

5. Lighting Research in Canada

Mr. Budde explained that the final version of the memorandum would be sent to the NRC Committee on International Scientific and Technological Affiliations with a covering letter from the President of the CNC/CIE suggesting that the memorandum be forwarded to potential funding authorities. Dr. Levy suggested mentioning energy conservation in the covering letter because funds were available for this. He added that implementation of the proposed Canadian Code for Energy Conservation in New Buildings would be aided if expert lighting advice were readily available.

Mr. Ketvirtis, seconded by Mr. Labrecque, moved that the President proceed with presentation of the Memorandum to CISTA as soon as possible. The motion was approved unanimously.

6. Reports from Delegates to CIE Technical Committees

The reports were presented and discussed. They are attached to these minutes.

Mr. Dean, on behalf of Mr. Chorlton, gave verbal reports for TC-3.1 (Visual performance) and TC-3.4 (Discomfort glare).

Dr. Wyszecki reported that a new study group - Study Group H (Lighting for stage and studio) - had been formed with Mr. Bonsignore (USA) as chairman. Two Canadians, Mr. D.W. Frick and Mr. T. Nutt have been invited to be members.

7. Appointments

Dr. G.C. Dutt was appointed delegate to TC-1.7 (Actinic effects of optical radiation).

Dr. A.W. Levy was appointed delegate to TC-4.2 (Daylighting).

Mr. R.E. Jennings was appointed a member of the CNC/CIE (Proposed by Prof. Bassett, seconded by Mr. Ketvirtis).

It was agreed to recommend to NRC that Mr. W. Budde be re-appointed and Mr. G.H. Cornish appointed to the Executive Committee of the CNC/CIE for four year terms from 1 January 1978. This is subject to Mr. Cornish's agreement.

It was agreed to recommend to NRC that Dr. A.W. Levy be appointed Secretary of the CNC/CIE from 1 January 1978.

8. Matters raised by CIE Central Bureau

The Committee approved the suggestion that TC-1.4 (Vision) be assigned to Canada with Dr. P.K. Kaiser as the new Chairman.

The following two committees were identified as ones in which Canada might be interested in taking over responsibility:

TC-1.3 (Colorimetry)
TC-4.10 (Mine Lighting)

It was agreed that suggestions for general papers for the CIE 1979 Session should be sent to the Secretary of the CNC/CIE for forwarding to the Central Bureau.

9. Translation of CIE working papers and documents

This subject was discussed briefly but no conclusion was reached on what can be done when material is sent to delegates in a language they cannot understand.

10. Exchange of observers with USNC

The concensus was that while informal contacts with US delegates were often beneficial there was little to be gained from an official liaison at the National Committee level. In particular the fear was expressed that such official liaison might impair Canada's separate identity in CIE matters.

11. Adjournment

There being no further business, the meeting was adjourned at 3:30 p.m.

Secretary's Report to the Canadian National Committee of the CIE

October 1977

1. The 1977 annual dues of $1331 (US) for Canadian membership of the CIE were paid by the National Research Council in January 1977.

2. The Canada Institute for Scientific and Technical Information continued its practice of buying CIE publications in bulk from the Central Bureau and passing them on to the NRC Publications Office for sale. A list of publications bought and sold during the past year is attached to this report.

3. The Central Bureau of the CIE has moved to a new address:

   52 Boulevard Malesherbes
   75008 Paris, France

4. CIE Bulletins No. 31 and 32 were received and distributed to members of the CNC/CIE.

5. A draft of the proposed Canadian Code for Energy Conservation in New Buildings was received and circulated to members of the CNC/CIE. Comments were received from Dr. A. Levy, Mr. G. Mulvey and Mr. A.T. Orr and forwarded to the Associate Committee on the National Building Code.

6. A bilingual booklet describing the activities of the CIE and the CNC/CIE and including an up-to-date membership list was produced and circulated to all members and consultants of the CNC/CIE. Copies were also sent to the other National Committees of the CIE and in response similar booklets were received from the Belgian, Czechoslovak, French and U.S. National Committees.

7. The CIE has decided to publish a quarterly Newsletter to supplement the Bulletin and Roster. It will be devoted in particular to the calendar of meetings and to modifications to the Roster. The Bulletin will be published twice a year, and will contain the same type of information as in the past. Corrected pages of the Roster will be published once a year.

8. The CNC/CIE lost two members during the past year: Mr. C.W. Shearer who passed away in January, 1977, and Dr. D. Stephenson (delegate to TC-4.2 (Daylighting)) who resigned.

9. Study Group A (Psychological Problems in Lighting) has been merged with TC-3.5 (Visual Environment). The new chairman of TC-3.5 is Professor J.E. Flynn (USA).

10. I have submitted my resignation as Secretary of the CNC/CIE. This will be effective on 31 December 1977. It has been a pleasure to serve during the past 10 years.

A.R. Robertson
26 October 1977

Purchase and Sale of CIE Publications 1976-77

		Bought	Sold	In stock
2.2	Colors of light signals, 1975	0	1	3
8	Street lighting and accidents, 1960	0	2	1
12.2	International recommendations for the lighting of public thoroughfares, 1977	0	0	0
13.2	Method of measuring and specifying color rendering properties of light sources, 1974	0	1	2
15	Colorimetry, 1971	0	2	43
15/1	Special metamerism index: change of illuminant, 1972	0	1	161
16	Daylight, International recommendations for calculation of natural daylight, 1970	0	1	5
17	International Lighting Vocabulary, 1970	9	1	8
18	Principles of light measurements, 1970	0	2	17
19	A unified framework of methods for evaluating visual performance aspects of lighting, 1972	0	6	1
20	Spectral distribution of solar radiation, 1973	0	3	8
22	Standardization of luminance distribution on clear skies, 1972	0	2	4
23	Motorway lighting, 1972	0	19	5
24	Photometry of indoor type luminaires with tubular fluorescent lamps, 1973	0	1	4
25	Procedures for the measurement of luminous flux of discharge lamps and for their calibration as working standards, 1973	0	3	2
26	International recommendations for tunnel lighting, 1973	0	1	5
27	Photometry of luminaires for street lighting, 1973	0	1	5
28	The lighting of sports events for colour TV broadcasting, 1975	10	2	8
29	Guide on interior lighting, 1975	0	7	16

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		Bought	Sold	In stock
30	Calculation and measurement of luminance and illuminance in road lighting, 1976	20	10	10
31	Glare and uniformity in road lighting installations, 1976	20	6	14
32A/32B	Lighting in situations requiring special treatment (Roadway lighting), 1977	15	2	13
33A/33B	Depreciation of installations and their maintenance (Roadway lighting), 1977	15	2	13
34				
35				
36	Proceedings, 18th Session of CIE, London 1975	8	2	6
37	Exterior lighting in the environment, 1976	15	3	12
38	Radiometric and photometric characteristics of materials and their measurement, 1977	20	4	16

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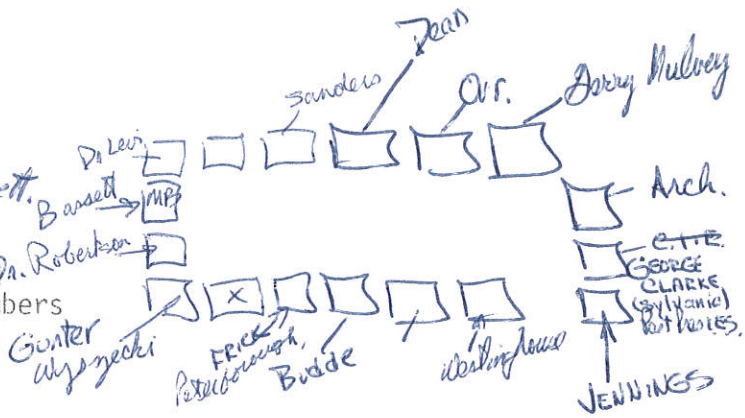
CNC/CIE 27 October 1977

Agenda



1.1 Call to order Chairman - Miss Bassett.

1.2 Apologies for absence

1.3 Introduction of guests and new members

1.4 Approval of agenda

2.1 Minutes of last meeting

2.2 Motion for approval

2.3 Matters arising

2.3.1 New delegate to TC-4.10 (Mine Lighting)
2.3.2 Chairman, CSA Sectional Committee on Illumination
2.3.3 RTAC - CNC/CIE Seminar on Roadway Illumination
2.3.4 Other matters arising

3.1 Secretary's report

3.2 Motion for acceptance

3.3 Matters arising

3.3.1 Canadian Code for Energy Conservation in New Buildings
3.3.2 Distribution of CIE Bulletin and Roster
3.3.3 Other matters arising

4.1 Report from Canadian members of CIE Executive Committee No report.

~~4.2 Motion for acceptance~~

~~4.3 Matters arising~~

5. Reports from delegates to CIE Technical Committees and Study Groups

6. Report from ad hoc subcommittee on "Lighting Research in Canada" Mr. Budde.
Industry can absorb 40 or 50 people with M.Eng. in lighting. Report to Mr Gareau.

Energy Code. - limits Watts/ft². Shows how to design good systems.
Regulations in buildings almost non existant.
Duralest - Tungsten lamp using 66% less energy in 3 years.

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SAUDERS REPORT. TC 1.2

7.1 Appointment of delegates to CIE Technical Committees

7.1.1 TC-4.2 (Daylighting) (Acting delegate: A.W. Levy)
7.1.2 Other vacancies

7.2 Appointment of new members of CNC/CIE

7.3 Appointment of new members of EC/CNC/CIE (Retiring members: W. Budde, F.R. Dorward)

7.4 Appointment of Secretary of CNC/CIE
Dr Allan Levi

8. Matters raised by CIE Central Bureau

8.1 Assignment of TC-1.4 (Vision) to Canada Dr Kaiser

8.2 Re-assignment of Technical Committees: What Technical Committee assignments would Canada like? Mine Lighting?

8.3 General papers for CIE 1979 Kyoto Session TO ALL DELEGATES (ABOUT 800).

9. Translation of CIE working papers and documents

10. Exchange of observers with USNC/CIE

11. Other business Lighting Educational Committee? — lighting
No reports i.e. Automobile Lighting ?

12. Adjournment

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TC-1.1 Terminology

Delegate: G.E. Davidson
Subcommittee: All members of CNC/CIE

There has been no activity in the past year.

October 26, 1977

Annual Report on TC-1.2 to CNC/CIE

A meeting of TC-1.2, Photometry and Radiometry, was held in Berlin on September 12 and 13, 1977. Final agreement was reached on the Vocabulary changes to be sent to TC-1.1.

A draft of "The Basis of Physical Photometry" prepared by Dr. W.R. Blevin to replace CIE 18 "Principles of Light Measurement" was discussed. Agreement was reached on some minor modifications. The completion date and the final wording will depend on the actions of the International Committee on Weights and Measures (CIPM) and of the Consultative Committee on Units of the CIPM regarding the attached recommendations of the Consultative Committee on Photometry and Radiometry (CCPR). These CCPR recommendations were made on September 9, 1977. The CIPM met in October and accepted P2 and referred the others to the CCU. If the CCU approves then the General Conference on Weights and Measures will probably approve them in the fall of 1979.

Another draft of the TC-1.2 technical report "Spectroradiometric Measurements of Light Sources" was prepared by Dr. O.C. Jones. The document was approved in principle with minor editorial changes. The final version should be available by 1979.

Mr. J. Moore presented an outline of a technical report on "Stable Secondary Light Sources". This guide for those wishing to acquire and use photometric and radiometric standards will describe the types of sources available, their applications, selection, ageing, operation, etc. This should help in achieving optimum use of the sources available and eventually may make it possible to produce better standard sources.

Dr. J. Schanda provided a report on the status of an Intercomparison of measurements of Light Emitting Diodes (LED's). This report gives a useful summary of the typical characteristics of LED's, Photometric Considerations including "traditional photometric measurements", "Photometry of LED's as signal lights", and "Visibility of LED displays". A research program was suggested. Members and consultants of TC-1.2 will provide comments by January 1, 1978. If enough agree, a preliminary series of measurements of luminous flux, luminous intensity and possibly spectral power distribution and photon flux will commence in the spring or summer of 1978. TC-1.4 will cooperate with the visual investigations.

Difficulties in finding stable HPMV lamps has forced Mrs. Poppe to delay commencement of an intercomparison of this type of lamp.

Recommendation P 1 (1977)

The CCPR, considering

- That many quantities involving electromagnetic radiations and biological factors need to be measured,

- That the number of units in SI having special names should not be increased unnecessarily,

Recommends

- That before the introduction into SI of any additional special na for a unit of a quantity involving electromagnetic radiations and biological factors careful consideration be given to the possibility of choosing one of the existing SI units. For instance, for a quantity involving a spectral distribution of radiant power weighted by a photo-biological spectral function, the weighting function might be made dimensionless and the quantity therefore be expressed in terms of the watt.

Recommendation P 2 (1977)

The CCPR, considering

- The increasing use of radiometric methods to measure photometric quantities,

- The increasing need for compatibility between radiometric and photometric measurements,

- The desire of the national laboratories to maintain continuity of the photometric scale values,

- The values of spectral luminous efficacy considered by the national laboratories as giving best continuity,

Recommends

- That the value 683 lumens/watt be adopted for the spectral luminous efficacy of monochromatic radiation of frequency $540.015\ 4 \times 10^{12}$ hertz, for photopic, mesopic and scotopic vision.

Recommendation P 3 (1977)

The CCPR,

-Reconsidering its Recommendations P 1 (1975), P 2 (1975) and P 3 (1975), reconfirms these recommendations,

- Considering that adoption of Recommendation P 2 (1975) will require the introduction and definition of the lumen as the base unit of the SI replacing the candela,

- Considering Recommendation P 2 (1977) and the desirability of continuing the practice of having a single definition of the photometric base unit for photopic, mesopic and scotopic vision,

Recommends

- That the lumen be defined as follows : The lumen is the luminous flux of a monochromatic radiation whose radiant flux is 1/683 watt and whose frequency is 540.015 4 x 10^{12} hertz.

Recommendation P 4 (1977)

The CCPR, considering

- The urgent need to have the photometric units related directly to the watt,

- The possible difficulty in having the candela replaced in the near future by the lumen as the SI base unit for photometry,

Recommends

- If it is necessary as an interim measure to retain the candela as the base unit, that the candela be defined in the following manner, consistent with Recommendation P 3 (1977) :

The candela is the luminous intensity of a monochromatic source emitting radiation of frequency 540.015 4 x 10^{12} hertz, in a direction for which the radiant intensity is 1/683 watt/steradian.

TC-1.3 Colorimetry

Delegate: A.R. Robertson
Subcommittee: W. Budde
C.L. Sanders
G. Wyszecki

A meeting of the committee was held in July 1977 in Troy, New York attended by the Canadian delegate and two subcommittee members. The five main areas of discussion were correlated colour temperature, colour-difference evaluation, standard sources, chromatic adaptation and colour terminology.

The effect of the new recommended colour-difference formulae on the definition of correlated colour temperature was discussed at length. It was decided to recommend no change for the time being because the uncertainty of visual judgements is comparable to the difference between the various formulae.

The colour-difference subcommittee is planning a co-ordinated program of research to provide a comprehensive data base with which colour-difference formulae can be tested. It is hoped that eventually a better formula will be developed.

The subcommittee on sources has studied several methods for evaluating daylight simulators and is now preparing its final recommendations for a standard method for both the visible and ultraviolet ranges.

The chromatic adaptation subcommittee is studying the effect of adaptation to different sources and is assembling its data in the form of chromaticity diagrams in which lines of constant hue and saturation are plotted for each adaptation condition.

The subcommittee on terminology has prepared a final draft of terms to be submitted to TC-1.1 (Terminology). The term that evoked greatest discussion was a new term "colourfulness" defined as the attribute of a visual sensation according to which an area appears to exhibit more or less chromatic colour. This term was formerly called "chroma", which it is now proposed to restrict to colourfulness judged in proportion to the average brightness of the surroundings. The related term "saturation" is defined as colourfulness judged in proportion to brightness.

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Annual Report of Technical Committee 1.4, Vision

After six long years, the technical report "Light as a true visual quantity: Principles of measurement" has been submitted to the Action Committee for final approval. Prior to this last step, the report was approved by the various CIE members with representatives on this committee.

TC-1.4 met in Troy, New York just prior to the AIC meeting. The major topic for discussion was the future of this committee. The idea was briefly entertained that the work of this committee was finished. This notion was quickly dispelled since the technical report has clear indications for future work. It was agreed that Drs. Palmer, Ikeka, and Kaiser would draft a statement of proposals describing the future activities of this committee. A timetable of activity was to be suggested. This timetable was to include the goals to be reached by the next CIE meeting in Kyoto, Japan in 1979 and those activities to be completed four years hence. The immediate goals include the collection of sensitivity functions as outlined in the technical report. The goals for 1983 would include the adoption by the CIE of these various sensitivity functions as possible alternate standard luminous efficiency functions. These various functions include those for brightness matching spectral sensitivity, point source sensitivity functions, sensitivity functions for very young people, and those for observers over 55 years of age. Included in the future plans are an agreed upon procedure for transforming the standard CIE luminous efficiency function to the functions just noted by means of appropriate vision mathematical models. It was agreed that when the statement of proposals was complete, they would be published in appropriate journals so that the Vision Research community throughout the world would be aware of TC-1.4's activities and intentions thus enabling them to contribute to this work.

Dr. Kinney announced her intention to retire as chairman of TC-1.4 upon the final acceptance of the technical report noted above.

I was asked that if the CIE were to offer Canada the chairmanship of TC-1.4 when vacated by Dr. Kinney, would I be willing to assume the responsibility. I said, I would.

Peter K. Kaiser,
Chairman, CNC/CIE Technical Committee 1.4,
Vision.

TC-1.5 Lighting Calculation

Delegate: M.G. Bassett

Minutes of the meeting held at the Technical University, Berlin on October 1, 1976 were received. Five members of the committee attended with one observer. The working programme for the next Quadrennium 1975-1979 was discussed. The draft for "Calculation for Interior Lighting Applied Method, Vol. I and Vol. II" was in its final stage. A calculation procedure for disymmetrical luminaires will be undertaken as well as the problem of non-uniformity. Calculation methods for other than planar illuminances were discussed but it was decided that a detailed study could not be undertaken at the present time.

The Basic Method which was presented during the last CIE-Congress has not been published as yet. It will likely be published as a Technical Report, rather than a CIE - recommendation, after editorial changes requested by the Action Committee have been completed.

The draft copies of the Applied Method Vol. I and II were received in the summer but I did not have time to study them before they were to be sent to the Action Committee for approval at their meeting on July 22, 1977. I do not know what action was taken at that meeting.

A meeting of the Committee was held at Eindhoven on April 21/22, 1977 which I was not able to attend. Minutes of the meeting were never sent so I do not know how many members attended. Other communication indicates that a detailed study of the draft Applied Method was made at the meeting.

TC-1.6 Visual Signalling

Delegate: J.D. Moreland

No report.

TC-1.7 Actinic Effects of Optical Radiation

Delegate: C.L. Sanders

Please see the attached report on actinity from L. Thorington, the Chairman.

The number of people active in this area in Canada is increasing. Since the Department of Health and Welfare has prime responsibility and now has several people working actively, I suggest that one of them, Dr. G.C. Dutt, be named as the Canadian delegate to TC-1.7. The subcommittee could include Mr. D. Hoogeveen, Dr. V. Bala, Dr. A.W. Levy, Mr. P.D. Carman and myself.

The World Health Organization is preparing a Manual on the Health Aspects of Exposure to Non-ionizing Radiation. Two draft chapters on Ultraviolet and Infrared were received for comment. Some comments were supplied. The chapter on UV radiation was almost completely devoted to the hazardous aspects. On the other hand a document from the WHO (EHE/EHC/WP/77.15) which is part of the WHO Environmental Health Criteria Program entitled "Environmental Health Criteria for Ultraviolet Radiation" which was prepared in the USSR considers both the hazardous and benefits of UV radiation. It contains many useful references pertinent to Canadian latitudes which are almost all in Russian. It would seem extremely useful for the Department of Health and Welfare to have one health scientist who can read Russian in order to assimilate this information without having to employ translators, although availability of translations would be extremely useful.

The meeting of TC-1.7 is now expected to be in July, 1978, in Switzerland, just after the meeting of the International Association of Photobiology (AIP).

CIE TC 1.7

ACTINIC EFFECTS OF OPTICAL RADIATION

ANNUAL REPORT TO USNC, OCTOBER 1977

Activity of TC 1.7 has been limited to items 1, 5 and 6 of the Working Program.

WP-1 Comprehensive bibliography

It is essential to the work of this committee that it start with a complete bibliography of established actinic effects of light. While there has been exceptional response on the part of several members of the committee, the main work of this initial phase has fallen upon the chairman. To date over 4000 references to important actinic effects of light have been catalogued and copies of the published work obtained. Translations have been made where necessary and we have been in the process of establishing the quotability of these references. The literature has proven so extensive and new published research in this field has exploded with such frequency that the job has been greatly complicated over that originally envisioned. Accordingly, the time schedule mailed in March 1976 has slipped considerably.

WP-5 Liaison with CIP

Liaison with the CIP (now AIP) has been established and Dr. Claud S. Rupert has been designated as the official AIP representative for liaison with TC 1.7.

WP-6 Nomenclature

To date 146 terms have been tabulated and are being studied but these are in constant revision due to the dynamic nature of the field. Unfortunately the AIP has no vocabulary of terms used in photobiology which could have formed a basis for our own nomenclature.

It is expected now that both the draft of the bibliography and nomenclature will be available within the year for the committee's evaluation. Hopefully it will be earlier.

As soon as the committee has an initial list of established actinic effects the way will be open for our first meeting as outlined in the original time schedule.

Agreement has been achieved regarding the areas of interest to be covered by Study Group F and TC 1.7. Originally there was overlapping but there is agreement now to the effect that Study Group F will confine its interest to "photochemical industrial processes and agricultural plant growing". Or broadly speaking SG-F will concentrate on photoeffects on inanimate matter whereas TC 1.7 will concentrate on photoeffects on animate matter.

August 16, 1977

TC-2.1 Sources

Delegate: F.R. Dorward

No report.

TC-2.2 Detectors

Delegate: W. Budde
Subcommittee: L.P. Boivin
C.L. Sanders

The Technical Committee TC-2.2 Detectors had one meeting at Budapest in September 1977 which Dr. Sanders attended. The minutes of this meeting have been received. Most of the work is done in Subcommittees and may be summarized as follows:

Subcommittee on Silicon cells: an international intercomparison of spectral responsivity and linearity measurements is being organized. The measurements will start in January 1978.

Subcommittee on Measuring Laser Radiation: main purpose of this SC is to develop guidelines on the measurements of laser radiation for people who are not experts in the field.

Subcommittee on Terminology: strong efforts are being made to overcome the deficiency in the existing vocabulary in terminology on detectors. Close liaison with TC-1.2, Photometry and Radiometry, is maintained.

Subcommittee on report "Methods of specifying the performance of radiometers and photometers": The latest draft was discussed at length and a considerable number of changes were made. Dr. Sanders will prepare a new draft which will be considered first by an editorial committee and then will be sent to other CIE committees.

Subcommittee on color measuring instruments: development of a document on the evaluation of colorimeters is under discussion.

The future working program for TC-2.2 has been expanded to include:

1. The evaluation of solar cells.
2. Preparation of a compendium on photodetectors and instruments.
3. Establishment of a subcommittee on absolute detectors.

TC-2.3 Materials

Delegate: W. Budde

TC-2.3 held one meeting at Troy, New York in July 1977 with most of the subcommittees also having working sessions. A joint meeting of Technical Committees 2.3 and 1.3 was also held.

The activities of the subcommittees may be summarized as follows:

Subcommittee on Gloss: current practices for measuring gloss are reviewed. Attempts are being made to experimentally establish the correlation between physical measurements and subjective evaluation of gloss. It was pointed out that this is the only SC of TC-2.3 which involves psychometric scaling.

Subcommittee on Luminescence: A round-robin measurement yielded disagreement of fluorescence measurements of up to 20%. Polarization exhibited by the samples was considered a major source of error. A new round-robin with different samples is planned. Draft of a comprehensive report on luminescence measurements was discussed.

Task Force on Colorimetric Aspects of Luminescence: this was newly established because this subject is quite different from actual luminescence measurements. Colorimetric measurements of fluorescent samples were made at various laboratories. Since the results were unsatisfactory, a new round-robin was prepared.

Subcommittee on Polarization: a comprehensive draft on definitions and nomenclature was discussed. It was proposed to reduce its volume by restricting it only to those terms related to polarization effects of light sources, materials and detectors in photometric measurements. Compilation of a list of the properties of commercially available polarizers was suggested.

Subcommittee on Standards and Techniques: Two documents have been prepared: 1. on the properties of materials which are used as reference standards, and 2. on the methods for absolute reflectance measurements. Both documents were briefly discussed. The next draft is to be sent to all members of TC-2.3. An intercomparison of spectral transmittance measurements is in progress.

Subcommittee on Turbid Media: The original working program was redrafted for simplification. Colorant formulation was deleted. Retained were: a) a compilation of standard methods for measuring optical properties of turbid media, b) determination of Kubelka-Munk and Saunderson constants, c) survey of non-Kubelka-Munk methods, and d) Terminology. A division of these subjects according to the various involved industries (paper, plastics, paint, etc.) was established.

.../2

Subcommittee on Retroreflection: this newly established subcommittee discussed terminology, angular reference, goniometers and colorimetry.

Subcommittee on Updating the TC-2.3 Technical Report: The TC-2.3 report has been distributed. A supplement is being prepared.

Terminology was discussed at length during the TC-2.3 meeting.

T.C.-2.4 Luminaires Delegate: Z.S. Subotich

A meeting of this Technical Committee was held on the 19th and 20th of September, 1977 in Warsaw, Poland and it was not attended.

This Committee is concerned with photometric requirements, as detailed in British Zonal Method for Interior Illumination.

The "Photometry of Floodlights" falls also within activity of this Committee and it is about to be approved and published.

A copy suggesting revisions to "Photometry of Floodlights" was also received.

At the meeting in Warsaw two other items were discussed: "Photometry at Short Distances" (wallwasher) and "Photometry at Long Distances" (searchlights).

Early next year, an effort will be made to obtain all these approved, published or draft forms for distribution and consideration of IES (New York) Testing Procedure Committee for correlation and information re test methods and calculations.

TC-3.1 Visual Performance

Delegate: J.M. Chorlton
Subcommittee: M.G. Bassett
G.F. Dean
F.R. Dorward
A.W. Henschel
P.K. Kaiser
C. Labrecque

No written report.

TC-3.2 Colour Rendering

Delegate: A.R. Robertson
Subcommittee: C.L. Sanders
G. Wyszecki

Meetings of the Committee were held in November 1976 in Eindhoven, and July 1977 in Troy, New York. No Canadian delegate was present at either meeting. The main items discussed were colour rendering of lamps used for colour reproduction, the use of fluorescent test colours to assess the ultraviolet content of lamps, the colour-rendering of 3-wavelength sources, the relationship between colour rendering and colour discrimination, the concept of visual clarity, colour preference indices, the effect of the new colour-difference equations recommended by TC-1.3 (Colorimetry) and terminology. An order of priority has been set for these items, with terminology, fluorescent test-colours and illumination for colour reproduction being given the highest priority.

TC-3.3 Physical Environment Delegate: C. Labrecque

A meeting of this Committee was held on April 12th, at the Electricity Council Research Centre, Chester, Capenhurst in England. It was followed by a Seminar held at the same place the day after, titled " Energy Implications of Comfort". There has been no report of this meeting received at this date. However it seems as if the Committee continued the studies mentionned in the terms of reference 1967 and the Congress of London 1975, i.e., the influence of lighting on the parameters of the environment and the integrated lighting systems.

Our Committee has been invited to comment on a draft report of Committee TC-4.2 " Daylight guide of good practice ". This is intended to be done before the end of this year.

From the " fundamentals of the physical environment ", literature received this year by the delegate has helped him to understand what to study and to evaluate. Mr Mulvey, the previous delegate, will send him his file on the subject. It is hoped that some accomplishment will result during the coming years.

TC-3.4 Discomfort Glare

Delegate: J.M. Chorlton

No written report.

for interface with other disciplines.

for revision of the TC 3.5 Prelude. The Prelude in the 1976 draft technical report is seen as an effective starting point for further developments.

4.2 The co-chairmen of the sub-committee on Research and Methodology are preparing a questionnaire which will be sent to each national committee member for action and response. The aim of the questionnaire is to assemble a listing of

researchers and laboratories that are active in studies of spatial lighting.

representative papers and/or other publications that will provide a sense of the work being done.

I intend to circulate this questionnaire to Canadian schools of architecture, engineering and design.

5. Meeting with TC 3.6 (Architecture and Lighting)

The chairman of TC 3.6 has suggested that a meeting of his committee with TC 3.5 be held in the USA in the latter half of 1978.

Ernest Wotton

October 21, 1977

CIE Technical Committee 3.5 (Visual Environment)

1. Chairman: Professor John E. Flynn (USA)

2. Terms of Reference of Committee

To study and evaluate the factors which determine the agreeableness of a visual environment, and to provide guidance for lighting design.

3. Working Program

To complete the presently-drafted publication on appraisal procedures.

To promote multi-disciplinary dialogue among designers, engineers, and behavioral scientists concerning the psychological, psycho-physiological, and behavioral effects of spatial illumination and related visual influences.

To review research and methodological knowledge relative to this field.

To consider complementary or reinforcing influences of light, color, and pattern as influences on spatial quality.

To consider the influence of spatial illumination on behavioral and/or task performance.

To integrate the above information and knowledge into a technical report that provides guidance for lighting design.

Terminology.

4. Work in hand

4.1 On September 2, 1977 the Chairman reported details of a meeting of CIE 3.5 which was held in Berlin during July 1977.

a. Sub-committees were set up on:

Research and Methodology

Psycho-Physiological Activation Theories

Color as a Co-ordinating Influence

Correlation with Task Performance.

b. Task groups were assigned

to oversee completion of the 1976 Technical Report of TC 3.5.

CNC/CIE

ANNUAL REPORT

T.C. 3.6

October 27, 1977

This Committee has been very active and is ably chaired by Mr. Keith Gow of South Africa. We have convened two meetings of our sub-committee and have responded promptly to the Chairman's communications. The work of the committee is proceeding on schedule, with the intention of reporting to the next Congress in Tokyo in 1979 and the possibility of a meeting some time in 1978.

GERRY MULVEY

TC-4.1
INTERIOR LIGHTING
Eindhoven – 23-24 th November 1976

Present :	Bak	Poland
	Barthès	France
	Fischer (Chairman)	Netherlands
	de Graaff (Secretary)	Netherlands
	Wood-Robinson	Great Britain
	De Boer Vice-Président CIE - part time	

Apologies for absence were received from Messrs. Dean (Canada), Debreczeni (Hungary), Holmøy (Norway), Kessler (Switzerland), Kluev (USSR), Mrs. Lazarovska (Bulgaria), Ovesen (Denmark) and Paligoric (Jugoslavia).

After the chairman opened the meeting the proposed agenda was accepted and the minutes of the last meeting were approved.

The working programme as submitted by the chairman to the Central Bureau was slightly amended (see encl. no. 1).

The monographs have a dual purpose : to supply material that may be useful for any country intending to make national recommendations for the application field concerned and to give guidance to any individual designer of a lighting scheme. The framework should be as follows :

1) requirements
2) general lighting specifications (level, colour, glare, etc.)
3) recommendations
4) practical guidelines
5) examples.

The aspect of daylighting should be included when appropriate. The secretary will contact TC-4.2 which is working on "guides for interior daylighting design" in order to ensure agreement between these and the monographs.

The first draft for each monograph should be ready in May 1977 with the exception of the one on domestic lighting for which December 1977 was accepted as deadline.

The delegation of the application fields to the various countries accepted during the meeting :

industrial lighting	Germany
office lighting	Great Britain
school lighting	The Netherlands
lighting for selling	France
museum lighting	Great Britain
domestic lighting	Poland

It was agreed to invite Denmark to draft the monograph on hospital lighting and Canada to do the same on hotel lighting.

All members, including those who are not present, are invited to send relevant material they want to be included in a monograph to the member in charge directly.

Cooperation with other committees

The secretary reported on the TC-3.1 meeting in Paris. It was decided to form a working group to study the possibilities of including specific information on Visual Performance in a next edition of the guide. The working group will consist of : Dorsey (Chairman), De Graaff (Vice-Chairman), Barthès, Hentschell (Correspondent) and Blackwell (TC-3.1). Moreover Boyce (TC-3.1) will be invited to join this working group as well.

The secretary reported on the TC-1.5 meeting in Berlin and upon request he explained the Applied Method for the calculation of average illuminances at the room surfaces of an interior as this is under preparation. It was decided that those present will receive the draft as soon as it will be circulated to the TC-1.5 members. In principle it was accepted, as had been agreed already with the coordinator of the Action Committee, that in the next edition of the guide reference will be made to the TC-1.5 report and no separate appendix on calculations will be required.

The secretary reported on his contacts with TC-2.4 in which he had invited this committee to include in the next edition of "Photometry of indoor luminaires" the luminances to be used for the application of the Interim Glare Limiting System as given in the Guide on Interior Lighting.

Wood-Robinson reported on the work on the revision of the British system in cooperation with TC-3.5 and promised to report as soon as relevant information will be available.

Barthès reported on the effect of non-uniformity of luminance of the luminaire on glare and promised to circulate a report in which the use of a correction factor for this effect is suggested.

The secretary reported on the meeting in Paris of TC-4.9.

If this committee will be able to produce the reports they are aiming at it will contain information that may be useful for inclusion in the next edition of the Guide. If our members will be approached to assist in the collection of material it is recommended to do so.

During the discussion it was decided that the secretary should contact the Central Bureau to find out what the expectations are for the time when the first edition will be sold. In the mean time each member should watch lighting development in their country and the activities of other committees attentively to see whether subjects are dealt with which should be adapted or added in the next edition. It was decided to put this item on the agenda of each of the following meetings. The concept "visual clarity" could be a subject to be included in the next edition. To bring more clarity in the meaning of this subject Mr. Wood Robinson accepted to write a note on the parameters involved in this concept.

The draft **Guide on Emergency** lighting was thoroughly discussed. The changes suggested result in a new draft which is enclosed to the minutes as enclosure n° 2. It was decided that each member would contact the local Lumex representative in ordre to stimulate cooperation so that the Lumex and the CIE guides on emergency lighting will be complementary and not controversely. The Lumex guide is dealing mainly with lighting equipment, as regards safety, maintenance, life, installation etc. whereas the CIE guide should deal with lighting design as regards levels, distribution, output, etc.

The comments received from Mr. Dean (Canada) mainly concern aspects in the domain of the Lumex guide and hence will be passed to Lumex.

As to **Terminology** the proposed terms for inclusion in the nex vocabulary of TC-1.1 were discussed. As a result the items as given in enclosure n° 3 will be proposed to the coordinator appointed by TC-1.1 (Mr. de Boer).

The **next meeting** will be held in conjunction with the third European Congress in Florence on May 24, 1977.
The secretary will contact the organizing committee with the request to retain a conference room.
Items for the agenda are :

1. revised draft on emergency lighting
2. terminology
3. reporting on monographs
4. critical look at the guide.

TC-4.2 Daylighting

Dr. A.W. Levy has been appointed Canadian delegate to this committee, replacing Dr. D. Stephenson.

TC-4.4 Sports Lighting

October 27, 1977, Ottawa

Delegate: S.W. McKnight

Subcommittee: C.J. Courtney, A. Lafontaine, G.F. Dean, T. Nutt, D.S. Gordon

The sixth meeting of TC-4.4 was held in Hamburg on May 23rd and May 24th, 1977 to further discuss and prepare drafts on sports lighting. The minutes and status report is as follows:

1. The main TC-4.4 has no special terminologies for the 4th edition of CIE vocabulary.

2. Report: "Lighting for Football".
The second draft was discussed. Mr. Aldworth will make a third draft and will send it to the Secretary. It will be sent to all members in time for the next meeting.

3. Report: "Lighting for Sports Halls."
The text of the third draft was discussed. Mr. Aldworth will make a fourth draft and will send it to the Secretary. It will be sent to all members in time for the next meeting.

4. Report: "Lighting for Swimming".
Mr. Wittwer from Switzerland reported about the colloquium "Lighting for swimming halls". Mr. Lemons will make a second draft regarding the report from Switzerland. He will send it to the Secretary. It will be sent to all members in time for the next meeting.

5. Report: "Recommendations for the Measurement of Illumination".
The German recommendations for the measurement DIN 67526, Part 4, will be translated into English, then Mr. Lemons will make a first draft of it.

6. Report: "Lighting of Ice Sports".
The final version in German language was completed at the 5th meeting 1976 in London. Mr. Aldworth made a translation in English with some additions. This draft was discussed in Hamburg. Mr. Adlworth will send the completed text to Mr. Ziesenib for the AC end release.

7. Report: "Lighting for Tennis".*
The final draft revised by Mr. Aldworth and Mr. Balder is ready now to be sent to the AC.

8. The next meeting of TC-4.4 is proposed for May 1978 in Vienna (Austria). The exact date will be announced to the members in due time.

9. During the CIE session at Kyoto, Japan (1979) the TC-4.4 will require about two hours for meeting purposes.

10. *These reports are presently available from me on request.

TC-4.5 Exterior Lighting

Delegate: B.N. Clarkson

No report.

TC-4.6 STREET LIGHTING

October 27, 1977

Delegate: A. Ketvirtis

Sub-Committee: V.A. McCullough
E.C. Rowsell
C. Rose
H.D. Nicholson

The annual committee meeting of TC-4.6 was held on July 7-8 at Karlsruhe, W. Germany.

The working groups (Performance, Accidents, Tunnels, Surface, Wet Conditions, Installation) held discussions prior to the main committee meeting and reported to the committee the results of their work.

The chairman of the TC-4.6 Committee, Dr. A. Fisher, emphasized the importance of the committee's work in preparing international recommendations for the illumination of roads and streets. He stressed the point that CIE should think not only about Western Europe and North America, but also include into their programme the developing countries.

Some delegates raised the question of the results of comments from various countries on Document 12/2. (Canada voted "yes" in principle, but disagreed on the recommended luminance levels of 2 cd/m^2). From discussions on this subject it appeared that several countries disagreed in part with the Document 12/2, but their suggestions were ignored.

It was also learned that the Recommendations for Tunnel Lighting are not used by the member countries because the levels of luminance (1500 cd/m^2 in the threshold zone) are unrealistically high. Discussion followed how to remedy the situation.

On July 5-6 a seminar was held, sponsored by TC-4.6, on the subject of "Measures of Road Lighting Effectiveness". The papers presented at this seminar will be published in the Proceedings.

The next Annual Meeting will be held on June 20-23, 1978 in Grenoble, France.

TC-4.7 Automobile Lighting

Delegate: G.L. Snider
Subcommittee: P. Brudy
H.F.L. Pinkney

No report.

TC-4.8 Aircraft Lighting

Delegate: J.M. West

No report.

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October 24, 1977.

TO: The Chairperson,
CNC/CIE,
Annual Report for 1977

FROM: A. T. Orr

Report TC 4.9
Lighting Economics and Statistics

After establishing a skeletal organization for TC 4.9, the first approach of Ing J. Svehla, Chairman, was to commence preparation of:

1. First draft working programme for 1975 - 1979.
2. First draft of Publication A (Technical and Economical Parameters of the Perspective Lighting Development).
3. First draft of Publication B (Cost-Benefit Relationships of Good Lighting).

In the first working meeting three main work groups were established as follows:

WG 1 Future demand on light sources and power
Chairman, Mr. J. Svehla -- Czechoslovakia

WG 2 Parameters of lighting benefits
Chairman, Mr. A. B. de Graff -- Netherlands

WG 3 Parameters of lighting costs
Chairman, Mr. G. V. McNeill -- Great Britain

We have supplied, in correspondence, the general information requested by WG 3.

Responses have been forwarded to CNC/CIE.

TC-4.10 Mine Lighting

Delegate: Prof. D.A. Trotter

Subcommittee: F.R. Dorward
C. Azevedo
S. Homulos
A. Job
P. Nicoll
W.M. McKnight

The following changes were made in the make-up of the committee since last December.

(i) Prof. D. Trotter replaced Mr. F.R. Dorward as delegate
(ii) Mr. Dorward became a member of the subcommittee
(iii) Mr. D. Hemmings was dropped as a member of the subcommittee
(iv) Mr. Carlos Azevedo of Noranda Research Centre became a member of the subcommittee
(v) Mr. Peter Nicoll of the Institute for Mineral Industry Research became a member of the subcommittee

During the past year TC-4.10 was involved in the following activities.

1. In April a 4 page preliminary report was drafted and forwarded to Dr. A. Peretiatkowicz of Poland as Canada's contribution to a preliminary working program draft.

2. In May the results of a survey of lighting levels and reflectivity factors conducted in Canadian mines in 4 provinces was tabulated and presented to the Mines Accident Prevention Association of Ontario in a paper of their annual meeting in Toronto.

3. In July an article was produced in the Canadian Mining Journal entitled "Safety's Newest Concern - Mine Lighting".

4. A three day Professional Development Seminar on Mine Lighting is now organized and will be held in Montreal on November 7th, 8th, and 9th. At the conclusion of the seminar on November 9th the subcommittee members will meet to draft recommendations for mine lighting to the C.I.E. based largely on feedback and discussions from the seminar.

Copies of the material referred to above have been deposited with the Secretary.

Study Group F:
Photochemistry and Agriculture

Delegate: B.N. Clarkson

No report.

Study Group G: Global Radiation

Delegate: W. Budde

A questionnaire was distributed to individuals who are known to be interested in the spectral power distribution of global radiation. The purpose of this questionnaire was

a) to establish the need for spectral data on global and solar radiation and particularly the format of the required data (e.g., wavelength range, geometry of measurement, atmospheric conditions, time periods, etc.), and

b) to establish the supply of spectral data on global and solar radiation and the format of these data.

Some replies have been received together with various suggestions for more individuals who should be contacted. However, some other expected and promised replies are still missing.

SANDERS ROBERT.
TC. 1.2 in Berlin.

Recommendation P 1 (1977)

The CCPR, considering

- That many quantities involving electromagnetic radiations and biological factors need to be measured,

- That the number of units in SI having special names should not be increased unnecessarily,

Recommends

- That before the introduction into SI of any additional special nam for a unit of a quantity involving electromagnetic radiations and biological factors careful consideration be given to the possibility of choosing one of the existing SI units. For instance, for a quantity involving a spectral distribution of radiant power weighted by a photo-biological spectral function, the weighting function might be made dimensionless and the quantity therefore be expressed in terms of the watt.

Recommendation P 2 (1977)

The CCPR, considering

- The increasing use of radiometric methods to measure photometric quantities,

- The increasing need for compatibility between radiometric and photometric measurements,

- The desire of the national laboratories to maintain continuity of the photometric scale values,

- The values of spectral luminous efficacy considered by the national laboratories as giving best continuity,

Recommends

- That the value 683 lumens/watt be adopted for the spectral luminous efficacy of monochromatic radiation of frequency 540.015 4 x 10^{12} hertz, for photopic, mesopic and scotopic vision.

Approved by Int. Wts & Measures in Oct.

Orr - left meeting early.

1.5. Marion Bassett. Lighting Calculations. 3.5 Visual Environment.
1.6. Visual Signalling. No report.
1.7 Sanders.

2.1 Sources - Dowsard
2.2 Budde -

2.3 Budde - gloss measurements.
3.4 John Charlton - Discomfort Glare.
PO Box 95
Niagara on the Lake write for reports
Ontario

Recommendation P 3 (1977)

The CCPR,

-Reconsidering its Recommendations P 1 (1975), P 2 (1975) and P 3 (1975), reconfirms these recommendations,

- Considering that adoption of Recommendation P 2 (1975) will require the introduction and definition of the lumen as the base unit of the SI replacing the candela,

- Considering Recommendation P 2 (1977) and the desirability of continuing the practice of having a single definition of the photometric base unit for photopic, mesopic and scotopic vision,

Recommends

- That the lumen be defined as follows : The lumen is the luminous flux of a monochromatic radiation whose radiant flux is 1/683 watt and whose frequency is $540.015\ 4 \times 10^{12}$ hertz.

Recommendation P 4 (1977)

The CCPR, considering

- The urgent need to have the photometric units related directly to the watt,

- The possible difficulty in having the candela replaced in the near future by the lumen as the SI base unit for photometry,

Recommends

- If it is necessary as an interim measure to retain the candela as the base unit, that the candela be defined in the following manner, consistent with Recommendation P 3 (1977) :

The candela is the luminous intensity of a monochromatic source emitting radiation of frequency $540.015\ 4 \times 10^{12}$ hertz, in a direction for which the radiant intensity is 1/683 watt/steradian.

TC-3.2 Colour Rendering

Delegate: A.R. Robertson
Subcommittee: C.L. Sanders
G. Wyszecki

Philips 90 l/watt 100 l/watt → pinkish skin i.e. colour rendering questioned.

Meetings of the Committee were held in November 1976 in Eindhoven, and July 1977 in Troy, New York. No Canadian delegate was present at either meeting. The main items discussed were colour rendering of lamps used for colour reproduction, the use of fluorescent test colours to assess the ultraviolet content of lamps, the colour-rendering of 3-wavelength sources, the relationship between colour rendering and colour discrimination, the concept of visual clarity, colour preference indices, the effect of the new colour-difference equations recommended by TC-1.3 (Colorimetry) and terminology. An order of priority has been set for these items, with terminology, fluorescent test-colours and illumination for colour reproduction being given the highest priority.

T.C.-2.4 Luminaires Delegate: Z.S. Subotich

A meeting of this Technical Committee was held on the 19th and 20th of September, 1977 in Warsaw, Poland and it was not attended.

This Committee is concerned with photometric requirements, as detailed in British Zonal Method for Interior Illumination.

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At the meeting in Warsaw two other items were discussed: "Photometry at Short Distances" (wallwasher) and "Photometry at Long Distances" (searchlights).

Early next year, an effort will be made to obtain all these approved, published or draft forms for distribution and consideration of IES (New York) Testing Procedure Committee for correlation and information re test methods and calculations.

3.1. Visual Performance - John Charlton?

TC-1.3 Colorimetry

Delegate: A.R. Robertson
Subcommittee: W. Budde
C.L. Sanders
G. Wyszecki

A meeting of the committee was held in July 1977 in Troy, New York attended by the Canadian delegate and two subcommittee members. The four main areas of discussion were correlated colour temperature, colour-difference evaluation, standard sources, chromatic adaptation and colour terminology.

The effect of the new recommended colour-difference formulae on the definition of correlated colour temperature was discussed at length. It was decided to recommend no change for the time being because the uncertainty of visual judgements is comparable to the difference between the various formulae.

The colour-difference subcommittee is planning a co-ordinated program of research to provide a comprehensive data base with which colour-difference formulae can be tested. It is hoped that eventually a better formula will be developed.

The subcommittee on sources has studied several methods for evaluating daylight simulators and is now preparing its final recommendations for a standard method for both the visible and ultraviolet ranges.

The chromatic adaptation subcommittee is studying the effect of adaptation to different sources and is assembling its data in the form of chromaticity diagrams in which lines of constant hue and saturation are plotted for each adaptation condition.

The subcommittee on terminology has prepared a final draft of terms to be submitted to TC-1.1 (Terminology). The term that evoked greatest discussion was a new term "colourfulness" defined as the attribute of a visual sensation according to which an area appears to exhibit more or less chromatic colour. This term was formerly called "chroma", which it is now proposed to restrict to colourfulness judged in proportion to the average brightness of the surroundings. The related term "saturation" is defined as colourfulness judged in proportion to brightness.

TC-4.4 Sports Lighting

October 27, 1977, Ottawa

Delegate: S.W. McKnight

Subcommittee: C.J. Courtney, A. Latontaine, G.F. Dean, T. Nutt, D.S. Gordon

The sixth meeting of TC-4.4 was held in Hamburg on May 23rd and May 24th, 1977 to further discuss and prepare drafts on sports lighting. The minutes and status report is as follows:

1. The main TC-4.4 has no special terminologies for the 4th edition of CIE vocabulary.

2. Report: "Lighting for Football".
The second draft was discussed. Mr. Aldworth will make a third draft and will send it to the Secretary. It will be sent to all members in time for the next meeting.

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7. Report: "Lighting for Tennis".*
The final draft revised by Mr. Aldworth and Mr. Balder is ready now to be sent to the AC.

8. The next meeting of TC-4.4 is proposed for May 1978 in Vienna (Austria). The exact date will be announced to the members in due time.

9. During the CIE session at Kyoto, Japan (1979) the TC-4.4 will require about two hours for meeting purposes.

10. *These reports are presently available from me on request.

TC-4.6 STREET LIGHTING

October 27, 1977

Delegate: A. Ketvirtis

Sub-Committee: V.A. McCullough
E.C. Rowsell
C. Rose
H.D. Nicholson

The annual committee meeting of TC-4.6 was held on July 7-8 at Karlsruhe, W. Germany.

The working groups (Performance, Accidents, Tunnels, Surface, Wet Conditions, Installation) held discussions prior to the main committee meeting and reported to the committee the results of their work.

The chairman of the TC-4.6 Committee, Dr. A. Fisher, emphasized the importance of the committee's work in preparing international recommendations for the illumination of roads and streets. He stressed the point that CIE should think not only about Western Europe and North America, but also include into their programme the developing countries.

Some delegates raised the question of the results of comments from various countries on Document 12/2. (Canada voted "yes" in principle, but disagreed on the recommended luminance levels of 2 cd/m^2). From discussions on this subject it appeared that several countries disagreed in part with the Document 12/2, but their suggestions were ignored.

It was also learned that the Recommendations for Tunnel Lighting are not used by the member countries because the levels of luminance (1500 cd/m^2 in the threshold zone) are unrealistically high. Discussion followed how to remedy the situation.

On July 5-6 a seminar was held, sponsored by TC-4.6, on the subject of "Measures of Road Lighting Effectiveness". The papers presented at this seminar will be published in the Proceedings.

The next Annual Meeting will be held on June 20-23, 1978 in Grenoble, France.