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

HISTORY OF THE CIE

1913-1988

CIE 82-1990

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THE INTERNATIONAL COMMISSION ON ILLUMINATION

The International Commission on Illumination (CIE) is an organisation devoted to international co-operation and exchange of information among its member countries on all matters relating to the art and science of lighting. Its membership consists of the National Committees in about 40 countries.

The objectives of the CIE are:

1. To provide an international forum for the discussion of all matters relating to the science, technology and art in the fields of light and lighting and for the interchange of information in these fields between countries.
2. To develop basic standards and procedures of metrology in the fields of light and lighting.
3. To provide guidance in the application of principles and procedures in the development of international and national standards in the fields of light and lighting.
4. To prepare and publish standards, reports and other publications concerned with all matters relating to the science, technology and art in the fields of light and lighting.
5. To maintain liaison and technical interaction with other international organisations concerned with matters related to the science, technology, standardisation and art in the fields of light and lighting.

The work of the CIE is carried on by seven Divisions each with about 20 Technical Committees. This work covers subjects ranging from fundamental matters to all types of lighting applications. The standards and technical reports developed by these international Divisions of the CIE are accepted throughout the world.

A plenary session is held every four years at which the work of the Divisions and Technical Committees is reviewed, reported and plans are made for the future. The CIE is recognised as the authority on all aspects of light and lighting. As such it occupies an important position among international organisations.

LA COMMISSION INTERNATIONALE DE L'ECLAIRAGE

La Commission Internationale de l'Eclairage (CIE) est une organisation qui se donne pour but la coopération internationale et l'échange d'informations entre les Pays membres sur toutes les questions relatives à l'art et à la science de l'éclairage. Elle est composée de Comités Nationaux représentant environ 40 pays.

Les objectifs de la CIE sont:

1. De constituer un centre d'étude international pour toute matière relevant de la science, de la technologie et de l'art de la lumière et de l'éclairage et pour l'échange entre pays d'informations dans ces domaines.
2. D'élaborer des normes et des méthodes de base pour la métrologie dans les domaines de la lumière et de l'éclairage.
3. De donner des directives pour l'application des principes et des méthodes d'élaboration de normes internationales et nationales dans les domaines de la lumière et de l'éclairage.
4. De préparer et publier des normes, rapports et autres textes, concernant toutes matières relatives à la science, la technologie et l'art dans les domaines de la lumière et de l'éclairage.
5. De maintenir une liaison et une collaboration technique avec les autres organisations internationales concernées par des sujets relatifs à la science, la technologie, la normalisation et l'art dans les domaines de la lumière et de l'éclairage.

Les travaux de la CIE sont effectués par 7 Divisions, ayant chacune environ 20 Comités Techniques. Les sujets d'études s'étendent des questions fondamentales, à tous les types d'applications de l'éclairage. Les normes et les rapports techniques élaborés par ces Divisions Internationales de la CIE sont reconnus dans le monde entier.

Tous les quatre ans, une Session plénière passe en revue le travail des Divisions et des Comités Techniques, en fait rapport et établit les projets de travaux pour l'avenir. La CIE est reconnue comme la plus haute autorité en ce qui concerne tous les aspects de la lumière et de l'éclairage. Elle occupe comme telle une position importante parmi les organisations internationales.

DIE INTERNATIONALE BELEUCHTUNGSKOMMISSION

Die Internationale Beleuchtungskommission (CIE) ist eine Organisation, die sich der internationalen Zusammenarbeit und dem Austausch von Informationen zwischen ihren Mitgliedsländern bezüglich der Kunst und Wissenschaft der Lichttechnik widmet. Die Mitgliedschaft besteht aus den Nationalen Komitees in rund 40 Ländern.

Die Ziele der CIE sind:

1. Ein internationaler Mittelpunkt für Diskussionen aller Fragen auf dem Gebiet der Wissenschaft, Technik und Kunst der Lichttechnik und für den Informationsaustausch auf diesen Gebieten zwischen den einzelnen Ländern zu sein.
2. Grundnormen und Verfahren der Meßtechnik auf dem Gebiet der Lichttechnik zu entwickeln.
3. Richtlinien für die Anwendung von Prinzipien und Vorgängen in der Entwicklung internationaler und nationaler Normen auf dem Gebiet der Lichttechnik zu erstellen.
4. Normen, Berichte und andere Publikationen zu erstellen und zu veröffentlichen, die alle Fragen auf dem Gebiet der Wissenschaft, Technik und Kunst der Lichttechnik betreffen.
5. Liaison und technische Zusammenarbeit mit anderen internationalen Organisationen zu unterhalten, die mit Fragen der Wissenschaft, Technik, Normung und Kunst auf dem Gebiet der Lichttechnik zu tun haben.

Die Arbeit der CIE wird in 7 Divisionen, jede mit etwa 20 Technischen Komitees, geleistet. Diese Arbeit betrifft Gebiete mit grundlegendem Inhalt bis zu allen Arten der Lichtanwendung. Die Normen und Technischen Berichte, die von diesen international zusammengesetzten Divisionen ausgearbeitet werden, sind von der ganzen Welt anerkannt.

Tagungen werden alle vier Jahre abgehalten, in der die Arbeiten der Divisionen überprüft und berichtet und neue Pläne für die Zukunft ausgearbeitet werden. Die CIE wird als höchste Autorität für alle Aspekte des Lichtes und der Beleuchtung angesehen. Auf diese Weise unterhält sie eine bedeutende Stellung unter den internationalen Organisationen.

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PREFACE

The Commission Internationale de l'Eclairage is indebted to the two authors whose work has been combined to provide this new edition of the CIE History. Both have given long and distinguished service to the Commissin which ensures excellent qualification for the task they separately undertook.

We can, with confidence, repeat the words which appeared in the 1963 edition:

> *"We may be sure that the following pages ... are a faithful and detailed account of what has been achieved by the CIE."*

Dr. J W T Walsh, GBR
President: 1955-1959

Dr. A M Marsden, HKG
President: 1985-1987

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FOREWORD

In 1963, the history of the first 50 years of the CIE together with the 13 years of its predecessor, the CIP, appeared as Publication CIE 9. This is now out of print. In the issue of the CIE Journal celebrating the 75th birthday of the CIE (Vol. 7/2, 1988) there appeared an article covering the history of the CIE from 1959 to 1988.

This document, designated Publication CIE 82, is essentially a merger of the original CIE 9 with the 1988 Journal article, to provide a complete history of the first 75 years of the CIE. The editing of the two components has been kept to the minimum to preserve as much of the original material as possible while retaining consistency between the text and the new appendices. These appendices seek to give an accurate statistical record of CIE officers, membership, participation, and publication over the whole period - not an easy task when there are gaps in the records of the early years and when there have been changes in national boundaries associated with two world wars. Any errors which come to light in this document should be laid at the door of the new author, Dr. A M Marsden, and not at that of the original CIE historian Dr. J W T Walsh.

AVANT PROPOS

En 1963, l'historique des cinquante premières années de la CIE, et celle des treize années de la CIP (Commission Internationale de Photmétrie) qui l'avait précédée, avaient fait l'objet de la Publication CIE n° 9. Cette Publication est maintenant épuisée. Dans le numéro du CIE Journal consacré à la célébration du soixante quinzième anniversaire de la CIE (vol. 7, n° 2, 1988), on a fait paraître un article retraçant l'histoire de la CIE de 1959 à 1988.

Le présent document, Publication CIE n° 82, est essentiellement la fusion de la Publication CIE n° 9 et de l'article du CIE Journal de 1988, pour donner un historique complet des soixante quinze premières années de la CIE.

Les aménagements rendus nécessaires par la publication conjointe de ces deux textes ont été limités au minimum afin de préserver autant que possible les documents d'origine tout en respectant la cohérence entre le texte et les nouvelles annexes.

Ces annexes cherchent à donner une revue précise des personnalités officielles, des participations et des publications de la CIE, pendant toute cette période - tâche qui n'a pas été rendue facile par les lacunes dans les enregistrements et par les modifications de frontières entre états dues aux deux guerres mondiales. Toutes les erreurs qui pourraient être mises en lumière dans ce document, devront être attribuées au nouvel auteur, le Dr. A M Marsden, et non au premier historien de la CIE, le Dr. J W T Walsh.

VORWORT

Im Jahre 1963 erschien die Geschichte der ersten 50 Jahre der CIE einschließlich der 13 Jahre ihrer Vorgängerin, der CIP, als CIE Publikation No. 9. Diese Publikation ist inzwischen vergriffen. In der Jubiläumsausgabe des CIE Journals anläßlich des 75sten Geburtstages der CIE (Vol. 7/2, 1988) erschien ein Artikel, der die darauffolgende Geschichte von 1959 bis 1988 darstellte.

Das vorliegende Dokument, das als CIE Publikation No. 82 herausgegeben wird, ist eine Zusammenfassung der ursprünglichen Publikation CIE No. 9 mit dem im oben erwähnten CIE Journal erschienenen Artikel und gibt die komplette Geschichte der ersten 75 Jahre der CIE wieder. Die Bearbeitung beider Dokumente wurde auf ein Minimum reduziert, um einerseits möglichst viel vom Originalmaterial zu erhalten, andererseits aber eine möglichst gute Übereinstimmung zwischen dem Text und den neuen Anhängen zu gewährleisten. Diese Anhänge versuchen eine genaue statistische Aufzählung der CIE Vorstandsmitglieder, Mitgliedschaften, Tagungsteilnehmerlisten und Publikationen über die ganze Zeitperiode zu geben. Dies war keine leichte Aufgabe, da in den Aufzeichnungen der ersten Jahre Lücken bestanden und nationale Ländergrenzen sich infolge zweier Weltkriege änderten. Für etwaige noch vorhandene Fehler ist der neue Autor, Dr. A M Marsden und nicht mehr Dr. J W T Walsh, der Autor der originalen Historie verantwortlich.

THE PHOTOMETRIC COMMISSION

Although the Commission Internationale de l'Eclairage was born in 1913, the numbering of its Sessions has always included those of its predecessor, the Commission Internationale de Photométrie. It is therefore appropriate that this history should begin with some account of the foundation of the CIP and its activities before it was enlarged in scope and membership to form the present Commission.

The first steps towards the formation of an international body concerned with light measurement were taken at the International Gas Congress, held during the Paris Exhibition of 1900. On 3 September some 400 gas engineers and others gathered in the Palais des Congrès at the Exhibition, under the chairmanship of Prof. T Vautier, the then President of the Société Technique de l'Industrie du Gaz de France. During the course of his opening address Prof. Vautier referred to the desirability of having some general agreement on methods of measuring the light given by incandescent gas lamps and in the discussion which followed a paper on "The Photometry of Incandescent Gas Mantles", read at the opening meeting of the Congress, he proposed the following resolution:

> *"Le Congrès International de l'Industrie du Gaz, considérant qu'il est de l'intérêt général et commun des producteurs aussi bien que des consommateurs de gaz d'être exactement renseignés sur le pouvoir éclairant des becs employés pour l'éclairage à incandescence, décide:*
>
> *Une Commission internationale sera nommée à l'effet de fixer les règles à suivre dans les observations photométriques des becs à incandescence par le gaz;*
>
> *Le Bureau du Congrès est chargé de procéder à l'organisation de cette Commission internationale."*

This resolution was adopted unanimously and on the following afternoon Prof. Vautier announced that the Bureau of the Congress had met and, acting on the resolution, had decided on the constitution of the new Commission. It would consist of four members from France, four from Germany and four from Great Britain with one member from each of the following countries: Austria-Hungary, Belgium, Italy, the Netherlands, Switzerland and the United States of America. The offices were to be at the headquarters of the French Society, Prof. T Vautier and P Delahaye (Secretary of the Congress) were nominated as President and Secretary respectively and it was proposed that the first meeting should be held at Zurich, although no date was fixed. These proposals were adopted unanimously by the Congress and thus the Commission Internationale de Photométrie was founded. At a subsequent meeting of the Congress the unification of screw-threads used in gas engineering was considered and it was resolved that this matter, too, should be referred to the newly appointed Commission.

ZURICH 1903

It will be seen that the original CIP, unlike the CIE of today, was a body of very restricted membership, with a severely limited programme of work. Its first Session was held at the Zurich Polytechnikum from 19 to 22 June 1903, when 13 of the appointed members (including the officers) and one co-opted member were present. Five papers were presented by their authors, one of them dealing with the relative luminous intensities of the various flame standards then in use. The discussion on this paper led to a recommendation that there should be further comparisons of the Carcel, Hefner and (10 candle) Vernon Harcourt lamps, with the aim of fixing the relative values of the units based on these standards.

At this first Session the Commission approved a lengthy programme of work, one item being the establishment of detailed rules for the photometry of incandescent gas lamps. The subject of the unification of screw-threads was referred to a committee.

The records of this and subsequent Sessions, under the title "Recueil des Travaux et Compte Rendu des Séances", were published by the Société Technique de l'Industrie du Gaz. They were in the French language throughout, but it was agreed that editions in English and German might be published by the corresponding technical societies. In fact, an English version was published by the Institution of Gas Engineers in 1906 and this was reproduced by the American Gas Institute in 1911. Both this and a German version published in the Journal für Gasbeleuchtung for 1903 contained translations of the papers presented at the meetings. (For the subsequent Sessions in 1907 and 1911, translations were published in the pages of the leading gas journals in England and in Germany, the English version being reproduced in the Proceedings of the American Gas Institute for 1911.)

The costs of the Session were defrayed by the different national gas societies in amount proportional to the numbers of their representatives.

ZURICH 1907

At the end of the 1903 Session it was decided that the Commission should meet again as soon as the work agreed upon had been completed, or in two years time at the latest, but in fact the second Session was not held until 1907. This time the venue was the Hotel Bellevue in Zurich and the meetings were held there from 18 to 20 July. There had been several changes in membership owing to death or resignation and those present numbered one less than in 1903. In addition, however, there were representatives appointed by the national laboratories of France, Germany and Great Britain. These were respectively F Laporte, E Brodhun and C C Paterson. It is noticeable that this extension of membership was the direct result of the decision taken in 1903 to initiate a comparison between the various flame standards. Of the six papers presented at the second Session no less than three, one from each of the countries with a national laboratory, described such comparisons and it was obvious that this subject was the most important item on the Commission's programme. To prosecute the work more effectively a committee, consisting of the President with F Laporte, E Brodhun and C C Paterson, was given the task of fixing the ratios between the units derived from the different flame standards when used under normal atmospheric conditions.

A possible alternative to the flame standards was the Violle standard, proposed in 1881. This depended on the use of platinum at its melting point and a resolution was passed instructing the Bureau of the Commission to approach the national laboratories with a request that they should study the constancy of the melting point of platinum because of its importance in photometry.

Among the other matters of interest raised during discussions at this Session of the CIP was the measurement of mean spherical candle-power. It was reported that the use of the Ulbricht sphere for this purpose was being studied, both at the Physikalisch-technische Reichsanstalt in Charlottenburg and at the Laboratoire Central d'Electricité in Paris. It was at this Session, too, that the growing interest of the electrical industry in the photometry of light sources was first mentioned.

Reference should be made here to work which was going on at this time with the object of reconciling the different photometric units employed in different parts of the world. Carbon filament electric lamps were used for a series of international comparisons carried out by the national laboratories and as the outcome of these measurements the laboratories of France, Great Britain and the USA announced that from 1 July 1909, the American candle, the British candle and the French bougie décimale would all have the same value. It was added that the value of the Hefnerkerze could be taken as nine-tenth of this common unit. Although this agreement was sponsored by the national laboratories and not by the CIP, there is no doubt that it was facilitated by the work on the different flame standards that had been fostered by and reported to the Commission.

ZURICH 1911

The third Session of the CIP was held from 26 to 29 July 1911, once more at the Zurich Polytechnikum. On this occasion 14 members were present but this number did not include the recently appointed representative of USA, Dr. E P Hyde, who had taken a very active part in the work leading to the agreement of 1909 mentioned above. This agreement was now officially endorsed by the Commission.

As at previous Sessions a number of papers were presented, one of them describing research into the effect of atmospheric conditions on the Hefner and pentane lamps, others describing the effects of various factors on the light output from incandescent gas lamps. It was at this Session that the Commission, as the result of reports of investigations carried out over a number of years, recommended that the test of illuminating power applied to gas should be replaced by a measurement of its calorific value.

A short paper, of great interest in the light of present-day developments in photometric standards, was presented by H Strache of Austria-Hungary. He pointed out that if the radiation from a source were weighted in accordance with the sensitivity of the eye - and here he referred to the dispersion-and-mask method of doing this - its measurement in absolute units was, in effect, a measurement of the light from the source. He remarked that it would be necessary to determine the mean sensitivity curve of the eye and thus foreshadowed the establishment of the $V(\lambda)$ curve by the CIE in 1924. The proposals in this paper were referred to a committee for further study. Another committee was set up to study proposals for the establishment of an international system of photometric quantities and their units.

At this Session two meetings were devoted to matters of organization. In particular it was decided that the future membership of the Commission should comprise up to 6 nominees from each of the technical gas societies of France, Germany and Great Britain, with 2 from each of the other countries represented at the time. Voting would be by countries and decisions would require an affirmative vote from four-fifths of the countries voting.

A further significant step was taken when it was decided to ask the National Electrotechnical Committees of the different countries to nominate members, two each from France, Germany and Great Britain and one from each of the other countries. This extension of the membership was recognition of a growing feeling that the scope of the Commission's work should be widened to include all aspects of lighting.

AN ILLUMINATION COMMISSION

The new technology of illuminating engineering was developing rapidly and societies had been formed to foster its progress, first in the USA in 1906, in Great Britain three years later and in Germany in 1912. The measurement of light sources was now becoming only part of a much wider activity, the study of how to use to the best advantage the light which these sources provided.

Only a few weeks after the third Session of the CIP, the matter was raised at the International Electrical Congress held in Turin from 10 to 16 September 1911, and as the result of a proposition by Leon Gaster (representing the British Illuminating Engineering Society), the following resolution was passed unanimously :

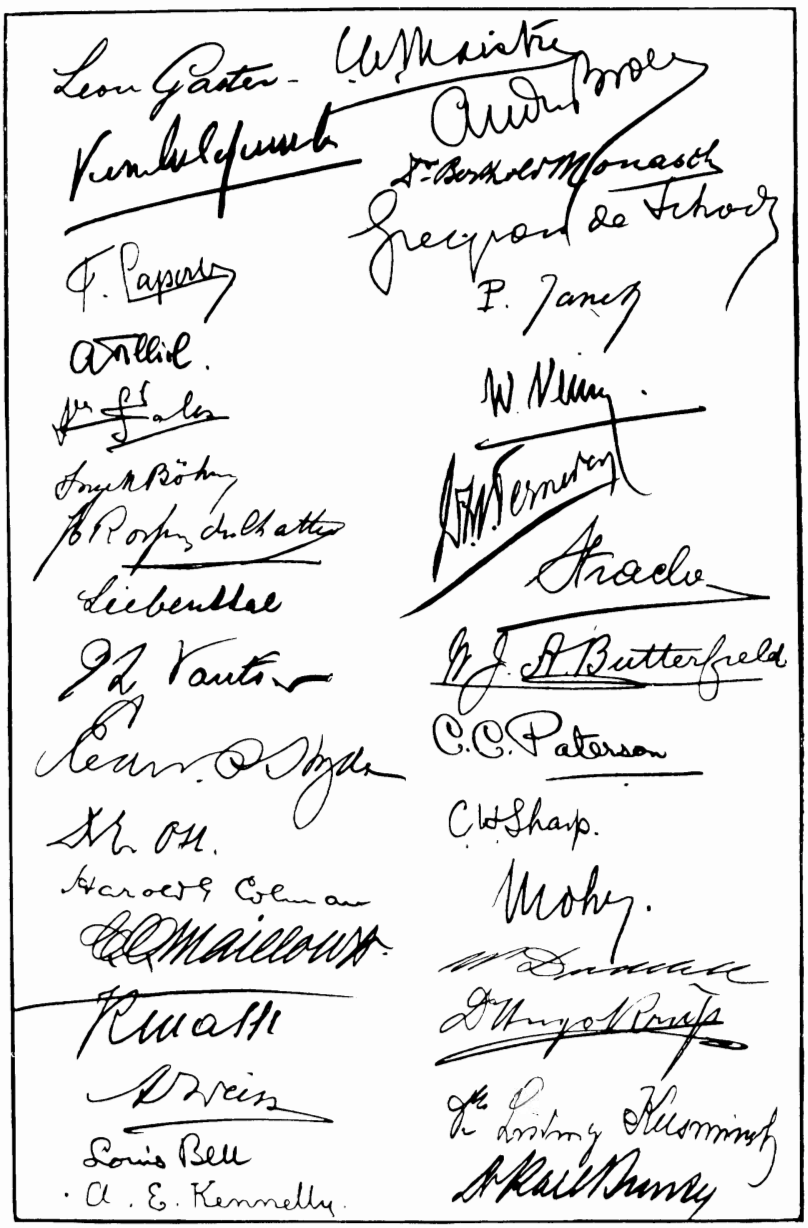
> *"Il Congresso crede che sia desiderabile che sia nominata una Commissione Internazionale per lo studio di tutti i sistemi di illuminazione e di tutti i problemi tecnici che interessano la illuminazione, e, presa notizia del fatto che la "Illuminating Engineering Society" di Londra intende di formare una tale Commissione internazionale, mettendosi perciô in relazione con tutte le altre Commissioni fotometriche nazionali e internazionali già esistenti, approva l'iniziativa."*

The various decisions on organization, made by the CIP in 1911 as mentioned above, required ratification by the gas societies in the different countries and in January 1912 the President wrote to each society for its approval. The reply from the American Gas Institute suggested a broadening of the basis of the Commission's activities and this reply was carried personally to Prof. Vautier by Dr. Hyde who took the opportunity to visit several countries and obtain the views of those most interested in the matter in Great Britain, Germany and the Netherlands, as well as in France. He found general agreement that the proposed widening of the Commission's scope was desirable and the outcome was a reply, in June 1912, from Prof. Vautier to the American society, agreeing in principle with their proposals. The task of working out, with him, a fresh constitution for the Commission was entrusted to the committee which had been appointed in 1911 to study proposals for systematizing the photometric quantities and units. This committee consisted of E Brodhun, E P Hyde, L Kusminsky, F Laporte and C C Paterson, but as Dr. Hyde had played such an active part in initiating the move towards reorganization, he felt that it would be better for someone less committed to take his place. He therefore resigned from the committee and E B Rosa was appointed to replace him.

BERLIN 1913

The committee, with C C Paterson as secretary, worked quickly and draft Statutes for a much enlarged Commission, to be called the Commission Internationale de l'Eclairage, were ready for consideration by the delegates to the fourth Session of the CIP held in Berlin from 27 to 30 August 1913, under the presidency of Prof. Vautier. The whole of the Session was devoted to a discussion of this draft and a number of amendments to it were made. The business was entirely non-technical and the records were never printed, a fact which has sometimes led to enquiries from zealous librarians worried by an apparent lacuna on their shelves. A large number of copies in the French language was, however, reproduced in mimeographed form and the Statutes themselves, as finally agreed, were printed in Lyons in 1923, long after the first meeting of the new Commission. They were given the operative date of September 1913.

These Statutes changed completely the structure of the Commission. No longer was it to consist of a small number of nominees of the technical societies concerned with gas engineering in each country. Instead, any country which wished to participate in the work of the Commission and be represented at its meetings could do this only by forming a National Committee which was truly



An interesting memento of the historic occasion in Berlin 1913.

Facsimile of signatures of delegates on the menu of the dinner given at the Esplanade Hotel during the Congress.

Prof. T Vautier, FRA
President: 1900-1913 CIP, 1913-1921

Dr. E P Hyde, USA
President: 1921-1927

representative of all the bodies in that country with a strong technical interest in lighting. This Committee was responsible for selecting its country's delegation to Sessions of the Commission and for providing that country's contribution to the Commission's expenses. The National Committees were, in fact, the channels through which lighting engineers in the different member countries could come together for mutual discussion and, where appropriate, make recommendations which had behind them the force of international agreement.

Responsibility for the day-to-day conduct of the Commission's affairs was entrusted to a Bureau consisting of the chief officers, acting under the general supervision of an Executive Committee, the body of which was composed of two representatives of each member country. The Honorary Secretary was to be assisted by a paid General Secretary whom he appointed subject to the approval of the Executive Committee.

Three languages, French, English and German, were recognized for use at meetings, although French remained the language in which all official decisions were to be expressed. Other statutes dealt with the organization of the Sessions, with financial arrangements and the like. The title proposed in the draft was adopted and the object was stated as follows :

> *"La Commission a pour objet d'étudier toutes les questions ayant trait à l'industrie de l'Eclairage et aux Sciences qui s'y rapportent, et d'établir, par tous moyens appropriés, des ententes internationales sur les questions d'éclairage."*

The number of delegates present at Berlin in 1913 was 45. A full list of the delegates is given in the brochure containing the Statutes which, as noted earlier, was printed in 1923.

At the last meeting of the Session the officers of the new Commission were elected - T Vautier (France) as President, H Bunte (Germany), E P Hyde (USA) and L Kusminsky (Austria) as Vice-Presidents, C C Paterson (Great Britain) as Honorary Secretary.

It was agreed that the offices of the Commission should be located in the country of the Honorary Secretary, i.e. then in Great Britain, that each member country should contribute the sum of 1250 francs to the funds of the Commission and that the salary paid to the General Secretary should not exceed 5000 francs per annum. Finally it was decided that the next Session should be held in Paris and, in accordance with the new statutes which called for a Session every three years, that it should take place in 1916, but unfortunately this was not to be.

There is nothing further to record after 1913. A General Secretary was appointed, but the outbreak of the first world war came soon afterwards and the appointment was terminated because it was clear that the work of the Commission would have to be suspended until the cessation of hostilities.

PARIS 1921

In the spring of 1920 Dr. Hyde again visited Europe to explore the possibility of re-starting the Commission's activities and found general support for the suggestion that a Session should be held in 1921. The Honorary Secretary, accompanied by the new General Secretary appointed soon after the end of the war, then went to Paris to discuss with members of the Comité National Français de l'Eclairage the arrangements to be made for holding the meetings at the headquarters of the Société du Gaz, 6 rue Condorcet. On 5 July 1921, the fifth Session was opened by M Le Trocquer, Ministre des Travaux Publics, the chair being taken at all meetings by the President, Prof. Vautier.

Of the former CIP member countries only Belgium, France, Great Britain, Italy, Switzerland and USA were represented, but a delegate from Spain attended the meetings and took part in the proceedings. At the final plenary meeting of the Session a modification of the statutes was approved, with the object of facilitating the entry of new countries where it was difficult to comply fully with the rather detailed requirements for membership of a National Committee, as laid down in 1913.

The total number of delegates present in Paris was 24, including the officers, and 19 papers and other communications were presented either by organizations or by individuals in the different member countries. Seven of these dealt with units and standards or with definitions, and six others with heterochromatic photometry or the definition of the "standard eye". The remaining six were concerned with lighting practice.

At the final plenary meeting on 7 July, besides the amendment to the statutes noted above, and the establishment of the rate of contribution from the different countries (£ 2.5 sterling per million of inhabitants, with limits of £ 25 and £ 200), a number of study committees were appointed to work in the interval before the next Session which, according to the statutes, should be held in 1924. These committees were to deal with the following subjects :

(a) Heterochromatic photometry.
(b) Definitions and symbols.
(c) Lighting in factories and schools.
(d) Automobile headlights.

Definitions were adopted for the three fundamental quantities, luminous flux, illumination and luminous intensity, and for their units. The unit of luminous intensity was named the "bougie internationale" and its value was that used by the national laboratories of France, Great Britain and USA since 1909. This unit and its name were never adopted in Germany, which was not represented at the 1921 Session of the CIE.

Prof. Vautier having expressed his wish to relinquish the presidency, Dr. Hyde was appointed President in his place. Three Vice-Presidents were appointed, viz. F Rouland (France), G Semenza (Italy) and K Edgcumbe (Great Britain). The first Treasurer, A Weiss, had died during the war and at the President's request the Hon. Secretary had acted also as Treasurer for the time being. This arrangement was continued and in fact C C Paterson remained both Hon. Secretary and Treasurer until 1928. Prof. Vautier was elected the first Honorary President of the Commission and he continued to hold this office until his death in 1930.

The Proceedings of this Session were published in 1923 under the same title as that used for the Proceedings of the CIP, "Recueil des Travaux et Compte Rendu des Séances", the French language being employed throughout as before.

GENEVA 1924

At Paris it had been decided that the 1924 Session should be held in America but the proviso was added that, should circumstances make this inadvisable, the Executive Committee might alter the venue. The wisdom of this arrangement became apparent in due course and in fact for its sixth Session the Commission returned to Switzerland, although not to Zurich. The meetings were held in the Palais Eynard at Geneva from 22 to 25 July, under the presidency of Dr. Hyde. 34 delegates attended from France, Great Britain, Italy, Switzerland and USA, while Japan and Poland each sent an observer. It was announced that South Africa had been admitted to membership of the Commission but there is no record of this nor of the attendance of any delegation from that country at this Session.

Some changes of procedure were introduced at this Session. Interpreters from the International Labour Office were present to translate into English what was said in French and vice versa. Further, the President did not occupy the chair throughout; at his request delegates from different countries presided at the various technical meetings.

The number of papers and other communications was much larger than at previous Sessions, viz. twenty-nine, and these were grouped so that related subjects could be discussed at each of the five technical meetings. At the first of these meetings two of the papers presented, one by H E Ives and the other by P Fleury, dealt with the use of a full radiator (black body) as a primary standard of light. Further, on the proposition of the U.S. National Committee two resolutions were passed, one recommending the adoption of such a standard and the other asking the national laboratories to give effect to the proposal (a) by defining the construction and methods of use of the black-body standard and (b) by establishing a value for its brightness (now luminance) in terms of the "international candle".

At the second meeting the delegates discussed matters of nomenclature and a committee was set up to study the preparation of a lighting vocabulary. This committee consisted of a Swiss chairman and three other members, with such further additions in the future as might be necessary to secure the inclusion of one member for each of the languages officially represented in the CIE.

The third meeting was the most noteworthy in that it led directly to the standardization of what is now termed the relative luminous efficiency of radiation ($V(\lambda)$). The subject under discussion was heterochromatic photometry and a report of the committee on this subject, appointed in 1921, was presented by Prof. C Fabry.

Among the other papers read and discussed at this meeting was one by K S Gibson giving a résumé of the work so far published on what was then called the "relative visibility function" and including a table of values put forward by the author and E P T Tyndall as the result of a critical appraisal of the figures found by different observers using different methods. In view of the importance of having such a table internationally agreed for use in heterochromatic photometry, the Commission decided to recommend the provisional adoption of the set of values given in this paper. Thus the standard photometric observer was given a "provisional" existence which, although it has been threatened from time to time, still survives today. Another noteworthy step taken at this meeting was the appointment of a committee on colorimetry.

It was at the fourth technical meeting that the enlargement of the Commission's field of interest first became apparent, for the 7 papers then read and discussed dealt with various aspects of lighting practice; in particular there were 3 papers on public lighting.

At the fifth and last technical meeting, part of the time was devoted to a consideration of the report of the committee set up in 1921 to study the lighting of factories and schools. This report made a number of recommendations regarding the minimum values of illumination required for different kinds of work, the avoidance of glare and the provision of emergency lighting. After some amendments had been made, the use of the report as a basis for regulations regarding lighting in factories and schools was recommended. The remainder of the time at this meeting was mainly taken up by a discussion of the report of the committee on automobile headlights and of several other papers on this subject.

At the closing plenary meeting of this Session decisions reached at the various technical meetings were ratified and the officers were re-elected for a further period of three years, Dr. Hyde remaining President and C C Paterson combining as before the offices of Honorary Secretary and Treasurer. A decision sufficiently unusual to deserve mention was taken with regard to the financial contributions required from the various member countries. These were reduced from 50 to 35 shillings per million inhabitants, with a similar reduction in the maximum and minimum amounts.

The Proceedings of this Session, much longer than those of previous Sessions, were printed in England and for the first time, although the minutes and recommendations were in the French language, papers and reports were printed in the language (French or English) in which they were presented, each such report being preceded by a summary in all three of the official languages.

BELLAGIO 1927 AND SARANAC INN 1928

At the Geneva Session it was agreed that the Commission should meet in 1927 in the United States of America, though again the possibility that this might prove impracticable was not ignored and Italy was mentioned as a possible alternative. As time passed it became clear that the original plan could not be adhered to strictly and a compromise was ultimately arranged. The place of meeting remained unaltered but the holding of the Session was postponed for a year. In 1927, however, meetings of all the technical committees were held at Bellagio, Italy, and as these meetings were not restricted to the members of the committees the gathering was, in many respects, a full meeting of the Commission, although not a plenary Session with power to make official recommendations.

The total number of delegates at Bellagio was 67 and ten of the countries then in membership of the Commission, viz. Austria, Belgium, France, Germany, Great Britain, Italy, Japan, the Netherlands, Switzerland and USA, were represented. Prof. M Chatelain of USSR also attended.

The committees which had been appointed at different Sessions were six in number, dealing respectively with (i) Definitions and symbols, (ii) Vocabulary, (iii) Heterochromatic photometry, (iv) Lighting in factories and schools, (v) Automobile headlights and (vi) Colorimetry, and at Bellagio each of them except the last-named met at least once. There were also two "general meetings" of delegates and at the first of these an ad hoc committee was appointed to consider how best the work of the CIE might be developed in the future. Its report to the second general meeting recommended that the field of the Commission's activities should be divided into fifteen sections, including those six for which technical committees had already been appointed. The additional nine sections were as follows : (vii) Street lighting, (viii) Coloured glasses for signals, (ix) Diffusing materials, (x) Photometric test plates, (xi) Precision of photometric measurements, (xii) Light flux distribution, (xiii) Daylight, (xiv) Cinema lighting and, finally, (xv) Glare.

Each of the 15 sections was to be assigned to the National Committee of one of the member countries and that National Committee, called the Secretariat Committee for the corresponding subject, was to be responsible for fostering international study in its particular field and for maintaining contact with all other National Committees through experts appointed by those Committees. To quote the report :

> *"On s'attend à ce que le 'Secretariat Comité' fasse une étude spéciale de son propre sujet et soit responsable des rapports qui seront présentés à la prochaine réunion de la Commission ..."*

The proposals just outlined were adopted by the Executive Committee and reported to the general meeting. As already mentioned, this meeting was not competent to take any official action on behalf of the CIE, so the new method of working was introduced by the Executive, acting under the authority of the statute by which it was entrusted with "complete responsibility for the affairs of the Commission". The matter has been referred to here at some length because the method by which the Commission carried out its technical work for over 40 years developed directly from the recommendation adopted at Bellagio in 1927.

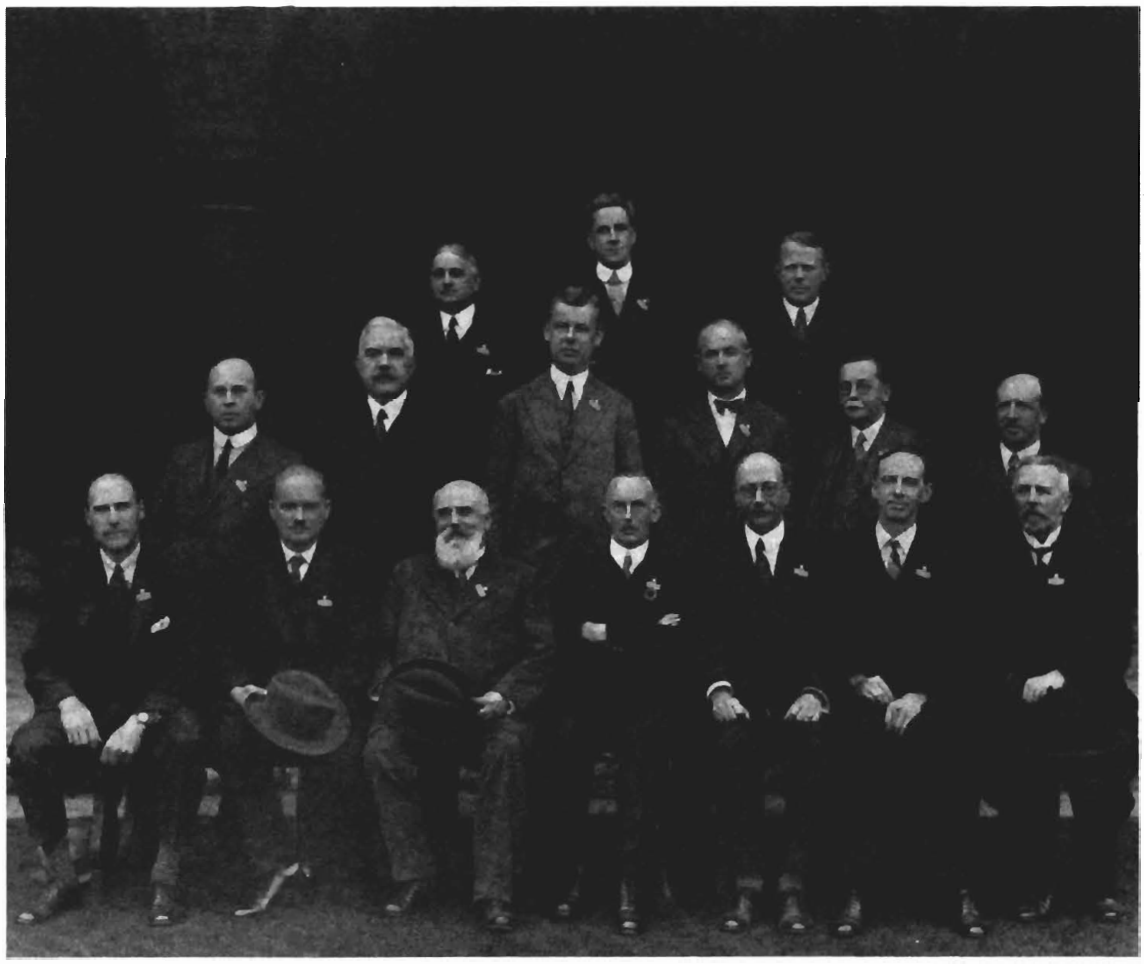
Another decision taken by the Executive Committee and reported at the general meeting was the election of the Honorary Secretary, C C Paterson, as President until the next Session, to fill the vacancy caused by the resignation of Dr. Hyde. At the same time A Filliol (Switzerland) was appointed Treasurer.

The seventh Session of the Commission was held in the United States of America in 1928, a year later than originally planned. The meetings took place at Saranac Inn, N.Y., from 24 to 28 September, but they were preceded by an "Illumination Congress". This began three weeks earlier with a series of technical visits in a number of cities in the USA and culminated in the Annual Convention of the American Illuminating Engineering Society at Toronto, Canada.

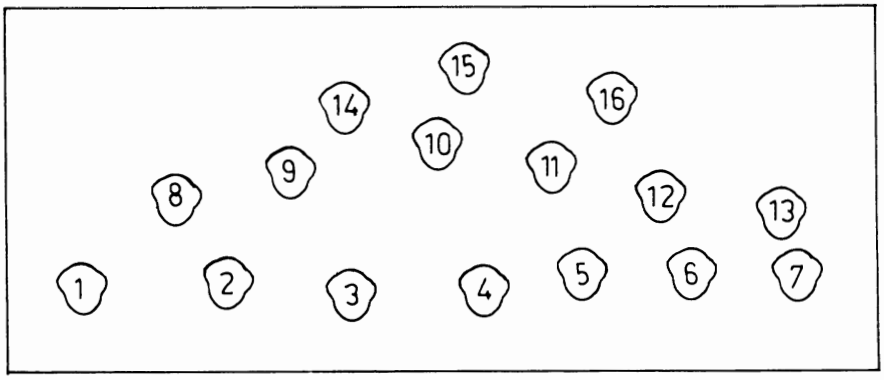
At Saranac Inn 67 delegates were present from nine of the member countries, viz. Austria, France, Germany, Great Britain, Japan, Netherlands, Sweden, Switzerland and USA. Neither Belgium nor Italy was represented on this occasion but there were observers from Brazil, South Africa and USSR.

Visit to the Edison Laboratories, Crange, New Jersey, 6. Sept. 1928.

Thomas Edison is standing in the middle of the group.



Cambridge 1931. Leaders of the Delegations and Officers.



1. K Edgcumbe (GBR) - 2. W Dziobek (DEU) - 3. H Abraham (FRA) - 4. C C Paterson (GBR) - 5. A Filliol (CHE) - 6. E C Crittenden (USA) - 7. H de la Paulle (BEL) - 8. A M Baidaff (ARG) - 9. A Enstroem (SWE) - 10. N A Halbertsma (NLD) - 11. L V Rihanek (CSK) - 12. R Hiecke (AUT) - 13. T Czaplicki (POL) - 14. C Clerici (ITA) - 15. J W T Walsh (GBR) - 16. I Folcker (SWE).

At the opening plenary meeting only formal business was transacted, but at subsequent technical meetings most of the secretariat committees presented reports on their respective subjects in accordance with the arrangements envisaged at Bellagio. In addition to these secretariat reports, 41 papers and other communications were presented and discussed in the appropriate meetings. For several subjects it was found necessary to hold more than one meeting in order to provide time for adequate discussion. Further, four additional meetings were held to discuss subjects other than those included in the list drawn up in 1927, viz. lighting education, aviation lighting, home lighting and shop-window lighting. As the Session was limited to five days, it was frequently necessary to hold two or even three meetings at the same time.

It is, perhaps, worth noting here that there were no professional interpreters at this Session; translations, where required, were provided by multi-lingual delegates present at the meetings. This arrangement was found to work satisfactorily and was adopted at all subsequent Sessions until 1955 when simultaneous translation was used for the first time.

The experience of the previous seven or eight years had shown that the Statutes, drawn up in 1913 when the CIE was first established, required some revision, and shortly before the opening of the 1928 Session the Executive Committee had appointed a committee of eight delegates, under the chairmanship of Prof. J Chappuis, to examine the matter. Their report was presented at the closing plenary meeting of the Session and a revised set of Statutes was adopted unanimously. The principal changes, which in fact did little more than regularise current practice, were as follows :

(a) The number of delegates appointed by a National Committee was no longer limited to 10.
(b) The appointment of study committees, with one of the National Committees as secretariat, was provided for in the Statute dealing with the organization of the Commission.
(c) Every paper or communication was to be preceded by a summary in each of the three official languages.

Besides approving the new Statutes, the delegates at the final plenary meeting of the Session endorsed a number of recommendations made at technical meetings. Among these was the adoption of 85 cm as the height above floor level at which measurements of illumination in interiors should normally be made. The committee on colorimetry was urged to initiate a programme of research on matters fundamental to the establishment of a system of colour measurement. At the technical meeting on heterochromatic photometry it had been reported that the ratio between the "international candle" and the Hefnerkerze, accepted as 10/9 by the CIE in 1911, was in fact very noticeably different at different colour temperatures, ranging from 1.11 at about 2000 K to 1.17 at about 2600 K. The explanation was, no doubt, that in making the heterochromatic comparisons needed for deriving standards at the higher temperatures from those used at the time of the original agreement, different methods had been adopted in the different laboratories. The CIE therefore recommended that work should be carried out with the aim of finding a method of heterochromatic photometry which would give results in accordance with those obtained by spectrophotometry and the use of the values of $V(\lambda)$ recommended by the Commission in 1924. As a temporary expedient, values for the ratio of the two units at three different colour temperatures were recommended.

At the end of the Session the officers were all re-appointed for the period until the next Session except that, as C C Paterson was President, the office of Honorary Secretary was taken over until 1931 by Dr. J W T Walsh who had been General Secretary since 1920.

The extent to which the Commission's work had grown in volume and in scope may be gauged from the fact that the Proceedings of the seventh Session occupied no less than 1249 pages, nearly three times the number in the volume for the Geneva Session. The printing was done in America and again each paper and report appeared in the language of the original. The discussions at meetings, too, were reported in the languages used by the various speakers, but the official recommendations were given only in French, as required by the Statutes.

CAMBRIDGE 1931

The eighth Session, like that in 1928, was preceded by an Illumination Congress which this time took the form of a series of meetings at different centres in Great Britain, viz. Glasgow, Edinburgh, Sheffield and Birmingham. In each town there was a day of meetings, usually three in the morning and three in the afternoon, and at each meeting papers bearing on a single subject were presented and discussed. The total number of papers was 103 and these (but not the discussions) were subsequently published in two volumes of the same format as the CIE Proceedings. The arrangement by which a Session of the CIE was preceded by a series of meetings for the presentation and discussion of papers by individual authors was an attempt to satisfy the demands of those who put most emphasis on the first of the four "objects" of the CIE as set out in the revised statutes, viz. "To provide an international forum for all matters relating to the science and art of illumination".

Their views were not accepted universally and it was considered by some that if too much time were devoted to the reading of papers, the other objects, in particular the work leading to the promulgation of international recommendations, might be impeded. Ever since, however, the balance between these two points of view has been held satisfactorily, the emphasis shifting slightly to one side or the other according to the circumstances of the time.

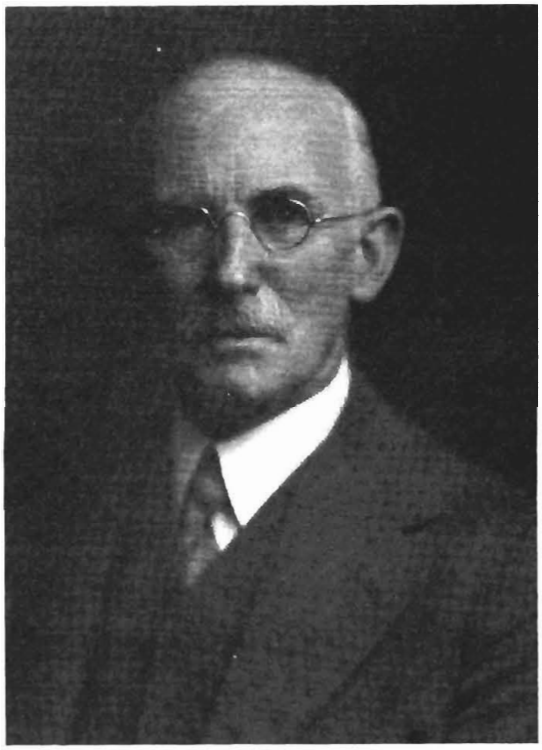
The Commission Session was held at Cambridge, in Trinity College, from 14 to 19 September and 152 delegates were present from 14 member countries, now including Argentina, Poland and Czechoslovakia. Hungary, too, was a member of the CIE but was not represented at Cambridge. Six other countries, viz. Canada, the Irish Free State, New Zealand, South Africa, Spain and USSR, sent observers.

The technical meetings were almost entirely devoted to the presentation of 19 reports from secretariat committees and to the discussion of matters arising from them. Practically all papers by individual authors had been dealt with at the Congress meetings and only six, those most closely connected with the Commission's work, were taken at Cambridge. One of these led to a decision that the CIE should undertake the study of the ultra-violet and infra-red radiation from light sources. Two of the others dealt with standards of luminous intensity and on this subject a small committee, with the CIE Bureau acting as secretariat, was set up to collaborate with the CIPM (Comité International des Poids et Mesures) which had recently decided to extend its work to include photometry.

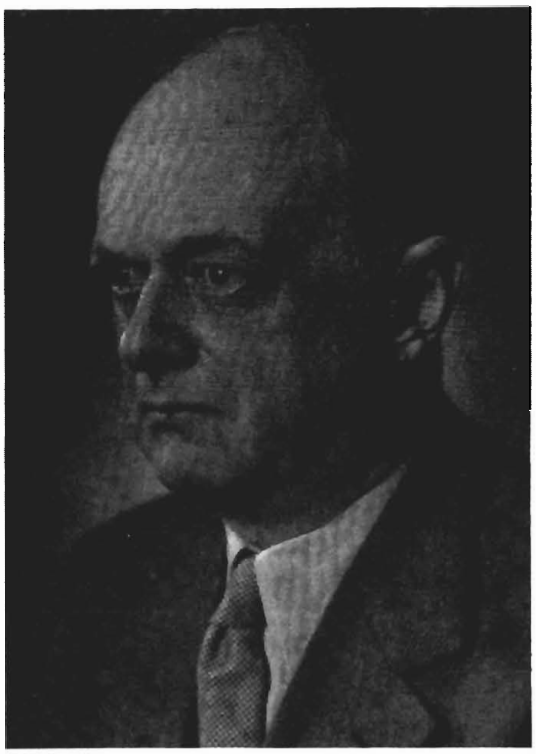
By far the most important matter dealt with during the course of the 1931 Session was the establishment of an international system of trichromatic colorimetry, the now generally accepted "CIE System". The primaries of the CIE chromaticity chart were specified and the colour vision characteristics of a "reference observer" were defined by extensive tables giving (a) the co-ordinates of points on the locus of spectral radiation in the chromaticity chart and (b) the distribution coefficients for light with an equal-energy spectrum (on a uniform wavelength scale) which was adopted as the "standard white" light. Three illuminants for use in colorimetry were defined, and a number of other recommendations regarding colorimetric measurement were made.

Aviation lighting was another subject in which a number of important recommendations were approved and a trilingual vocabulary of 39 terms was drawn up. On the subject of daylight it was recommended that any point in a room where the daylight factor was less than 0.2 per cent should be regarded as having insufficient daylight for ordinary work. The recommendations made in 1924 with regard to the lighting of factories and schools were endorsed, but the table of minimum values of illumination required for different kinds of work was supplemented by a new table giving the higher values that should be regarded as desirable. (A further short supplementary table of minimum values in schools was added at the 1935 Session.)

At the final plenary meeting the list of secretariat committees was revised and extended by the sub-division of several of the subjects in the list of 1928 and the addition of others. Dr. A R Meyer, head of the German delegation, was elected President until the conclusion of the next Session which, it was decided, should be held in Germany in 1934. C C Paterson resumed the office of Honorary Secretary and A Filliol was re-appointed Treasurer. W S Stiles, who had been General Secretary since 1928 continued in office until 1932.



Sir Clifford C Paterson, GBR
President: 1927-1931

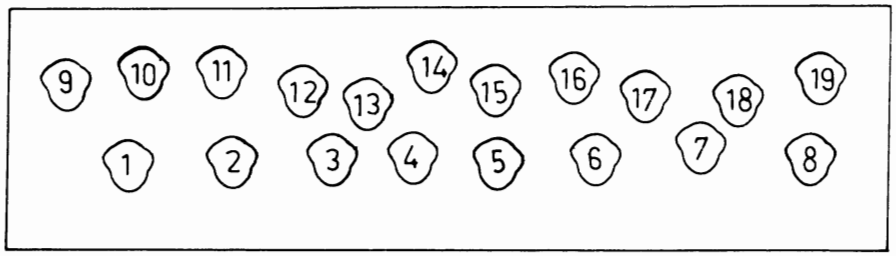


Dr. A R Meyer, DEU
President: 1931-1935

Berlin 1935. The Delegates in front of the Reichstag.

Prof. C Fabry, FRA
President: 1935-1939

Berlin 1935. Leaders of the Delegations and Officers.



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BERLIN AND KARLSRUHE 1935

Three inter-sessional committee meetings were held after the 1931 Session. One, on units and standards, was held in Paris in October 1931; the other two took place at Zurich in September and October 1932 and were respectively concerned with the preparation of the vocabulary and with aviation lighting. The conclusions reached at the latter meeting, although without the status of official recommendations of the CIE, were nevertheless taken by the Conférence Internationale Aérienne as the basis for its recommendations to the Conférence Internationale pour la Navigation Aérienne (CINA), the body responsible for international agreements on matters concerned with air navigation (later to be rechristened ICAO, the International Civil Aviation Organization).

Owing to the severe economic depression of the early thirties, the ninth Session of the Commission was not held in 1934 as originally planned. It was postponed until the following year and the meetings were then held in two centres, viz. in Berlin from 2 to 5 July and in Karlsruhe from 8 to 10 July. In Berlin the meetings took place in the Reichstag building and in Karlsruhe at the Technische Hochschule. The number of delegates rose to 195 and the number of countries represented to 16, including Spain which had been admitted to membership since the previous Session. It was reported that applications for membership had recently been received from Rumania and USSR but no representatives of these countries were present.

The technical meetings were entirely devoted to the presentation and discussion of reports from all 25 secretariat committees and there were no papers by individual authors at this Session. For aviation lighting, which had become a subject of rapidly increasing importance, it was necessary to hold three long meetings. The results of the discussions at the inter-sessional meeting in Zurich were reviewed and again the recommendations made were lengthy and covered many aspects of the subject. They included specifications of the colours "aviation" red, yellow and green. It is worth noting that another committee, that on coloured glasses for signals, recommended somewhat different specifications for the red, yellow and green colours to be used in railway signals, while the committee on traffic signals included among its recommendations yet a third set of specifications for the colours of signals used to regulate road traffic. Another recommendation made at this Session was that lighting fittings should be classified in five groups according to the fraction of the total flux which was emitted either above or below the horizontal.

At a mid-sessional plenary meeting a revised list of subjects for study was approved. The number was reduced to 20 and appropriate terms of reference were drawn up for the guidance of the various secretariat committees. At the final meeting it was decided to invite Prof. C Fabry to accept the office of President. The Honorary Secretary and the Treasurer were re-appointed. J S Preston, who had succeeded W S Stiles in 1932, remained General Secretary and in fact he continued in that capacity until the first post-war Session in 1948. At the conclusion of the Session it was announced that the Dutch National Committee had invited the Commission to hold its next Session in the Netherlands.

1935-1939

A noteworthy event between the holding of the ninth and tenth Sessions was the publication in 1938 of the first edition of the International Lighting Vocabulary. The appointment of a special committee to study the preparation of such a document was mentioned in the account of the sixth Session at Geneva in 1924 and reports on the subject were made at Bellagio in 1927 and at Cambridge in 1931. At the conclusion of the Cambridge Session an "Editing Committee" was set up to prepare a draft of an international vocabulary in the three official languages of the Commission with a view to its ultimate publication as a document apart from the series of Proceedings of Sessions. This editing committee had a Swiss chairman, Prof. P Joye, and one member for each of the three official languages. It met in Zurich from 26 September to 1 October 1932 and prepared a first draft. This was submitted at the 1935 Session and it was then decided that, after the necessary editing, the Vocabulary should be

published by the Bureau of the Commission, with the terms and definitions in French, German and English and translations of the terms only in Italian and Spanish.

After a further meeting of the committee at Paris in June 1937, the document appeared at the end of 1938. It included 103 terms and their definitions in the three official languages and the Italian translation of the terms only. It was stated that the Spanish translation would be added later but in fact this never appeared. The format differed from that of the Proceedings, the page size (270 x 210 mm) being nearly the same as that of the present-day CIE publications. The terms, arranged logically and not alphabetically, were numbered consecutively and under each number the term, followed by its definition, appeared first in French and then in German and in English.

This arrangement was different from that adopted by the Commission Internationale Electrotechnique (later to be designated as IEC, the International Electrotechnical Commission), whose vocabulary included one section which covered lighting, and at the 1939 Session of the CIE the Editing Committee recommended that the lay-out of the second edition of the International Lighting Vocabulary should be similar to that of the electrotechnical vocabulary.

A number of the terms and definitions, including those of the principal photometric quantities and units, had already been agreed upon by the Commission, for at every Session from 1921 onwards sets of definitions, symbols, etc., had been put forward by the special committee on the subject and had been approved with the other technical recommendations mentioned in connection with the various Sessions.

The tenth CIE Session should have been held in 1938 but because of the economic situation it was thought wise to call a meeting of representatives of National Committees to discuss the matter. This meeting took place at Paris in June 1937 and it was then decided to defer the Session for a year and to hold it in the Netherlands in 1939.

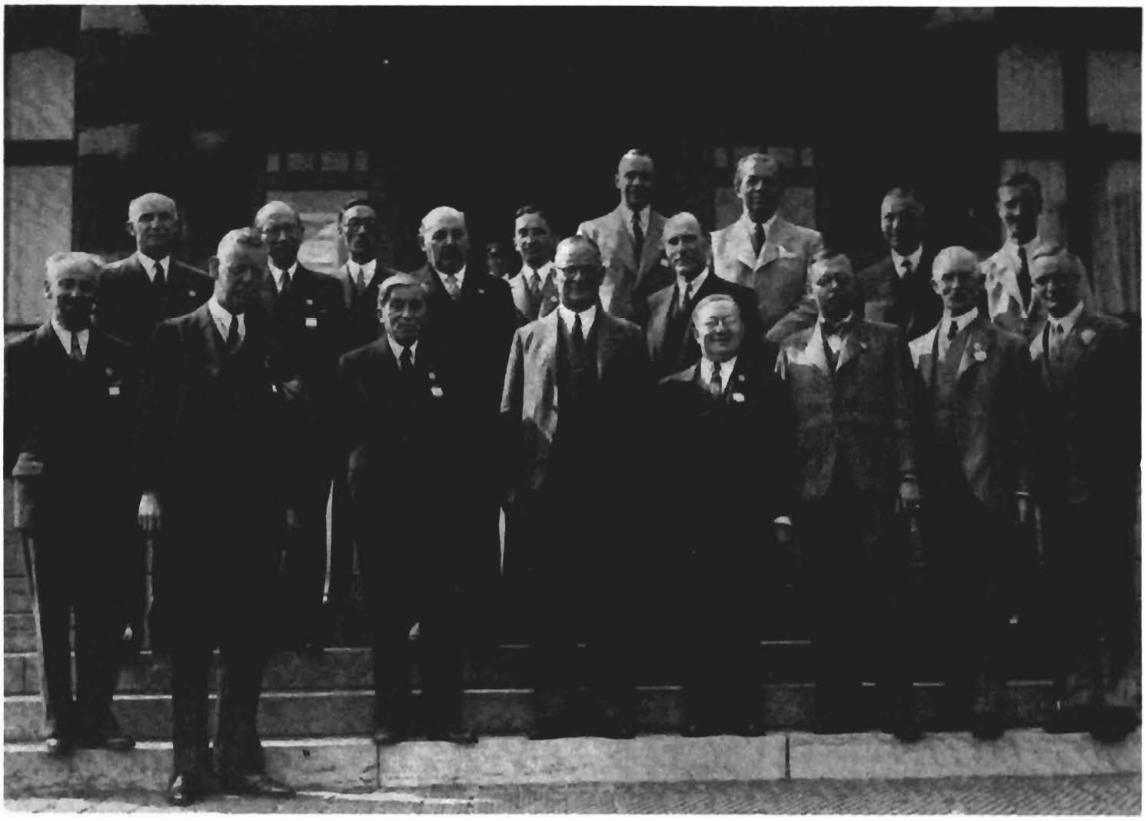
SCHEVENINGEN 1939

The place chosen for the tenth Session was Scheveningen and the meetings were held there from 12 to 21 July. Again there was a small increase in the number of delegates; 217 attended from 14 countries. Denmark and USSR were now full members of the CIE and the former was represented at this Session but not the latter. On the other hand Argentina had resigned and Austria and Czechoslovakia had (temporarily) to be reckoned as part of Germany.

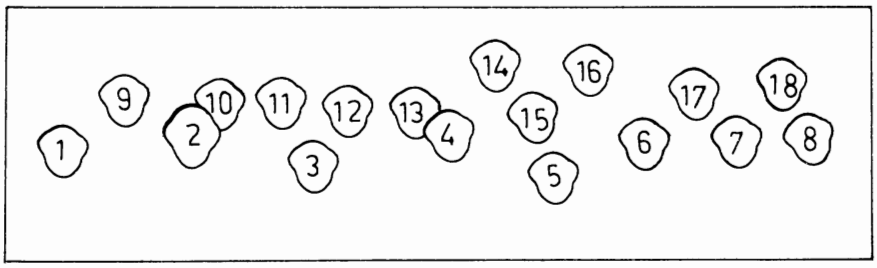
At the technical meetings 23 reports from secretariat committees were presented and discussed. In addition, 29 papers by individual authors were included in the programme. Generally a paper of this kind was presented during the course of the meeting held to discuss the secretariat report on that section of the Commission's work which embraced the subject of the paper. Two, however, were read during the course of a visit arranged for delegates as part of the technical programme of the Session, and one of these, by P J Bouma, dealt with the assessment of colour-rendering properties and formed the basis of a CIE recommendation in 1948.

Aviation lighting was again one of the most important matters dealt with and it is worth noting that a representative of CINA was present at the meetings and took part in the discussions on this subject. This was another mark of the close collaboration between CIE and CINA in matters such as signal lights and the lighting of airfields in which both bodies are interested. On the subject of automobile headlights, collaboration with another international body, the Fédération Internationale de Normalisation (later the ISO), was arranged and has continued ever since.

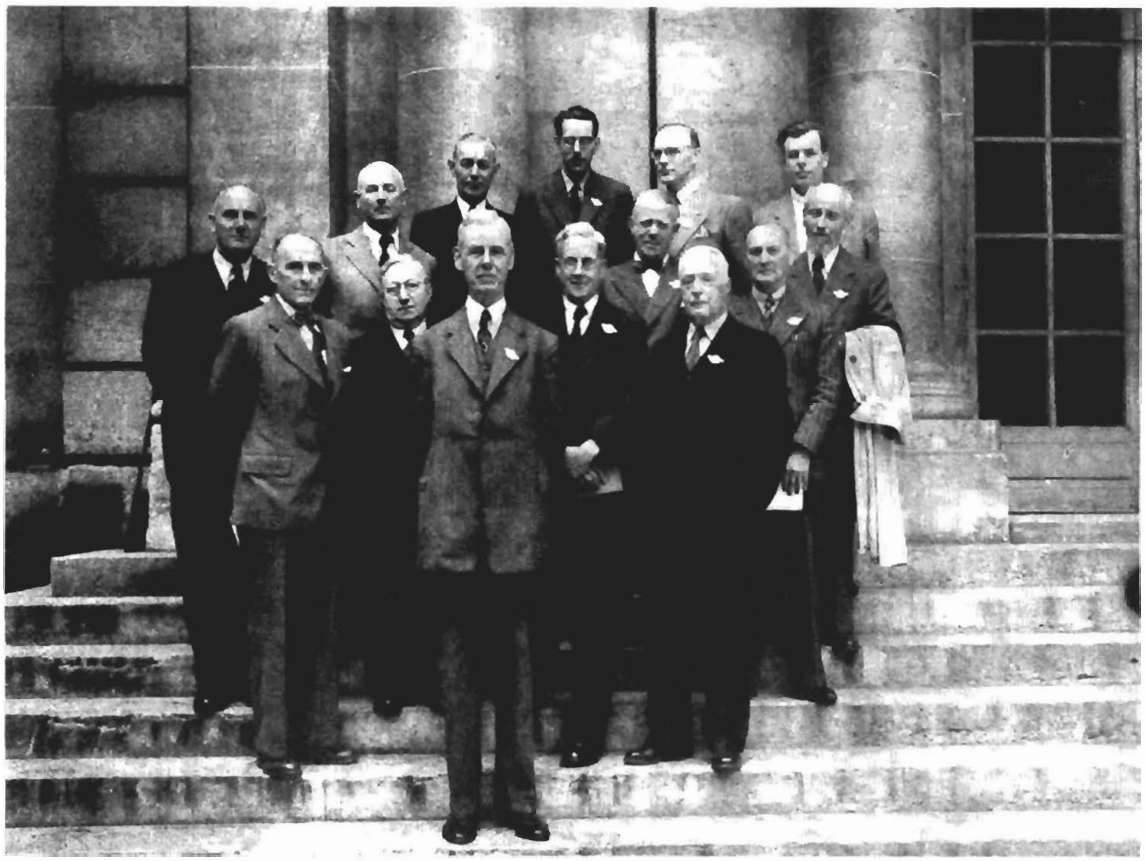
In furtherance of the search for a satisfactory method of heterochromatic photometry, initiated in 1928, it was decided that four colour filters should be exchanged between a number of national and other laboratories. Measurements of the transmission factors were to be made by different visual methods, including flicker photometry under carefully specified conditions, and by spectrophotometry. Unfortunately this programme could not be carried out, but after the war a somewhat similar series of measurements was organized by the Comité International des Poids et Mesures.



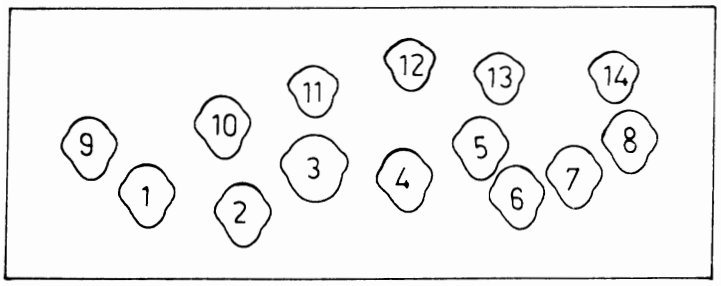
Scheveningen 1939. Leaders of the Delegations and Officers.



1. E Perucca (ITA) - 2. N A Halbertsma (NLD) - 3. C Fabry (FRA) - 4. L R Wentholt (NLD) - 5. P S Millar (USA) - 6. F Born (DEU) - 7. C C Paterson (GBR) - 8. T Lousberg (BEL) - 9. G Ribaud (FRA) - 10. A Filliol (CHE) - 11. I Hayashi (JPN) - 12. P Joye (CHE) - 13. B Zablocki (POL) - 14 G Nilsson (SWE) - 15. K Edgcumbe (GBR) - 16. B Pogany (HUN) - 17. P v. Braam v. Vloten (NLD) - 18. J S Preston (GBR).



Paris 1948. Leaders of the Delegations and Officers.



1. M Leblanc (FRA) - 2. P S Millar (USA) - 3. N A Halbertsma (NLD) - 4. J W T Walsh (GBR) - 5. I Folcker (SWE) - 6. W Trüb (CHE) - 7. S English (GBR) - 8. E Perucca (ITA) - 9. W W E von Hemert (NLD) - 10. L V Rihanek (CSK) - 11. F Gruwez (BEL) - 12. H König (CHE) - 13. R Aspestrand (NOR) - 14. J G Weber (DNK).

Prof. Dr. N A Halbertsma, NLD
President: 1939-1951

Another subject which had been under study by a committee for some time past was how best to describe the characteristics of diffusing materials. A recommendation had been made in 1935 and this was now endorsed and further elaborated.

At the final plenary meeting it was agreed that the eleventh Session should be held in France in 1942. Dr. N A Halbertsma was elected President and the Honorary Secretary and Treasurer were re-appointed. The list of subjects and the distribution of secretariats among the National Committees were again revised.

1939-1948

The published Proceedings of the 1939 Session were divided into three volumes. At all previous Sessions the Proceedings had been edited by the Bureau of the Commission and except in 1928 the printing had been carried out under its supervision. In 1939, however, the first two volumes, containing respectively the secretariat reports and the papers by individual authors, were printed in Vienna, while the third, a slender book of only 100 pages containing the list of delegates, the recommendations and somewhat brief minutes of the meetings, was printed in London. This unusual arrangement resulted from the fact that for some years before 1939 it had been impossible for the German National Committee to remit its subvention to the Treasurer because of the embargo on the export of currency. It was therefore arranged that the Proceedings should be printed and paid for by the German National Committee to offset its liability to the Commission. As far as the reports and papers were concerned this arrangement was carried out.

After the outbreak of war, the authorities concerned with censorship gave special permission for communications referring to the preparation of the Proceedings to be exchanged between the German Committee and the Bureau, through the CIE President in the Netherlands. Printing of the two volumes was completed in 1942 and they were distributed to those countries to which it was possible to send from Germany at that time. The remaining copies were stored and shortly after the end of the war they were sent to the Bureau and from there distributed to those National Committees which had not previously received them.

The third volume could not be dealt with in the same way because recommendations voted on at a Session did not become valid until National Committees had had an opportunity to reverse any favourable vote, and the period allowed for this purpose by the Statutes was six months. The third volume was therefore not published until the necessary period had elapsed after the resumption of international communications. It was then prepared by the Bureau, printed and distributed in the ordinary way.

In order to provide a temporary substitute for the official Proceedings, the National Committee of the USA prepared an account of the work carried out during the 1939 Session and copies of this were supplied in 1943 to countries who had not received the official volumes from the German Committee.

The 1939 Proceedings apart, there is nothing to record for the years 1940 to 1945. Even after the cessation of hostilities the resumption of international relationships was not easy, but during 1946 the first moves were made towards a renewal of the Commission's activities as soon as this should prove practicable. In the following year the Executive Committee decided that the eleventh Session of the Commission should be held in 1948 and that, in accordance with the decision made at Scheveningen, it should take place in Paris.

PARIS 1948

Contrary to what might have been expected, the attendance at the Paris Session was much higher than at previous Sessions; some 400 delegates attended from 15 of the member countries, although in several of these some time was to elapse before the National Committee could be re-formed and the country be re-admitted to regular membership. Israel, South Africa and Turkey had each a representative and there were small groups of observers from the International Civil Aviation Organization (ICAO), successor to CINA, and from the ISO (International Organization for Standardization).

At this Session, for the first time, the opening plenary meeting was mainly devoted to a lecture given by an eminent personality, on this occasion a Nobel laureate, Prince Louis de Broglie. This lecture was followed by an address by the President, Prof. Dr. N A Halbertsma. The meeting was held at the Sorbonne on the morning of 30 June. The formal business was taken at an adjourned meeting in the afternoon, held, like all subsequent meetings at 53 rue Francois-I ^{er}. The number of secretariat reports presented and discussed at the technical meetings was 25 and it was generally necessary to hold two or more meetings simultaneously. A special feature of many of the secretariat reports presented on this occasion was the inclusion of an extensive bibliography covering the period since the previous Session, for it was realised that during most of that time lighting engineers in many countries had found it difficult to keep in touch with the technical literature published in different parts of the world. The great value of these bibliographies led to their becoming a regular feature of secretariat reports presented at subsequent Sessions.

The most noteworthy recommendations made at this Session were (i) to adopt the name candela (cd) internationally to replace the old national names bougie, candle, Kerze, etc., and (ii) to specify provisionally eight spectral bands for measuring and describing the colour rendering properties of illuminants. A number of other recommendations were made, including some on aviation lighting and others on colorimetric nomenclature.

The 20 papers by individual authors presented at different technical meetings were not printed in the Proceedings. Most of them were published in technical journals in the respective authors' countries, but a booklet containing full abstracts of all of them was published in 1951 by the Bureau.

At the final plenary meeting on 8 July, Dr. Halbertsma, during much of whose presidency the work of the Commission had necessarily been in abeyance, was re-elected President for the ensuing three years. The Honorary Secretary, now Sir Clifford Paterson, had been unable to attend the Session because of illness. He was elected Honorary President of the Commission and his place as Honorary Secretary was taken by C A Atherton of the USA. This involved the removal of the offices of the Commission to America. They had been in Great Britain ever since 1913 and the General Secretary had, from 1920, been a member of the staff of the National Physical Laboratory at Teddington, the CIE paying the laboratory at first £ 200 and later £ 250 per annum for his services. It was now estimated that £ 700 per annum should be allowed for this item of expenditure and after taking into account all the other expenses, including the greatly increased cost of holding a Session and of printing the Proceedings, it was decided that the annual subvention to be paid by each member country should be raised from 35 to 80 shillings per million inhabitants, with a maximum of £ 200 and a minimum of £ 40. Further, it was agreed that the volumes of Proceedings at this and subsequent Sessions should not be supplied free of charge to National Committees as hitherto, but at a special price which was lower than that charged generally. The new Treasurer was H König of Switzerland, in succession to W Trüb who had acted in that capacity after the death of A Filliol. In the light of previous experience a provisional decision was taken to held the next Session in three years time and Stockholm was chosen as the meeting place.

The Banquet in the Orangerie at Versailles, 1948.

Paris 1948. Entertainment in the "Hôtel de Rohan".

Stockholm 1951.
King Gustav VI Adolf and Dr. N A Halbertsma.

Dr. W Harrison, USA
President: 1951-1955

1948-1951

There are several matters to record for the period between the eleventh and twelfth Sessions. In the first place it was not long before National Committees received, for distribution to their members, a number of copies of a news-letter which recorded items of current interest to those wishing to follow the day-to-day work of the CIE. Known as the HALATH letters (from the names of the President and Secretary) they formed a valuable link between the Administration and the membership and helped to prevent that flagging of interest which could so easily take place between Sessions held at intervals of 3 to 4 years. They usually occupied some 4 quarto pages and eleven of them appeared in the period 1948-1951.

Another innovation was the appointment by the President of two advisory committees, one to consider and approve papers by individual authors submitted for presentation during the coming Session, the other to review the scope of the Commission's work and make recommendations as to the most effective way of handling it for the future. Both these committees were given a permanent place in the organization of the Commission when the Executive Committee met in 1951.

STOCKHOLM 1951

The twelfth Session, from 27 June to 5 July 1951, was held in Stockholm, at the Kungliga Tekniska Högskolan. It was attended by nearly 400 delegates as well as by representatives from Canada, Egypt, Finland, Ireland, Israel, the Phillipines and Turkey. The Commission was honoured by the direct patronage of the head of the State in which the Session was held; King Gustav VI Adolf was present at the opening plenary meeting held in the Konserthuset.

Several decisions regarding the organization of the Commission were made. The most important was the creation of a class of individual members, in addition to the normal membership through a National Committee. Such individual members had to be resident in a country where there was no National Committee and it was hoped and expected that they would work towards the formation of such a Committee. Another matter to receive consideration was the revision of the Statutes which, except for a few amendments made piecemeal at different Sessions, had remained unchanged since 1928. The task of preparing a draft revision was entrusted to a special committee under the chairmanship of a Past-President, Dr. A R Meyer.

Among the technical recommendations made at this Session, perhaps the most important was the adoption of a table of values of the relative scotopic luminous efficiency function ($V'(\lambda)$) which defined a standard eye under conditions of dark adaptation (rod vision), just as a standard light-adapted eye had been defined in 1924. A number of the definitions of photometric quantities, adopted at previous Sessions, were revised, while international limits were laid down for five colours used in light signals (including white). The definitions of these limits, with a detailed discussion of the reasons for their adoption, were sent to ICAO and later formed the basis for a separate publication on the subject by the CIE. Other recommendations concerned (a) the basis used for the preparation of codes of illumination values and (b) the luminance of cinema screens.

Two new countries, Finland and Israel, were elected to membership of the Commission at the plenary meeting. Dr. W Harrison of USA was elected President in succession to Dr. Halbertsma, who was appointed Honorary President. (Sir Clifford Paterson had died only a few weeks after his election as Honorary President at the 1948 Session.) The other officers were re-appointed for a further period. It was decided that the next Session should be held in Switzerland in 1955.

The finances of the Commission demanded and received very careful consideration. The National Committee of the USA had raised from industry a sum of $ 25 700, to give the Commission more adequate financial backing when the offices were moved to America, but this action could not be repeated and the return of the offices to Europe was considered. However, it was ultimately decided to raise the rate of subvention to $ 17 per million inhabitants, leaving the Executive Committee to reconsider the financial position in 1952 if necessary.

1951-1955

Between 1951 and 1955 there was a good deal of activity, much of it concerned with the organization of the Commission and its work, although technical matters were not neglected.

The committee which was preparing the Vocabulary met in 1953 and again in 1954, while the committee on daylight held an inter-sessional meeting in 1953. In 1953, too, the President visited a number of European member countries and addressed meetings of their National Committees. The Scope Committee was engaged on the preparation of proposals for developing further the existing scheme of technical committees and the special committee on the revision of the Statutes was busy with the preparation of a draft for submission at the 1955 Session. The news-letters, now called the HARATH letters, continued to do useful work in keeping members of National Committees and others informed of what was taking place; there were 14 issues in the four years between the twelfth and thirteenth Sessions. One of these recorded the resignation of R J Whitney who filled the office of General Secretary from 1948 to the end of 1951. After that, C A Atherton combined the offices of Honorary Secretary and General Secretary.

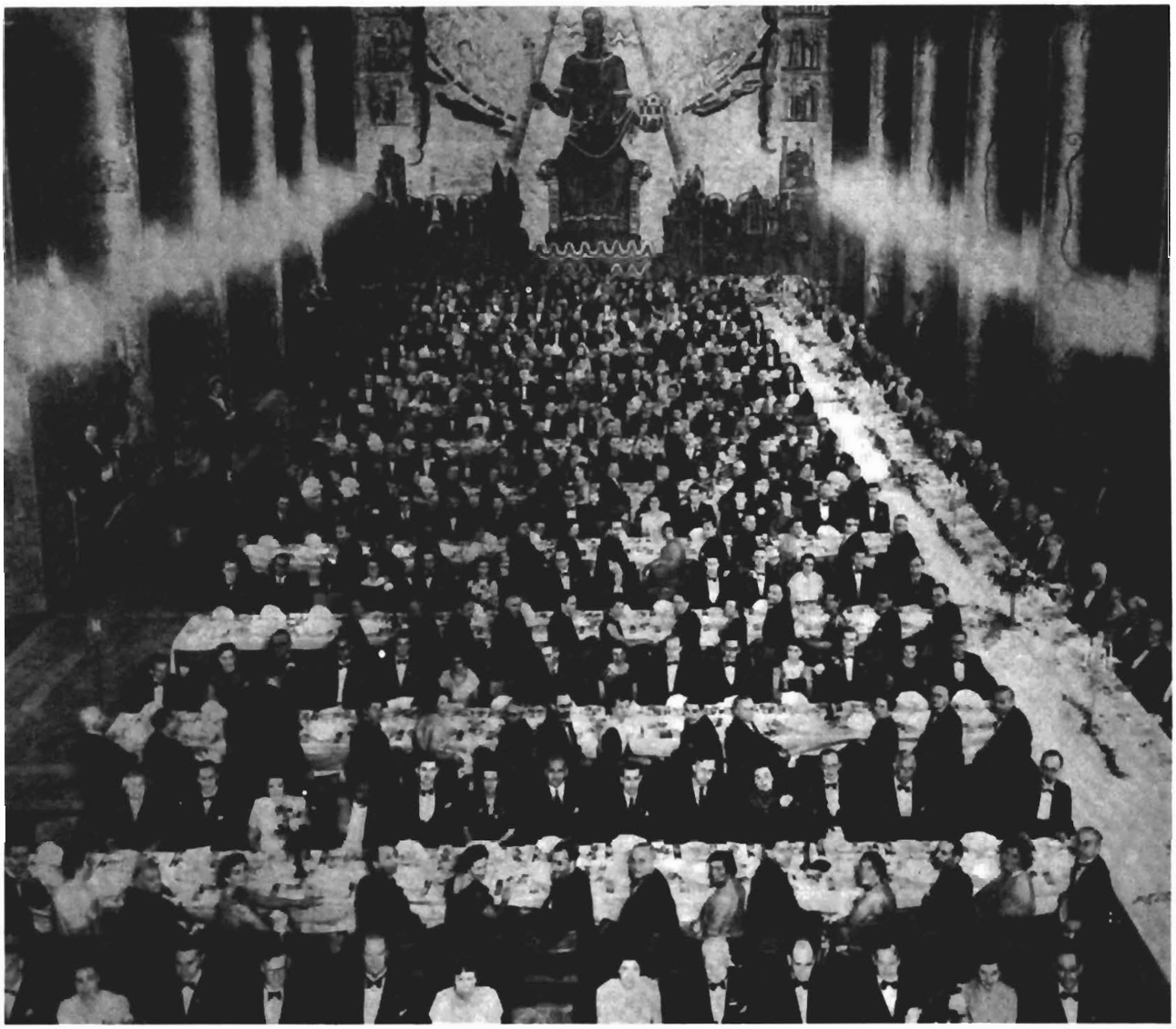
The format of the Proceedings was changed considerably. For reasons of economy and to speed production, photo-lithography was used instead of letterpress. At the same time the size of page, which had always been about 235 x 160 mm was increased to 235 x 190 mm. Unfortunately the scale of reduction used for reproducing the different reports and papers was not uniform, with the result that the size of type varied over a range of 2 to 1. There was no consecutive pagination, but this disadvantage was offset by the provision of an alphabetical index in place of the table of contents which, except in 1928, was all that had been provided hitherto. The three volumes contained respectively (i) the secretariat reports (ii) the 45 papers by individual authors and (iii) the minutes of the meetings and the principal recommendations, the latter in all three of the official languages. These volumes were edited by Dr. Halbertsma and J Jansen and were printed in the Netherlands. The time interval between their publication and the conclusion of the Session was about 9 months, much less than on previous occasions.

ZURICH 1955

By the time of the Zurich Session, 13 to 22 June 1955 there were 22 countries in full membership of the CIE and the National Committees of Japan and Poland were being re-formed. Of these 23 countries all except one (Poland) were represented. There were over 500 delegates, including representatives from Canada and Turkey and a delegation from Yugoslavia which was admitted to membership at the final plenary meeting. All the meetings were held in the Kongresshaus.

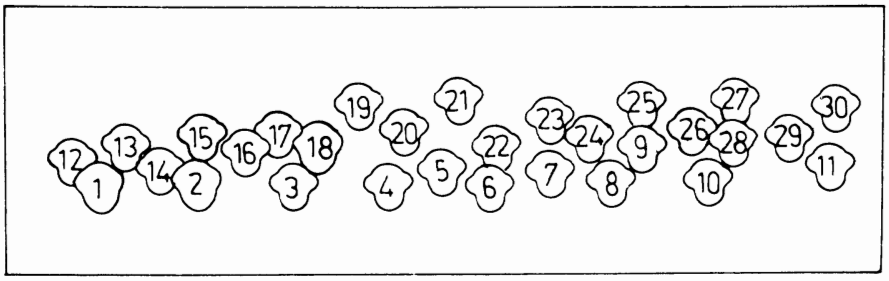
The report of the Scope Committee (general dissatisfaction with this name had not so far resulted in a more acceptable alternative) was discussed in detail and amended before final adoption. It recommended a modified list of the subjects into which the Commission's sphere of interest was sub-divided, but much more fundamental than this was the suggestion that certain of these subjects should be continuously studied by small committees of experts. Each such committee would work, within terms of reference approved by the Scope Committee, towards the preparation of a report giving conclusions and, where appropriate, recommendations acceptable to the experts in all countries. These reports would be published officially by the Commission as soon as they had been approved by the National Committees and the delay caused by the need for them to await approval at the next plenary Session would be avoided. Subjects in which progress was less rapid and international agreements less needful would continue to be dealt with as hitherto.

With regard to the revision of the Statutes, the draft prepared by the special committee appointed in 1951 was considered in great detail and much of it was approved. There were, however, certain details which called for further consideration and, besides this, it had not been possible to submit the draft revision sufficiently far in advance of the Session to comply with the existing Statutes. In



Stockholm 1951. The Banquet in the Stadshuset.

Zurich 1955. Leaders of the Delegations and Officers.



1. H König (CHE) - 2. J W T Walsh (GBR) - 3. C A Atherton (USA) - 4. W Harrison (USA) - 5. A Lippestad (NOR) - 6. A A Brainerd (USA) - 7. A Tchetchik (ISR) - 8. A R Meyer (DEU) - 9. P Fleury (FRA) - 10. M Jacob (BEL) - 11. V Ivanovic (YUG) - 12. E E Wiener (BEL) - 13. R Deaglio (ITA) - 14. S English (GBR) - 15. J C Downey (ZAF) - 16. T Oleszynski (POL) - 17. F X Algar (IRL) - 18. L Smit (BRA) - 19. N A Halbertsma (NLD) - 20. R Aspestrand (NOR) - 21. S Yurov (SUN) - 22. M Leblanc (FRA) - 23. W W E von Hemert (NLD) - 24. L Fink (AUT) - 25. C Weber (DNK) - 26. M Paavola (FIN) - 27. A Dresler (AUS) - 28. H Leuch (CHE) - 29. I Folcker (SWE) - 30. J Gislason (ISL).

consequence the Executive Committee was empowered to circulate a final draft at a later date and, if no adverse vote was received, to bring the new Statutes into operation. The work of preparing this final draft was entrusted to an editing committee under the chairmanship of Dr. S English (Great Britain).

At this Session a number of technical recommendations were made, among them the adoption of a conventional sky luminance distribution for daylight calculations. Besides the secretariat report, 36 papers by individual authors were read and discussed at the technical meetings, of which two were usually in progress at the same time. An innovation at this Session was the use of simultaneous translation. As mentioned earlier, at previous Sessions those delegates with a knowledge of several languages provided such translations as were required. This had the great advantage that the translations were backed by familiarity with the subject, but the arrangement was time-consuming. Simultaneous translation avoided this, but sometimes at the cost of a faulty rendering of the technical meaning of what had been said. Further, as only two rooms were equipped for translation, the old method had to be used at any supplementary meeting that might be arranged to take place at the same time as the meetings on the programme.

At this Session all the officers, except one of the Vice-Presidents, were changed. J W T Walsh became President and W W E von Hemert (Netherlands) Treasurer. C A Atherton had earlier expressed a wish to resign and after considerable discussion it had been decided that the offices of the Commission should return to Europe. Following this decision, Prof. Y LeGrand (France) was appointed Honorary Secretary, with J J Chappat as General Secretary, the offices being therefore transferred to Paris. Brussels was selected as the venue of the next Session, to be held in 1959.

1955-1959

The Proceedings of the Zurich Session were again produced by photo-lithography but the page size was increased to 280 x 200 mm, the type size was uniform and a thumb-index was provided to facilitate rapid reference to those pages dealing with the subject of any particular secretariat report. The editors were as in 1951 and again the two volumes were published about 9 months after the end of the Session.

Soon after the Zurich Session the recommendations of the Scope Committee were put into effect. National Committees were asked to nominate specialists in the various subjects and from the names so submitted the committees were selected. Each committee consisted of a few "experts", well-known as outstanding workers in that subject; the other nominees became "corresponding members" through whom their respective National Committees were kept in touch with the work being done by the experts on the committee. During the period between 1955 and 1959 it became the practice for these committees to meet as required by the progress of their work. Reports of these meetings appeared in the CIE Bulletin, a trilingual news-letter which had taken the place of the HALATH and HARATH letters. The Scope Committee itself, now under the chairmanship of Prof. L Schneider (Germany), was very active and held a number of meetings to discuss and resolve matters connected with the work of the committees of experts and with the preparation of the secretariat reports.

Mention must be made here of the revised Statutes which came into force in 1957. They differed considerably from the Statutes of 1928, but the effect of the changes was, in the main, to systematize the method of working which had developed during the course of time. In particular, the establishment of technical committees, and the supervision of their activities by the Scope Committee, were written into a new Statute. Another Statute provided for the class of individual members, now called Associates, and enabled observers from countries with no National Committee to attend Sessions of the Commission. Most of the other changes concerned details which experience had shown to be important in the day-to-day conduct of the Commission's affairs.

The revision of the Statutes was a purely domestic matter, but the period 1955-59 saw also a notable technical achievement, viz. the publication of the second edition of the International Lighting Vocabulary. This appeared at the beginning of 1958. As Volume I of the complete vocabulary, it contained 530 terms and definitions in the three official languages. This time the arrangement used by the IEC was adopted, the three versions in parallel columns, and a fourth column containing symbols, defining equations, etc., being spread across two pages. Throughout the preparation of this document there had been close liaison with the IEC so that, while the Lighting Vocabulary contained many terms which did not appear in the Lighting Section of the IEC Vocabulary, all those common to both publications were identical, as regards both term and definition, in French and in English. Volume II of the Vocabulary, containing only the terms in the three official languages, with their equivalents in Danish, Dutch, Italian, Polish, Russian, Spanish and Swedish, was published soon after the 1959 Session. Shortly before that Session a trilingual report on "Colours of Light Signals" was published. This subject has already been mentioned several times as one in which the Commission took a long-continuing interest and on which recommendations were made at a number of Sessions. It was felt that the time had come to prepare a report which would summarize all this work and state the conclusions which had been agreed internationally within the CIE.

BRUSSELS 1959

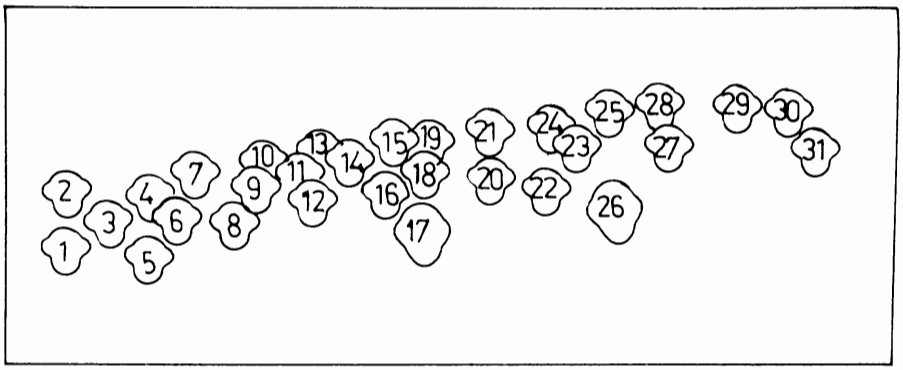
It will be seen that the period between the thirteenth and fourteenth CIE Sessions was an active one and it is therefore not surprising that the attendance at Brussels was again a record, viz. 540 from 26 countries. Canada and Rumania had been admitted since the previous Session and only the latter country and Ireland were unrepresented. The meetings were held in the Palais des Congrés from 15 to 24 June but a number of the committees of experts held meetings during the days immediately preceding the full Session. Again the use of simultaneous translation made it possible to hold at least one technical meeting for each of the 29 subjects included in the list of secretariats without the need for more than two meetings to be held simultaneously. Two days were devoted entirely to the presentation and discussion of 23 papers by individual authors.

Not many technical recommendations were made at this Session. The reason for this was that all the subjects in which development was most marked and in which, therefore, international agreements might formerly have resulted in recommendations, were now being studied by committees of experts. When these committees were formed it was clearly understood that they should issue reports (recording international agreements and making recommendations where appropriate) whenever such action was justified by the progress of their work. The issue of such reports has already been noted and a further one, on "Street Lighting and Accidents", was to be published in 1960.

At the technical meetings at Brussels no secretariat reports were presented for those subjects dealt with by committees of experts, but in each case a brief report by the chairman of the committee described what had been done and the problems on which the committee was then engaged. This was a progress report on the committee's work; it was not a progress report on the subject as a whole, with a bibliography. This was regretted and in consequence it was decided that at subsequent Sessions a secretariat report should be prepared for every subject. This was one of the provisions written into the "Code of Procedure for Technical Committees", prepared by the Scope Committee and approved at the final plenary meeting of the 1959 Session. The aim of this document is sufficiently indicated by its title. It was, in fact, based on the experience gained during the previous four years with regard to the new method of carrying on the work of the Commission.

At this Session the number of subjects dealt with by technical committees was increased to 38 but some, dealing with lighting practice in various fields, were grouped together and assigned to a single secretariat. An additional subject was added after the Session to meet a request from the International Electrotechnical Commission.

Brussels 1959. Leaders of the Delegations and Officers.



1. J O de Freitas (BRA) - 2. N A Halbertsma (NLD) - 3. H Ruzicka (AUT) - 4. H C Weston (GBR) - 5. T Azuma (JPN) - 6. A A Brainerd (USA) - 7. H H Magdsick (USA) - 8. J W T Walsh (GBR) - 9. Y Le Grand (FRA) - 10. A Dresler (AUS) - 11. P Fleury (FRA) - 12. I Folcker (SWE) - 13. M Roesgen (CHE) - 14. E E Wiener (BEL) - 15. W E K Middleton (CAN) - 16. J J Chappat (CIE) - 17. L Fink (AUT) - 18. I Ovesen (DNK) - 19. A Tchetchik (ISR) - 20. J Svehla (CSK) - 21. D Matanović (YUG) - 22. T Dobrowolski (POL) - 23. N M Gusev (SUN) - 24. H Leuch (CHE) - 25. M Jacob (BEL) - 26. W W E von Hemert (NLD) - 27. G Nilsson (SWE) - 28. E Yrjölä (FIN) - 29. R Aspestrand (NOR) - 30. J C Downey (ZAF) - 31. H Korte (DEU).

Brussels 1959. A meeting of the Executive Committee.

Mr. I Folcker, SWE
President: 1959-1963

Prof. L Schneider, DEU
President: 1963-1965

At the final plenary meeting I Folcker (Sweden) was elected President. The Treasurer, Secretary and Assistant Secretary (formerly General Secretary) were re-appointed and it was decided to hold the next Session in Vienna in 1963. The published Proceedings were to be typeset, instead of being reproduced by photo-lithography, but the page size was to be the same as in 1955, viz. the international size A4. Instead of being bound in one volume, they would be divided into four parts each containing the reports, papers and discussions on groups of related subjects.

1959-1963

The Brussels Session in 1959 had designated effectively 26 technical committees to carry out the CIE's programme of work between Sessions. 21 of these were defined as "expert" committees and 5 as "secretariat" (reporting) committees, a distinction which was already beginning to outlive its usefulness.

The "fundamental" committees, dealing with measurements and colour and vision, had very heavy working programmes following the enthusiastic reception given to their ideas at the Brussels Session. Eight national laboratories were involved in the fourth international intercomparison of photometric standard lamps for intensity and flux, and there was the first intercomparison of measurements on tubular fluorescent lamps. Many laboratories were undertaking fundamental investigations on absolute radiometers with the ultimate aim of replacing the existing primary standard of light and the definition of the candela. The experts on colour vision held several meetings to come to agreements on 10° colour-matching functions, supplementing the 1931 2° functions, and a transformation of the 1931 CIE colour coordinate system to yield a more uniform spacing of colour. The colour-rendering committee worked on an improved terminology for its subject and came down firmly on test-colour shifts as the fundamental method of colour-rendering appraisal. The visual performance committee suffered the loss of its founder chairman, H C Weston, who had participated in the deliberations of the CIE for over 25 years, but its work continued unabated.

"Application" committees, dealing with lighting practice, had proliferated in the 1950's, and several found themselves being overtaken by events outside the CIE. The production of many national codes of lighting practice, with different fundamental approaches and design criteria, engendered in several application committees the feeling that it was time the CIE came out with firm international recommendations on lighting practice, including the relevant calculation methods. The daylight committee abandoned some of its working programme to concentrate on what was needed to develop CIE guides for recording meteorological data and for calculating the daylight provision indoors. And the experts on discomfort in lighting, while finding themselves unable to recommend one standard procedure for evaluating direct discomfort glare in interiors, were conscious of the need to produce an informal report which at least pointed to the assets and liabilities of the different systems then in use around the world. The application committees concerned with aviation and automobile lighting had become essentially just advisory groups to other international bodies with more clout than the CIE, respectively ICAO and the GTB (Groupe de Travail Bruxelles 1952). The liaison between the vocabulary/definitions committee of CIE and that of the IEC advanced on a more equal footing.

During the quadrennium, the CIE published a report on "Streetlighting and Accidents" as well as the Proceedings of the 1959 Brussels Session.

VIENNA 1963

The Vienna Session in June 1963 was again attended by a record number of delegates from a record number of participating countries. The member countries increased with the readmission of Hungary, the admission of Portugal and the resignation of Ireland. The Session was presided over by Dr. Folcker of Sweden, with an Honorary President, Prof. Dr. Halbertsma, also in attendance.

Present at this Session was Dr. Hyde of USA, the only living co-founder of the CIE and its oldest Past-President, who gave the delegates a nostalgic think-back to 1913. The sad news of Dr. Walsh's death earlier that year was announced, and it was Dr. Halbertsma's task to present the paper on the history of the CIE which Walsh had completed shortly before his death. This paper was on sale at the Session, as was a set of slides for lighting education, the climax of the work of an expert committee on that subject.

Some 23 papers were presented at the Session, as well as the reports of the various secretariat and expert committees. In retrospect, the paper by J S Preston on a radiometric basis for the unit of light, and those by A Boereboom & J B de Boer and by de Boer & B Knudsen on road surface luminance, were probably the most significant in marking changes of direction in CIE science and technology. But many papers, not least those by H R Blackwell & S W Smith on visual performance and by W Münch on colour rendering, also sparked off very lively discussions.

Several "official recommendations", a rapidly dying feature of CIE activity, were made. From the colorimetry committee came the standardization of the 10° colour-matching functions proposed tentatively in 1959, the U*V*W* system for uniform colour space and principles for specifying supplementary standard sources. From the vision committee came a definition of equivalent luminance and from the floodlighting committee definitions of field angle and beam angle. And there was the official message from the lighting codes committee on the need to prepare an international code on interior lighting.

It was announced that moves needed to be made to build up a "CIE Bureau of a permanent character" in view of the expanding work of the Commission, and that several changes needed to be made to the Statutes and the Code of Procedure. Apart from redesignating two of the secretariat committees as expert committees and switching some of the National Committees' responsibilities, no modifications were made to the phalanx of technical committees to handle the Commission's programme up to 1967.

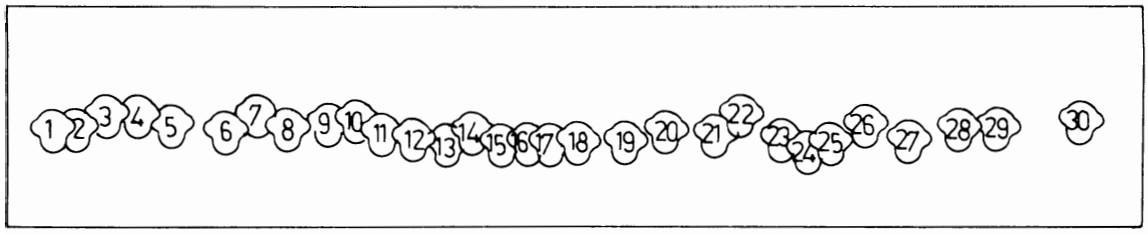
1963-1967

As well as publishing the Proceedings of the 1963 Vienna Session and six issues of the Bulletin, the work of three technical committees appeared in four individual documents - informal reports on climatological data and colour rendering terminology, recommendations for the lighting of public thoroughfares and a method of measuring and specifying colour rendering properties. It emerged at the end of the quadrennium that a further 16 documents were in an advanced stage of preparation.

The mid-sixties clearly marked a change in attitude of those involved in the technical work of the CIE. No longer was it considered enough for their deliberations to be buried within quadrennial volumes of CIE Proceedings, by now well over 600 pages thick. Recommendations and guides needed to appear independently in a form which could get quickly into the hands of those specialists whose work they should influence. This admirable principle had financial implications for the CIE which were to surface at the two subsequent Sessions.

This quadrennium seemed to be a period of consolidation for most of the fundamental committees, gathering together their loose ends and meditating on new or by-passed topics. Most of the 16 new documents being considered were in the application committees, those dealing with daylight and public lighting having multiple ambitions. Standardized methods of calculation for both natural and electric lighting indoors were being sought : international recommendations for the lighting of both tunnels and motorways were judged to be needed. The provision of lighting education for architects was put under the microscope, as were the variations in illuminance recommendations in different countries. The delicate art of appraising lighting systems was exciting the lighting practice experts and the second round took place of what proved to be the longest-running debate within the CIE, on discomfort glare from such systems.

Vienna 1963. Leaders of the Delegations and Officers.



1. G W Wyszecki (CAN) - 2. L Fink (AUT) - 3. K Höfler (AUT) - 4. J Delooz (FRA) - 5. -- 6. Y Le Grand (FRA) - 7. L C Kalff (NLD) - 8. G Szigeti (HUN) - 9. -- 10. W C Brown (USA) - 11. L Schneider (DEU) - 12. J Svehla (CSK) - 13. I Folcker (SWE) - 14. L Morren (BEL) - 15. T K Glazunov (SUN) - 16. A R Meyer (DEU) - 17. N M Gusev (SUN) - 18. W R Stevens (GBR) - 19. M Voltelen (DNK) - 20. E Yrjölä (FIN) - 21. I Ovesen (DNK) - 22. R Aspestrand (NOR) - 23. H Korte (DEU) - 24. W M H Rennhackkamp (ZAF) - 25. D Matanović (YUG) - 26. R Spieser (CHE) - 27. A Tchetchik (ISR) - 28. H Schindler (CHE) - 29. J J Chappat (CIE) - 30. W W E von Hemert (NLD).

Plenary Session at the Vienna Congress.

E S Calvert (left), Prof. L Schneider and J G Holmes on the platform at the meeting on aviation lighting.

Dr. H P Hyde, a founder member of the Commission and a past-president, addressing the opening plenary meeting.

Somehow, during the quadrennium, the Scope Committee changed its name to the Action Committee, still undertaking its task of piloting the technical work of the Commission along safe channels to fruitful harbours. The Statutes had to be amended to make legal the sensible practice of giving the chairman of that committee a seat on the Board of Administration.

WASHINGTON 1967

For the first time in 54 years there was a significant reduction in the number of delegates to a CIE Session. This was the first time, except for 1928, that the CIE had met outside Europe. With a third of the member countries on other continents it was obviously time that a Session was held elsewhere, but the cost of crossing the Atlantic obviously deterred potential delegates from the 21 European countries represented at the Vienna Session four years earlier. But it did give the opportunity of a bumper attendance from the Americas, an opportunity which was certainly seized by the USA.

The Session was again presided over by Dr. I Folcker, due to the death during the quadrennium of the president elected in Vienna, Prof. L Schneider. The death of the Commission's Honorary President, Dr. Halbertsma, had also to be announced at the beginning of the meeting. Chile had joined the CIE and Brazil had resigned since the Vienna Session.

The chairman of the Action Committee, Dr. D Vermeulen, reported on the recent CIE publications and the number in the pipeline. While this growth of CIE activity was to be welcomed, the printing and stocking of an ever-increasing number of publications could only be undertaken if the Commission had good financial reserves. And the Treasurer had had to report that the reserves were almost non-existent. It was therefore necessary to start ascribing priorities to different areas of the CIE's domain and to encourage the study of topics in series rather than parallel. Financially, the Treasurer would have the difficult task of building up the reserves of an organization which would henceforth have a significant role as a publisher.

22 individual papers were presented at the Session, by delegates from 11 countries, interspersed with reports from 26 expert or secretariat committees. It was very noticeable that concerns about lighting practice motivated the majority of the work described in the presented papers, and the general theme "lighting is for people" had never before been so strongly expounded in various ways in discussions at a CIE Session.

At the end of the Session, the committees on traffic signal fundamentals and aviation ground lighting and mine lighting were disbanded, a new committee was set up on the fundamentals of the physical environment, and the secretariat committee on interior lighting practice was promoted to an expert committee with the charge of developing an international guide on the subject. It was also decided that "study groups" should be formed to examine whether CIE technical committees were needed on psychological problems of lighting and on the analysis of lighting installations.

1967-1971

As well as releasing the Proceedings of the Washington Session, the third edition of the International Lighting Vocabulary was published, which was for the first time a joint publication with IEC. Also published were recommendations on colorimetry and on the calculation of natural daylight and a report on the principles of light measurement.

The photometry committee was rapidly coming to a consensus on methods for calibrating discharge lamps as working standards and was organizing many international intercomparisons - on the spectral sensitivity of photoelectric receptors, on spectroradiometric measurements and on the luminance factors of white standards. The colorimetry committee was working on improved methods of evaluating colour differences and specifying degrees of metamerism. The colour rendering committee was concentrating on the influence of chromatic adaptation and on variations

to their colour-shift method for particular applications, while the vision committee was trying to come to terms with mesopic vision, that embarrassing range of vision between the photopic and scotopic extremes.

The work of these four fundamental committees was now overseen by one member of the Action Committee carrying the title of "coordinator". It had become evident to the new Action Committee chairman, W R Stevens of Great Britain, that there were significant areas where the activities of the 26 individual committees of the Commission overlapped or interacted. All committees were therefore assigned to one of six groups with one member of the Action Committee designated the group coordinator for each group. The job of coordinating the coordinators was presumably seen as a function of the Action Committee chairman.

One of the new groups was made up of committees concerned with the theme which had so dominated many discussions at Washington - lighting for people. This included the visual performance committee, where Prof. Blackwell was introducing a bewildering array of alphabetic terms (RCS, CRF, DGF, TAF, VL) to express human visual performance information which would be applicable to illumination recommendations. The newly-established study group on psychological problems in lighting was failing to find much common ground with the old committee on agreeable luminous environments : although "aesthetics in lighting" sounded a good title for a new committee, this was really trying to define the indefinable. The committee on physical environment decided that the minimizing of energy use in building through integrated design should be the major thrust of its work. And the discomfort glare saga continued as before.

The committees on lighting materials and luminaire photometry, both with advanced drafts of recommendations, found themselves in trouble. The former committee had to set up working parties to review the situation on gloss and polarisation. And the latter committee decided it needed to consult with IEC on the sensitive commercial matter of ballast factor.

More content with the progress of their recommendations were hard-working practice committees developing international codes for interior lighting, for motorway lighting and for tunnel lighting. The old floodlighting committee, now retitled "exterior lighting practice", homed in on the lighting of outdoor sports grounds as an area needing an international publication of stature. And the daylight committee was almost ready to produce a standardized luminance distribution for clear skies to complement its long-established overcast sky.

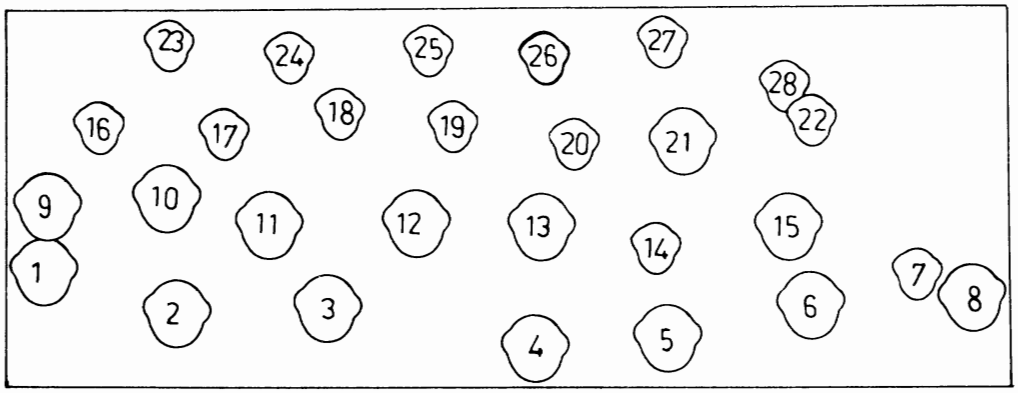
During the quadrennium, J J Chappat retired as Executive Secretary (previously titled assistant secretary) and was replaced by J Maisonneuve. He joined a triumvirate set up by President Vermeulen to give a long hard look at the publication activities of the CIE and their financial implications - a very timely move, with the explosion of publications which was to occur after the forthcoming Barcelona Session.

BARCELONA 1971

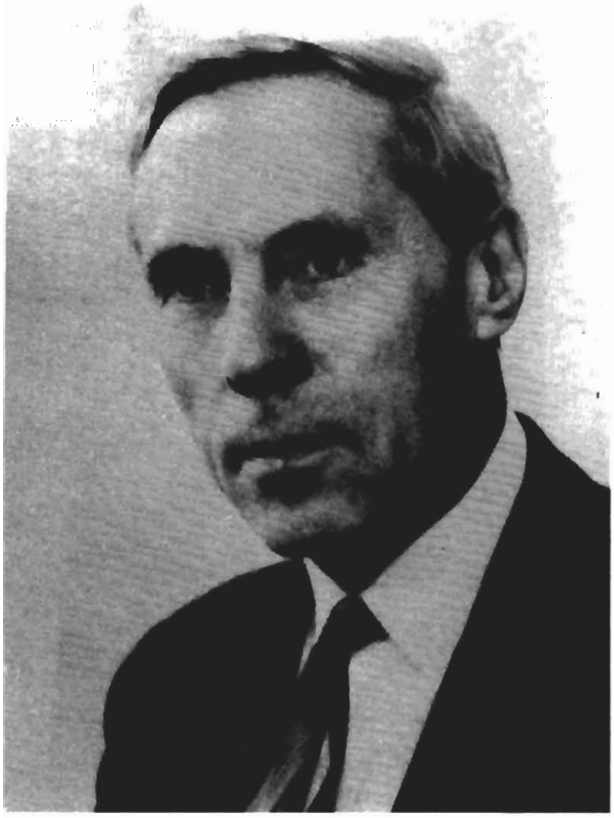
Dr. Vermeulen, in opening the meeting, announced a record attendance of over 700 delegates from (another record) 35 countries, including Bulgaria and Iran as two new member countries. Even better news came from the Treasurer: the CIE was back with a healthy credit balance, and delegates were quick to both applaud the financial acumen of T D Wakefield and to elect him for a further term. M Cohu, the long-serving chairman of the Papers Committee, had received twice the number of potential papers submitted in Washington, and space in the Session had to be found for 47 to be presented.

W R Stevens and his innovative Action Committee had decided it was high time that all Session delegates be given a "bird's-eye view" of all the technical work of the CIE. So the first part of the Session consisted of six reports by the group coordinators outlining progress in all the committees under their respective wings. Thereafter six parallel meetings were held for the presentation of papers and the discussion of individual contributions by specialists in the various subject areas, set in the framework of reports from the technical committees within each group.

Washington 1967. Leaders of the Delegations and Officers.



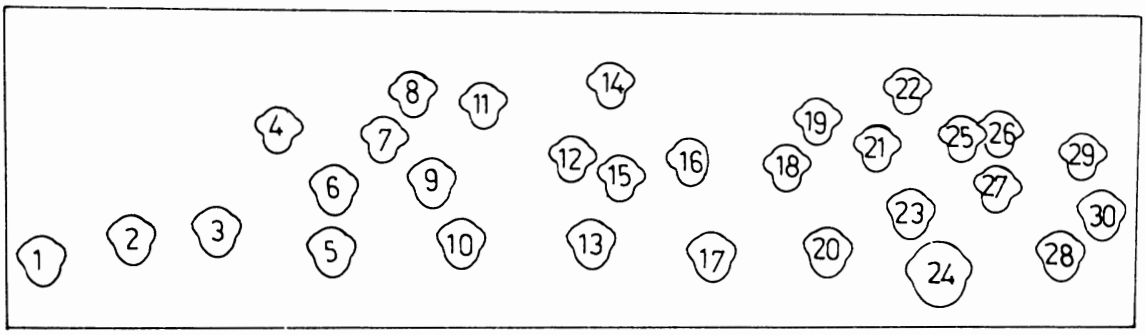
1. K Höfler (AUT) - 2. H Korte (DEU) - 3. D Vermeulen (NLD) - 4. T K Glazunov (SUN) - 5. T D Wakefield (USA) - 6. C L Sanders (CAN) - 7. E M Strong (USA) - 8. G A W Rutgers (NLD) - 9. A Arnulf (FRA) - 10. R Spieser (CHE) - 11. M Voltelen (DNK) - 12. J Urbanek (HUN) - 13. J Svehla (CSK) - 14. P Marques (PRT) - 15. G Omoto (JPN) - 16. J Escudero (CHL) - 17. A Tchetchik (ISR) - 18. S Richards (ZAF) - 19. L Morren (BEL) - 20. W R Stevens (GBR) - 21. G Hassel (SWE) - 22. A Gudjohnsen ((ISL) - 23. E Kasurinen (FIN) - 24. N M Gusev (SUN) - 25. W W E von Hemert (NLD) - 26. J C Lowson (AUS) - 27. I N G Papagheorghe (ROM) - 28. Y Le Grand (FRA).



Dr. D Vermeulen, NLD
President: 1967-1971

Mr. W R Stevens, GBR
President: 1971-1975

Barcelona 1971. Leaders of the Delegations and Officers.



1. R Dogniaux (BEL) - 2. A Tchetchik (ISR) - 3. J Terrien (FRA) - 4. G A W Rutgers (NLD) - 5. -- 6. S J Richards (ZAF) - 7. A O Wuillemin (CHE) - 8. G P Wakefield (USA) - 9. L Plaza (ESP) - 10. G Szigeti (HUN) - 11. R Spieser (CHE) - 12. Y Le Grand (FRA) - 13. G Wyszecki (CAN) - 14. K Höfler (AUT) - 15. D Vermeulen (NLD) - 16. W R Stevens (GBR) - 17. - - 18. A Lompe (DEU) - 19. - - 20. R San Martin (ESP) - 21. - - 22. K Yoshie (JPN) - 23. I Ovesen (DNK) - 24. M P Vlatchkov (BLG) - 25. J Krtil (CSK) - 26. Kartashevskaja (SUN) - 27. - - 28. L E Barbrow (USA) - 29. B Cole (AUS) - 30. J Holmes (GBR).

Informal meetings and discussions have always been a feature of Session meetings. In this picture delegates from South Africa to the Barcelona Session, J T Grundy, L O Foster, H Marinier, S J Richards and T S Harper meet with J M Waldram (GBR).

J L Richard and E Barthès (FRA) with A Peretiatkowicz, T Oleszynski and J Kossakowski (POL).

The duration of the Barcelona Session was much shorter than that in Washington, only 6 working days, and the amount of material handled was significantly greater. The conscientious delegate had a very strenuous time, but attendances kept up despite the attractions of Barcelona and its sunshine. The overall judgment of the new format was that the coordinators' overview was a welcome feature (and it has been continued ever since) but that holding six parallel technical sessions was excessively divisive: future Sessions would have to be longer and/or handle less material.

1971-1975

An important principle had been accepted by the delegates to the Barcelona Session - that the programmes and membership of technical committees would be revised on a continuous basis and not just at 4-yearly intervals. Whether it was this statement or the existence of coordinators breathing down their necks that gave added urgency to technical committees is a matter of conjecture, but the 1971-75 quadrennium marked the start of a flood of CIE technical publications.

A more coherent grouping and renumbering of technical committees (no longer designated as expert or secretariat) took place. Group I, consisting of those concerned with definitions, photometry, colour, vision and the photometric characteristic of materials, were the "fundamental" committees. Groups II and III were made up of "link" committees, sitting between fundamentals and practice - visual performance, colour rendering, discomfort glare and lighting in the environment in one group and calculations, sources, luminaires and the physical environment in the other. Groups IV and V were made up of "practice committees", not split naturally into interior and exterior applications for reasons which must have been connected with balancing the loads of the coordinators.

No fewer than eleven new CIE publications appeared between 1971 and 1975 in addition to the Barcelona Proceedings. From the fundamental committees came a supplement on metamerism to the 1971 document on colorimetry and a set of procedures for measuring discharge lamps. Results of inter-laboratory comparisons on photocells, spectral irradiance measurements and luminance factor measurements were published in Applied Optics. Draft reports on the principles of measuring light for mesopic as well as photopic and scotopic conditions, on new colour difference formulae, and on the measurement of the characteristics of materials were prepared for discussion at the 1975 London Session. Discussions with the CIPM on redefining the primary standard of light were at an advanced stage.

The link committees produced a technical report on visual performance evaluation, revised official recommendations on colour rendering, recommendations on simulated solar sources and advice on the photometry of street lighting lanterns and of indoor fluorescent luminaires. Draft reports for discussion at London included one on the implementation procedures for visual performance data, one on extending colour rendering procedures to fluorescent samples, one on the photometry of floodlights and one on a basic method for interior lighting calculations. Model appraisal questionnaires were developed by the committee for lighting in the environment as educational tools for engineers and for interdisciplinary groups, while the committee for the physical environment carried out surveys of human reaction to open-plan integrated-design offices.

From the practice committees came a guide on interior lighting, a standardized luminance distribution for clear skies, revised recommendations for the colour of light signals, a technical report on the lighting of sports events for colour TV (from a committee which was only established after the Barcelona Session !) and international recommendations on the lighting of motorways and tunnels. The road lighting committee, not satisfied with producing two sets of official recommendations, prepared drafts for discussion at London of four technical reports and a revision of its general lighting recommendations for road traffic. And the committee for exterior lighting had an external equivalent of the interior lighting guide ready for the delegates at London to consider.

LONDON 1975

There was a world economic depression in the mid-1970's, and the organizers of the 1975 Session anticipated a poor attendance. To their delight, well over 500 delegates found the necessary funds to travel and 32 countries were represented when W R Stevens opened the Session, graced with the presence of royalty for only the second time in the CIE's history.

The general pattern of the Barcelona Session was repeated, but with an extra day it was possible to reduce the number of parallel meetings while still permitting 81 papers to be presented, in addition to holding discussions on the progress of individual technical committees (TC's). The group coordinators gave all delegates a review of all CIE technical activities during the previous quadrennium, and two of the five groups held meetings to discuss matters of concern to several TC's within the group. These group meetings in London were found to be very valuable and the number was to grow at subsequent Sessions.

During the previous quadrennium, the number of Study Groups had increased to five, and the chairman of the Action Committee reported to delegates that all but one of these (Computers in lighting) had decided that there was a need for a CIE technical committee to be established in their field. Only in the case of two study groups (Non-sensory effects of optical radiation, Psychological problems in lighting) was there supporting evidence from the submitted papers that the subjects were of obvious concern, and psychology was seen by many delegates as an aspect of an already-established TC on lighting in the environment. No decisions were announced at the Session on the reformation or creation of technical committees - a good move, since enthusiasm tends at a Session to run at a level which is often not sustained in the intervening years when the real work has to be done.

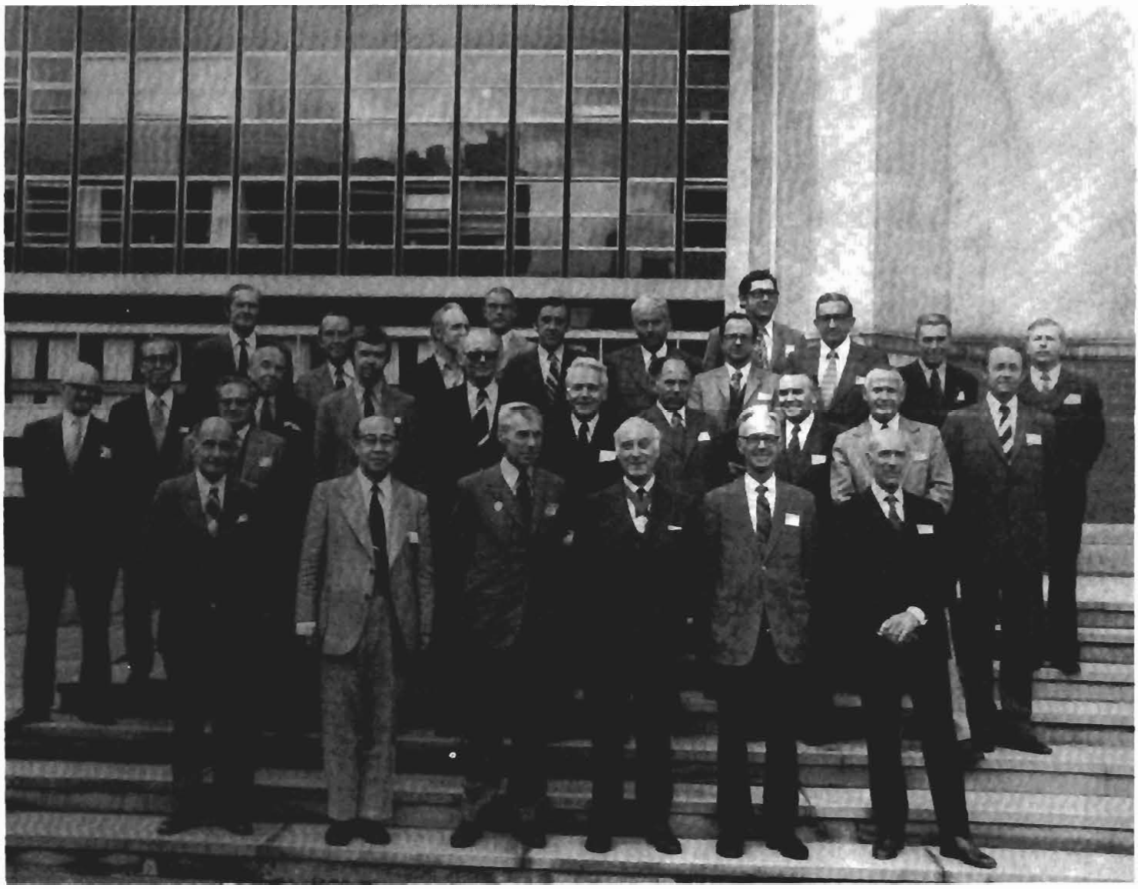
Few of the many TC's with final-draft reports being scrutinized at the Session met with serious opposition, giving the probability of a record crop of CIE publications in the following quadrennium. Happily, the Treasurer was able to report that reserves were even higher than budget, so it seemed that demands on space for stocking publications in the grace-and-favour accommodation occupied in Paris would be a bigger problem than financing the stock.

1975-1979

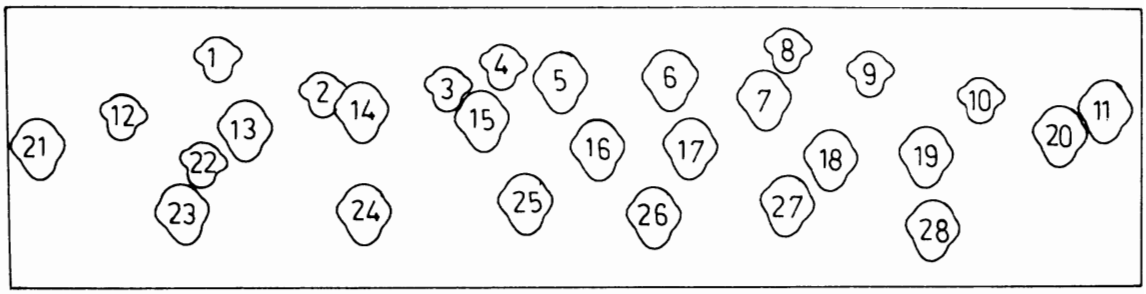
The Action Committee did not take long after the London Session to introduce several simultaneous changes in the technical committee and study group structure. The virility of work on lighting for transport, in particular that of the road lighting committee, resulted in a separate group of TC's being formed for that activity. Four new technical committees were created during the quadrennium and three new study groups.

The long-established fundamental committee on photometry and radiometry, facing a potential CIPM resolution on redefining the candela as 1/683W/sr of 540×10^{12} Hz radiation, saw the need for revising their 1970 report on light measurement and preparing several new documents on spectroradiometry. A separate committee was therefore established to handle the ongoing work on absolute detectors and the specification of radiometer performance. In the same group as the detectors committee were placed those dealing with sources and luminaires and materials, the last of these being made up of almost independent sub-committees of specialists in such topics as gloss, polarisation, retroreflection and turbid media. The committee on sources, whose role in the CIE was causing much head-scratching, developed a long-overdue liaison with the IEC.

Liaison with other international bodies was becoming an increasingly key issue for the CIE. The roadlighting committee established stronger links with PIARC (Permanent International Association of Road Congresses) as a consequence of the importance of road surface characteristics in its work, and also in respect of tunnels. It was also in dialogue with IAU (International Astronomical Union) over the problems of the interference of sky glow from exterior lighting with astronomical



London 1975. Leaders of the Delegations and Officers.



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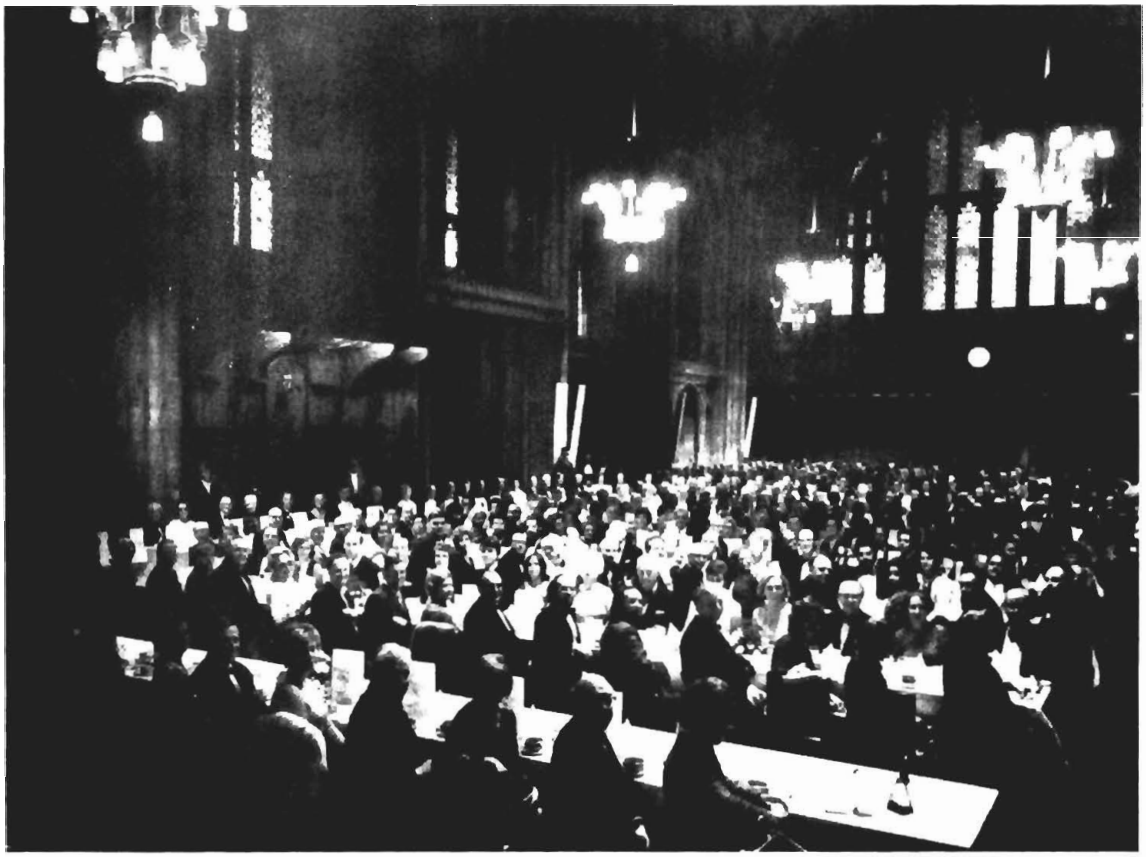
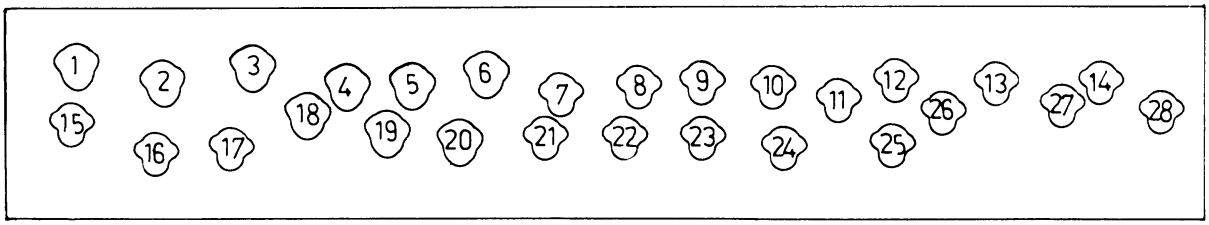
Dr. S K Guth, USA
President: 1975-1979



Banquet at the Guildhall (1975).

Kyoto 1979. Leaders of the Delegations and Officers.



1. A M Kokinov (SUN) - 2. A O Wuillemin (CHE) - 3. F Rotter (AUT) - 4. P Blaise (FRA) - 5. J Svehla (CSK) - 6. J Kossakowski (POL) - 7. M G Bassett (CAN) - 8. J K von Ahlften (ZAF) - 9. R Dogniaux (BEL) - 10. J Tendero (ESP) - 11. J Whittemore (AUS) - 12. J Klausen (DNK) - 13. H H Björset (NOR) - 14. B Borman (FIN) - 15. E Ne'eman (ISR) - 16. G Garin (CIE) - 17. P Lemaigre-Voreaux (CIE) - 18. B Steck (DEU) - 19. L Morren (BEL) - 20. W R Stevens (GBR) - 21. S K Guth (USA) - 22. G Wyszecki (CAN) - 23. J B de Boer (NLD) - 24. J Terrien (FRA) - 25. K Yoshie (JPN) - 26. K R Ackerman (GBR) - 27. G W Clark (USA) - 28. J Krochmann (DEU).

High-level matters. The road lighting committee had spawned 7 technical sub-committees in the early 1970's. In a light-hearted moment an eighth sub-committee was set up with an ongoing working programme to climb a local peak immediately before or after each working session of the main committee. Pictured here is TC 4.6 SC8 with their Japanese hosts setting off for Mt. Hira during the weekend of the Kyoto Session.

Warsaw 1980. Action Committee.

observations. The roadlighting and auto lighting committees had, at the London Session, produced a CIE statement for "all relevant organizations" on the desirability of a "town beam" to be used by vehicles on urban traffic routes: this received a very cool official reception, particularly by GTB, which indicated that liaison is a delicate plant, requiring careful nurture.

Plant growth was the subject of a new study group, carrying on part of the function of the old study group on non-sensory effects of optical radiation. A new fundamental technical committee covering the effects of optical radiation on people and animals, excluding vision, was established during the quadrennium and rapidly got to work on developing a bibliography on the subject.

Despite the limited degree of encouragement given to the relevant study groups on architecture and economics, new technical committees were set up in these fields, the latter having the three-part working programme of energy usage, the benefits of lighting and models of lighting costs. Mine lighting was resurrected as a CIE subject, a consequence of the enthusiasm of Eastern European countries: the first international conference on mine lighting was held in Poland during the quadrennium. The linking of international conferences or symposia to CIE technical committee or group meetings was a general trend discernible in the early 70's, and one which continued thereafter.

The number of CIE publications in print increased from 29 to 43 during the quadrennium: there was also a revision of the 1965 road lighting recommendations and a second supplement to the 1971 document on colorimetry giving official recommendations on uniform colour spaces. Of the 14 new TC-reports, 6 came from the roadlighting committee and 4 from other application committees (calculations, sports, exterior and visual signalling). Near-final drafts of a further 12 were ready for discussion by the end of the quadrennium, this time with offerings from the fundamental and link committees predominating.

KYOTO 1979

President S K Guth opened the 19th Session of the CIE, the first to be held in Asia, with over 500 delegates again in attendance. The number of member countries had increased by the admission of the German Democratic Republic but had been reduced by the suspension of Chile and Iran (who subsequently resigned). The Secretary announced that the Central Bureau had moved to the Centre Scientifique et Technique du Bâtiments, in Boulevard Malesherbes (Paris), with room for both the Executive Secretary and the voluminous stock of publications, still with no rent to pay. He also reported that the Bureau had shipped out 10 500 copies of publications plus 9 300 copies of CIE Bulletins during the quadrennium. The twice-a-year Bulletin, now including more information about the technical work of the Commission, had been supplemented by a quarterly Newsletter.

The CIE Coordinators presented their overview of the activities of the six groups of technical committees, followed by Dr. G Wyszecki as chairman of the Action Committee on the three study groups. As in London, a few of the offered papers were presented to all delegates rather than in the parallel sessions: this was another step towards the concept of invited lectures, which followed four years later. In total, 82 papers were presented. Four joint meetings were held by cross-group committees with a common specific concern - for example, visual problems in road traffic and visual satisfaction in the interior environment.

Although the delegates to the Session clearly enjoyed the elegant and efficient Conference Hall, the social programme and the Japanese hospitality, a number of concerns were expressed at the closing meeting by both the technical and administrative officers. A lower standard of presentation of many contributed papers, probably too many in number, had led to a lack of stimulating discussion, a problem referred to the new Action Committee. With the growing size and activity of CIE, it was felt that insufficient attention to detail could be given by an Executive Committee which only met briefly once every four years: a mid-Session meeting was proposed as a new norm. Although not formally surfacing in public, it was also clear that something more substantial was needed than the present staffing and facilities of the Central Bureau. So the new officers left Kyoto with as much to think about as the technocrats. It was agreed that the next Session would be held in Warsaw, a decision which unfortunately had to be reversed later.

1979-1983

More changes in the structure of the CIE took place during this four-year period than in all earlier history, but happily without any significant lessening of technical activity, as evidenced by the arrival of 14 new publications.

Cooperation with other international bodies continued apace – with the IEC on the 4th edition of the International Lighting Vocabulary, with PIARC on road surfaces and tunnels, with IAU on sky glow and with ISO on a proposed ISO publication on visual ergonomics. The physical environment committee started holding joint workshops with the CIB (Conseil International du Bâtiment) on inter-personal differences in environmental satisfaction, and the visual environment committee established relationship with the UIA (Union Internationale des Architectes) on visual design criteria.

The CIE was served in this quadrennium by a hyper-active President, Prof. J B de Boer, who was able to visit nearly every member country, to say nothing of five countries who were thinking about membership. This, coupled with the holding of the first mid-Sessional Executive Committee and the unprecedented number of 8 Action Committee meetings, permitted both a full-depth review of the strengths and weaknesses of the way the CIE was working and the agreed formulation of a dramatically-changed structure to be operated fully from the end of the quadrennium.

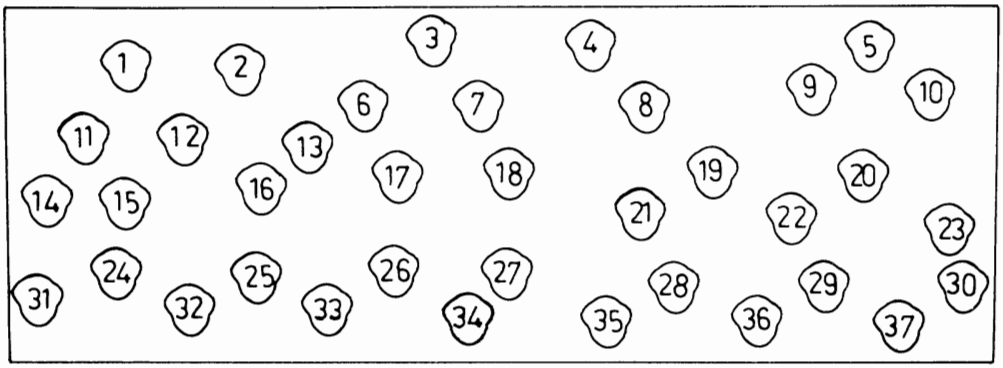
The work of different technical committees in the expanding CIE had become so interactive that coordinators had had to be introduced in the late 1960's. These coordinators were in a good position to judge, within their individual fields, which topics should be given priority for a steady or increasing amount of technical work with a steady or decreasing number of workers. Yet they had no individual authority to direct: this was the role of Action Committee, within which one coordinator might well be the only person with a detailed knowledge of the relevant field, and many TC's had continued to exist when they had really outlived their usefulness.

Sufficient experience had been acquired over the previous three quadrennia on the various groupings of TC's to identify several specific sectors into which the technical work of the CIE could be divided. Divisions were now established, one for each sector, to which each National Committee could appoint a member, thus creating a set of representative bodies which were very knowledgeable about individual sectors of work. Each Division would recommend the appointment of a Division Director, effectively an old-style coordinator but now with teeth, able to direct the technical work of the Division into the most fruitful channels. Each Division would set out a quadrennial Working Programme and propose Technical Committees, each with a finite life to carry out a specific task.

The old Action Committee was disbanded, but there would be a Vice-President Technical who, with the Division Directors, would form a "cabinet" overseeing all technical work. A CIE Council was created, made up of the Division Directors and the Board of Administration. The Board would consist of the officers of the CIE, now to consist of the President, Secretary, Treasurer and a number of Vice-Presidents of whom three would be functional - VP Technical, VP Publications and VP Liaison. The last two appointments were a natural consequence of the publication explosion of the 1970's and the growing importance of liaison with other international bodies.

As if all these structural changes were not enough to digest, the old CIE Bulletin was replaced in 1982 by the CIE Journal, the first attempt at a periodical in which could be published the outcome of CIE work when a separate Technical Report was not judged appropriate, as well as individual papers having some relationship with CIE activity. The long-term target was for this Journal to become a subscription periodical, but in the short term it would just be made available to National Committees in requested numbers as the Bulletin had been. Dr. J Schanda, the chairman of what was to be the last Action Committee, and Dr. A J Fisher of Australia undertook the job of co-editing the first few issues of the new publication.

Amsterdam 1983. Leaders of the Delegations and Officers.



1. I Roizenblatt (BRA) - 2. M Shahbazker (PAK) - 3. J Schanda (HUN) - 4. E Ne'eman (ISR) - 5. J V Gaudel (FRA) - 6. L Monzer (CSK) - 7. R Schnor (DDR) - 8. E Nagy (HUN) - 9. C J Kok (ZAF) - 10. A Wuillemin (CHE) - 11. H Bühler (ARG) - 12. J Krochmann (DEU) - 13. E Ogrinc (YUG) - 14. F Rotter (AUT) - 15. L Starby (SWE) - 16. L Mori (JPN) - 17. J Tendero (ESP) - 18. K T O Cox (HKG) - 19. B Nielsen (DNK) - 20. B Borman (FIN) - 21. K R Ackerman (GBR) - 22. H H Björset (NOR) - 23. P Gordon (POL) - 24. P Lemaigre-Voreaux (CIE) - 25. F Grum (USA) - 26. K D Mielenz (USA) - 27. R Dogniaux (BEL) - 28. H Terstiege (DEU) - 29. Y Bouianov (SUN) - 30. P Baxter (AUS) - 31. J Kossakowski (POL) - 32. L Morren (BEL) - 33. S K Guth (USA) - 34. J B de Boer (NLD) - 35. G Wyszecki (CAN) - 36. J Svehla (CSK) - 37. P Soardo (ITA).

Prof. J B de Boer, NLD
President: 1979-1983

Delegates enjoy the Dutch Police Band at the opening of the Amsterdam Session.
(Dr. J Svehla, Prof. J B de Boer, P Lemaigre-Voreaux and J V Gaudel).

AMSTERDAM 1983

In the Spring of 1982, the CIE Board had had to conclude that the domestic situation in Poland was not sufficiently stable for the next CIE Session to be held in Warsaw as planned. The Netherlands National Committee had then undertaken the heroic task of hosting a Session with only 40% the normal preparation time, and so it was that President J B de Boer opened the 20th Session in the RAI Congress Centre in Amsterdam.

The delegates experienced a very different programme from previous Sessions - not a consequence of the change of location, but of the lessons learnt from Kyoto and of the new TC structure about to be launched. After the normal opening plenary meeting for speeches and administrative reports, followed by the coordinators' quadrennial reviews of technical progress, the Session was clearly divided into two halves. One was for the presentation of papers (the "conference" section) and one for the discussion of technical committee work, past and future (the "TC" section). This "new" pattern was in reality simply a return to the format of CIE Sessions of 1928 and 1931!

In addition to six invited lectures, 47 papers had been accepted for presentation - these were delivered in parallel sessions and grouped according to the new Divisional structure. A further 50 contributions were offered as "poster papers", where the authors pinned up their material on boards in a designated room and made themselves available to hold individual discussions with interested delegates. This arrangement worked very well and was an innovation which was destined to become a norm for several future Sessions.

The "TC" part of the Session involved meetings of the old TC's to present the reports of chairmen and review progress, followed by the first meetings of the seven CIE Divisions:

Div 1	Vision and colour
Div 2	Physical measurement of light and radiation
Div 3	Interior environment and lighting design
Div 4	Lighting and signalling for transport
Div 5	Exterior and other lighting applications
Div 6	Photobiology and photochemistry
Div 7	General aspects of lighting

By the time of the Session the terms of reference for each Division had been defined and several National Committees had already nominated members. Also, a tentative list of tasks for each Division had been drawn up by the old Action Committee, including the completion of worthwhile projects currently in the pipeline. The first Divisional meetings, conducted under a "convenor", were attended by both delegates and guests (frequently outnumbering the delegates) and were concerned with the recommended appointments of Division Director, Division Secretary and Division Editor, with the setting up of editorial groups to complete near-final-draft technical reports and with the selection of tasks for the new quadrennium.

It was generally felt that the first Division meetings were encouraging, not least to those who feared they could degenerate from being the technical power-houses intended to become just another administrative layer in the Commission.

At the closing plenary meeting, the officers and Division Directors for the next quadrennium were announced: the new President would be Dr. G Wyszecki. It was also announced that the Central Bureau would shortly have to leave Paris. The Board would find a new permanent location for the approval of the Executive Committee within two years, and also find a full-time Executive Secretary as soon as possible thereafter. As a cumbersome but interim arrangement, W Budde would act as Executive Secretary in Ottawa, publication office activity would carry on in Budapest, and the official address of the CIE would remain in Paris.

During the Session, four new members were added to the CIE (Hong Kong, Mexico, Pakistan and Peru) and Brazil was readmitted. With Argentina, who rejoined the Commission two years earlier, the CIE membership advanced to a record 35 countries or geographical regions (a term introduced to cover Hong Kong).

1983-1987

The technical work of the CIE does not appear to have suffered any serious interruption during the erection of the new divisional structure. Articles in the Journal became a popular form of reporting either interim results or the final outcome of TC work, a procedure used by nearly every Division during the quadrennium. Five of the seven Divisions contributed to the 12 new technical reports and revised versions of older documents (Colorimetry, Interior Lighting Guide). A further four technical reports were ready for printing by the end of the quadrennium.

Two new types of publications made an appearance. CIE Standards were introduced, to present concise documentation of data needed for international harmony: S001 "Colorimetric Illuminants" specified the relative spectral power distributions of illuminants A and D65, S002 "Colorimetric Observers" the colour-matching functions of the 1931 and 1964 observers.

The other new publication was CIE News - a replacement for the Newsletter which had been introduced when the Journal replaced the Bulletin. CIE News, a 4-monthly periodical, was to be sent in bulk to National Committees to keep them informed about both technical and administrative developments in the Commission. This was seen as offering some compensation for the future withdrawal of bulk issues of the Journal if and when it became a subscription publication.

A cool examination in 1984 of the financial viability of the CIE publishing and distributing on individual subscription a high-quality quarterly journal showed the need for a subsidy considerably in excess of what had been needed for either the Bulletin or its successors. Discussions were therefore opened with several publishers of national lighting periodicals, most of whom were having a degree of financial difficulty, to see if something like the envisaged CIE Journal could be produced with their cooperation. One strong possibility of a merger came out of these discussions, but at the end of the quadrennium the Executive Committee were marginally unable to accept the proposition.

The matter of the Journal was but one of several major issues which occupied the CIE officers and Board: there was a new Central Bureau to be found and a full-time Executive Secretary to be appointed. In 1985 a new President had to be found, following the death of Dr. Wyszecki. The Vice President Publications, Dr. Marsden, an Englishman working in Hong-Kong, was elected by the Board to take over during the mid-sessional administrative meetings in Lausanne. By the time of these meetings, the choice of a permanent headquarters had been narrowed down to two premises in Vienna: the new President and Treasurer were sent away from the meeting to negotiate a deal with the Austrian government for one of these, with the continued valuable assistance of the Austrian National Committee.

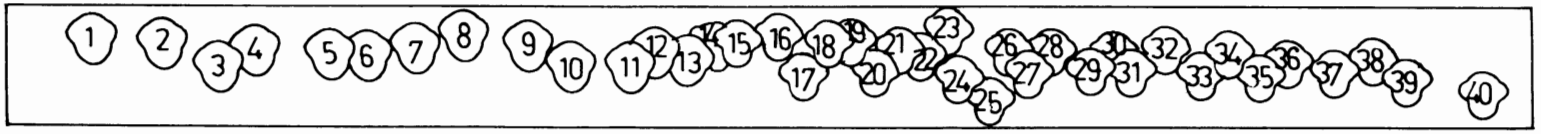
At the same meeting a job description for a full-time Executive Secretary was agreed and arrangements made for advertising and interviewing candidates. Within a year, the Board of Administration was left with two front runners (both Hungarian-born!) following regional interviews in Europe and America. The Board turned itself into a final interview panel during its meeting in Vancouver and appointed Dr. Schanda as the first full-time Executive Secretary of the CIE, who would be the incumbent of the selected leased premises in Vienna (the first floor of Kegelgasse 27) once its refurbishment had been completed by the Austrian government. This took a further year and it was not until 28 September 1987 that the new permanent Central Bureau was officially inaugurated.

VENICE 1987

The 1983-87 quadrennium may have been a historical and fruitful one in the development of the CIE, but delegates at the opening meeting of 1987 Session had to pay respect to the memory of an inordinate number of stalwarts of the Commission, including Past-Secretary Y Le Grand, Past-President S K Guth and two people who had died while holding office - President G Wyszecki and Division 2 Director F Grum.

The Session was held in an old monastery on the island of San Giorgio Maggiore: it followed hard on the heels of an economic summit meeting involving the heads of Government of several

Venice 1987. Leaders of the Delegations and Officers.



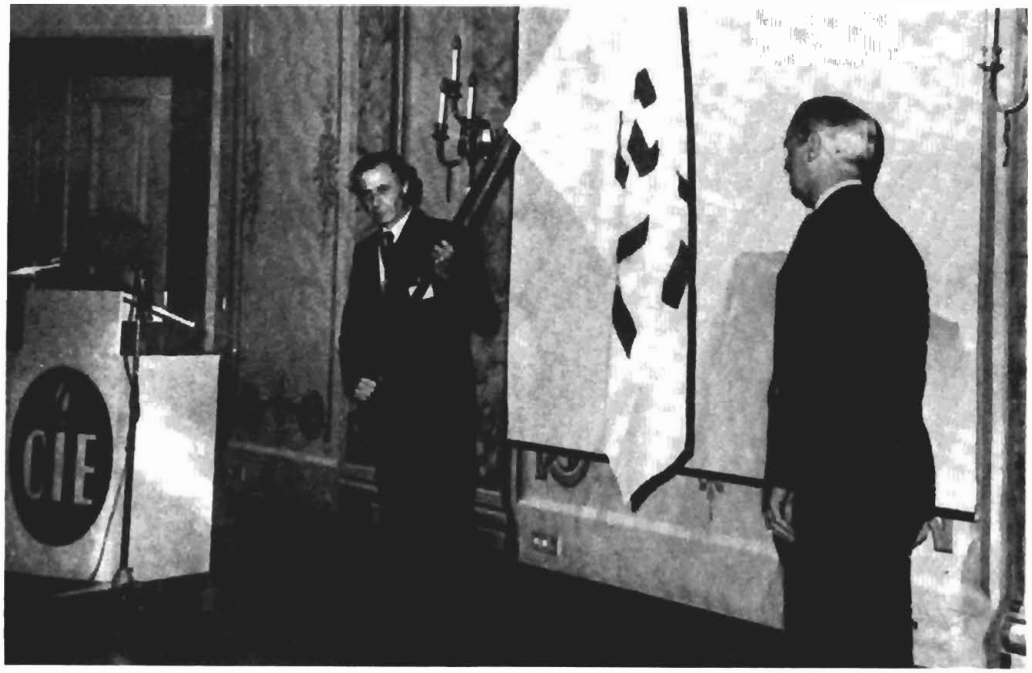
1. R C Aldworth (GBR) - 2. J Jewell (USA) - 3. T Y Cheung (HKG) - 4. A Fisher (AUS) - 5. G Debreczeni (HUN) - 6. B Powell (AUS) - 7. R Schnor (DDR) - 8. N Vassilev (BGR) - 9. P Walraven (NLD) - 10. J Kärnä (FIN) - 11. C F Kirschbaum (ARG) - 12. J Klausen (DNK) - 13. J Krochmann (DEU) - 14. A H Willoughby (GBR) - 15. A Corrons (ESP) - 16.A Ottosson (SWE) - 17. N S Chari (IND) - 18. A R Robertson (CAN) - 19. O Arnesen (NOR) - 20. H Terstiege (DEU) - 21. J Kossakowski (POL) - 22. G R Chahparunians (SUN) - 23. P Blaser (CHE) - 24. C Grill (CIE) - 25. E Barthès (FRA) - 26. R Dogniaux (BEL) - 27. A M Marsden (HKG) - 28. W Budde (CIE) - 29. J B de Boer (NLD) - 30. J Schanda (CIE) - 31. A O Wuillemin (CHE) - 32. F Rotter (AUT) - 33. P Soardo (ITA) - 34. E Ne'eman (ISR) - 35. L Mori (JPN) - 36. L Monzer (CSK) - 37. C L Amick (USA) - 38. H J Steyn (ZAF) - 39. P Gordon (POL) - 40. Z Cai (CHN).

Dr. G Wyszecki, CAN
President: 1983-1985

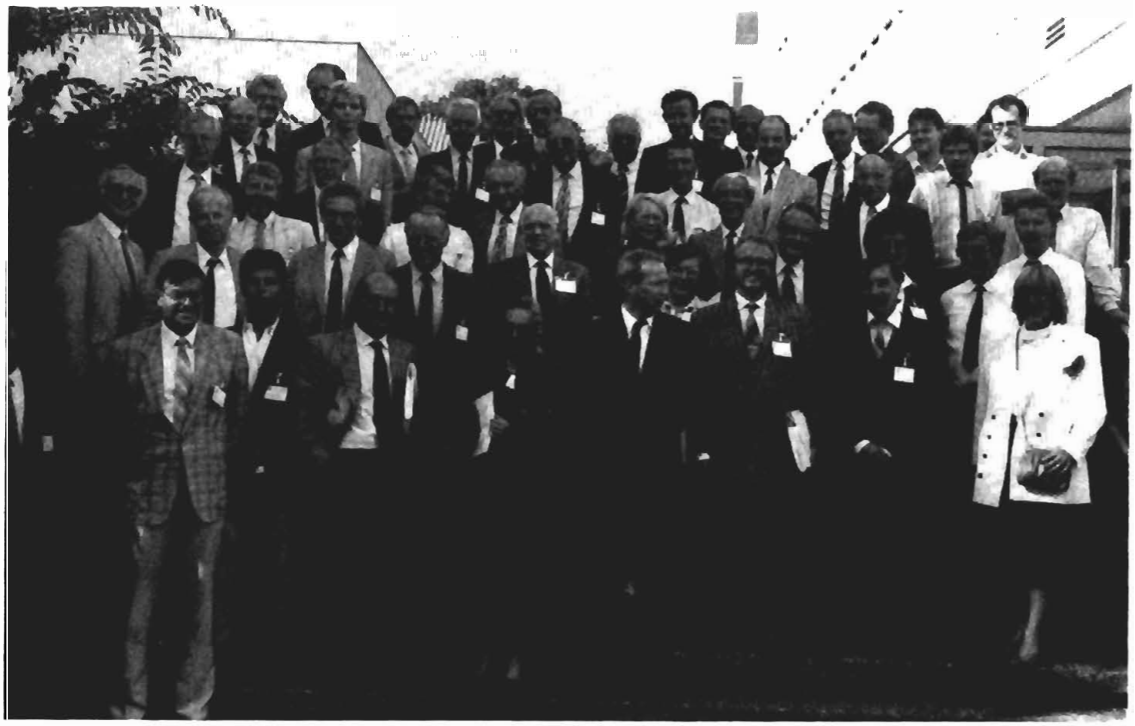
Prof. Dr. H W Bodmann, DEU,
President: 1987-

The search for a new permanent location for the Central Bureau started in 1983. The choice was finally narrowed down to 2 Austrian government buildings in Vienna. The final selection, of the first floor office suite at Kegelgasse 27, was made in September 1985. After complete refurbishment of the premises, Dr. Janos Schanda, as the first full-time Executive Secretary of the CIE, moved in in the summer of 1987.

The new Central Bureau was officially opened on 28th September 1987, when Herr Hofrat Barth, on behalf of the Austrian Government, handed over the key to Prof. Bodmann at a ceremony attended by members of the Board of Administration and officials of the Austrian Government and the Austrian National Committee of the CIE.



The President, Prof. Dr. H W Bodmann receiving the CIE flag from K Scott, Chairman of the National Illumination Committee of Great Britain. The flag bears the new CIE logo, which was introduced at the 75th Anniversary celebrations in Ettlingen. The previous logo is displayed on the front of the lectern in the picture and this can be compared with the new design on the cover of this publication.



Delegates visiting the Karlsruhe Lighting Technical Institute as part of the 75th Anniversary programme in 1988.

countries, and the Division Directors had had to run the gauntlet of security guards to gather for a pre-Session meeting. Normality returned for the opening plenary meeting, except for President Marsden being invested by his hosts in the colourful robes of an ancient doge of Venice for the formal opening. India, New Zealand, Thailand and the People's Republic of China were welcomed into membership, bringing up a total of 38 member countries/geographical regions. The overview of technical progress, formerly distributed among several coordinators, was given by Dr. Fisher, Vice-President Technical. And the President gave delegates, getting on for 500 from 35 countries, a parallel and shorter overview of matters administrative.

Three days (including a whole Saturday), were given over to the conference section of the Session, each half day starting with an invited lecture. A total of 48 papers were presented in three parallel sessions on four half-days, one afternoon was set aside for delegates to visit the 100 poster presentations and on one afternoon delegates were able to participate in one of six workshop sessions. These were concerned with colour vision, discomfort glare, spatial illuminance, lighting education, daylighting and radiation exposure in buildings. The combination of workshops, posters and a restricted number of formally-presented papers probably provided the greatest opportunity in the history of CIE Sessions for in-depth discussions by delegates not directly involved in technical committee work.

Three and a half days were devoted to meetings of the Divisions, conducted in three parallel sessions and not restricted to nominated members. The meetings of any one Division occupied 2, 3 or 4 half-days, depending on the request of the Director, so it was possible for activities to be examined in some technical depth: no existing or potential TC Chairman was able to escape searching questions on workrate or relevance. When the Council, under the direction of the new President Prof. Dr. H W Bodmann, was faced after the Session with approving activities for the new quadrennium, they found that of the 90-odd original technical committees 30% had published their work or were about to go into print, the tasks of 60% were incomplete but worth continuing and the work of 10% was no longer considered worth pursuing. With the approval of 30-odd new TC's, with a clearly defined task, the CIE would start the new quadrennium with a similar number of TC's to that in 1983. It seemed to the Council that the new structure had come through its first four years with credit, in keeping the work of the CIE both efficient and fresh.

POSTSCRIPT

The 75 years of CIE history charted here has shown a growth of the number of member countries from 9 to 38: some two-thirds of the earth's land surface is now represented in the organization, by either national committees or individual members. In 1913, there were 45 delegates at the CIP meeting which set up the CIE: the average attendance of delegates to CIE Sessions in the 1980's was over 500.

A complete library of current CIE publications must now occupy over two metres of bookshelf length, of which nearly a half needs periodic updating. The CIE has thus hoisted itself to a moving platform on which it needs to run to stay in the same place, let alone move forward. Happily, it now has a professional secretariat in a permanent headquarters to support the efforts of its worldwide volunteers. The 1988 issue of the CIE roster lists nearly 400 names of officers or members of Divisions or chairman of technical committees: add the members of the 88 technical committees, and it is clear that these worldwide volunteers must now number nearly 1000.

This history has concerned itself mainly with the technical advances of the CIE: only passing reference has been made to technical visits or social events at the Sessions or at inter-Session technical committee meetings. Yet those involved know that informal interchanges between fellow enthusiasts for developing the science, technology and art of light and lighting are often as valuable as the business done at the formal meetings. And it is well to remember that without the efforts of such enthusiasts, referred to at the CIE's 75th anniversary as "CIE nuts", this incredible development of the Commission would never have taken place.

APPENDIX 1 OFFICERS OF THE CIE

Inter-Session period	1913-21	1921-24
PRESIDENT	T Vautier (France)	EP Hyde (USA)
HONORARY PRESIDENT		T Vautier (France)
VICE-PRESIDENTS	H Bunte (Germany)	K Edgcumbe (Great Britain)
	EP Hyde (USA)	F Rouland (France)
	L Kusminsky (Austria)	G Semenza (Italy)
TREASURER	A Weiss (Switzerland)	CC Paterson (Great Britain)
	CC Paterson (Great Britain)	
SECRETARY	CC Paterson (Great Britain)	CC Paterson (Great Britain)
EXECUTIVE SECRETARY	JWT Walsh (Grat Britain)	JWT Walsh (Great Britain)

Inter-Session period	1924-27	1927-31
PRESIDENT	EP Hyde (USA)	CC Paterson (Great Britain)
HONORARY PRESIDENT	T Vautier (France)	T Vautier (France)
VICE-PRESIDENTS	K Edgcumbe (Great Britain)	AR Meyer (Germany)
	F. Rouland (France)	F Rouland (France)
	G Semenza (Italy)	CH Sharp (USA)
TREASURER	CC Paterson (Great Britain)	A Filliol (Switzerland)
SECRETARY	CC Paterson (Great Britain)	JWT Walsh (Great Britain)
EXECUTIVE SECRETARY	JWT Walsh (Great Britain)	WS Stiles (Great Britain)

Inter-Session period	1931-35	1935-39
PRESIDENT	AR Meyer (Germany)	C Fabry (France)
VICE-PRESIDENTS	NA Halbertsma (Netherlands)	O de Bast (Belgium)
	H de la Paulle (Belgium)	NA Halbertsma (Netherlands)
	CH Sharp (USA)	LV Rihanek (Czechoslovakia)
TREASURER	A Filliol (Switzerland)	A Filliol (Switzerland)
SECRETARY	CC Paterson (Great Britain)	CC Paterson (Great Britain)
EXECUTIVE SECRETARY	WS Stiles (Great Britain)	JS Preston (Great Britain)
	JS Preston (Great Britain)	

Inter-Session period	1939-48	1948-51
PRESIDENT	NA Halbertsma (Netherlands)	NA Halbertsma (Netherlands)
HONORARY PRESIDENT		CC Paterson (Great Britain)
VICE-PRESIDENTS	EC Crittenden (Great Britain)	I Folcker (Sweden)
	E Perucca (Italy)	M Leblanc (France)
	LV Rihanek (Czechoslovakia)	JWT Walsh (Great Britain)
TREASURER	A Filliol (Switzerland)	H König (Switzerland)
	W Trüb (Switzerland)	
SECRETARY	CC Paterson (Great Britain)	CA Atherton (USA)
EXECUTIVE SECRETARY	JS Preston (Great Britain)	RJ Whitney (USA)

Inter-Session period	1951-55	1955-59
PRESIDENT	W Harrison (USA)	JWT Walsh (Great Britain)
HONORARY PRESIDENT	NA Halbertsma (Netherlands)	NA Halbertsma (Netherlands)
VICE-PRESIDENTS	I Folcker (Sweden)	AA Brainerd (USA)
	M Jacob (Belgium)	R Deaglio (Italy)
	M Leblanc (France)	L Fink (Austria)
	JWT Walsh (Great Britain)	M Jacob (Belgium)
TREASURER	H König (Switzerland)	WWE von Hemert (Netherlands)
SECRETARY	CA Atherton (USA)	Y Le Grand (France)
EXECUTIVE SECRETARY	RJ Whitney (USA)	JJ Chappat (France)
	CA Atherton (USA)	

Inter-Session period	1959-63	1963-67
PRESIDENT	I Folcker (Sweden)	L Schneider (Germany)
		I Folcker (Sweden)
HONORARY PRESIDENT	NA Halbertsma (Netherlands)	NA Halbertsma (Netherlands)
VICE-PRESIDENTS	AA Brainerd (USA)	WC Brown (USA)
	R Deaglio (Italy)	NM Gusev (USSR)
	L Fink (Austria)	WR Stevens (Great Britain)
	L Schneider (Germany)	A Tchetchik (Israel)
TREASURER	WWE von Hemert (Netherlands)	WWE von Hemert (Netherlands)
SECRETARY	Y Le Grand (France)	Y Le Grand (France)
EXECUTIVE SECRETARY	JJ Chappat (France)	JJ Chappat (France)

Inter-Session period	1967-71	1971-75
PRESIDENT	D Vermeulen (Netherlands)	WR Stevens (Great Britain)
VICE-PRESIDENTS	Y Le Grand (France)	SK Guth (USA)
	NM Gusev (USSR)	VE Kartachevskaia (USSR)
	WR Stevens (Great Britain)	J Terrien (France)
	A Tchetchik (Israel)	K Yoshie (Japan)
TREASURER	TD Wakefield (USA)	TD Wakefield (USA)
SECRETARY	A Lompe (Germany)	A Lompe (Germany)
AC CHAIRMAN	WR Stevens (Great Britain)	SK Guth (USA)
COORDINATORS	JB de Boer (Netherlands)	JB de Boer (Netherlands)
	SK Guth (USA)	AJ Fisher (Australia)
	I Ovesen (Denmark)	I Ovesen (Denmark)
	B Steck (Germany)	B Steck (Germany)
	J Urbanek (Hungary)	G Wyszecki (Canada)
	G Wyszecki (Canada)	
EXECUTIVE SECRETARY	JJ Chappat (France)	J Maisonneuve (France)
	J Maisonneuve (France)	

Inter-Session period	1975-79	1979-83
PRESIDENT	SK Guth (USA)	JB de Boer (Netherlands)
VICE-PRESIDENTS	JB de Boer (Netherlands)	J Kossakowski (Poland)
	L Morren (Belgium)	L Morren (Belgium)
	T Oleszynski (Poland)	J Schanda (Hungary)
	G Wyszecki (Canada)	J Svehla (Czechoslovakia)
	K Yoshie (Japan)	G Wyszecki (Canada)
TREASURER	J Terrien (France)	JV Gaudel (France)
SECRETARY	B Steck (Germany)	H Terstiege (Germany)
AC CHAIRMAN	G Wyszecki (Canada)	J Schanda (Hungary)
COORDINATORS	MP Blaise (France)	HH Bjorset (Norway)
	HW Bodmann (Germany)	HW Bodmann (Germany)
	JB de Boer (Netherlands)	F Grum (USA)
	AJ Fisher (Australia)	AM Marsden (Great Britain)
	AM Marsden (Great Britain)	K Narisada (Japan)
	J Schanda (Hungary)	AO Wuillemin (Switzerland)
		RS Yates (South Africa)
EXECUTIVE SECRETARY	P Lemaigre-Voreaux (France)	P Lemaigre-Voreaux (France)

Inter-Session period	1983-87	1987-91
PRESIDENT	G Wyszecki (Canada)	HW Bodmann (Germany)
	AM Marsden (Hong Kong)	
VICE-PRESIDENTS	RC Aldworth (Great Britain)	RC Aldworth (Great Britain)
	AJ Fisher (Australia)	HH Bjorset (Norway)
	J Kossakowski (Poland)	GR Chahparunians (USSR)
	AM Marsden (Hong Kong)	J Kaufman (USA)
	J Schanda (Hungary)	
	P Soardo (Italy)	
	AO Wuillemin (Switzerland)	
TREASURER	J Jewell (USA)	J Jewell (USA)
SECRETARY	H Terstiege (Germany)	H Terstiege (Germany)
VP TECHNICAL	AJ Fisher (Australia)	HH Bjorset (Norway)
DIVISION DIRECTORS	RC Aldworth (Great Britain)	WJM van Bommel (Netherlands)
	M Barthes (France)	P Chauvel (France)
	HW Bodmann (Germany)	RW Holmes (Great Britain)
	WJM van Bommel (Netherlands)	M Ikeda (Japan)
	HH Bjorset (Norway)	J Kossakowski (Poland)
	F Grum (USA)	KD Mielenz (USA)
	KD Mielenz (USA)	LR Ronchi (Italy)
	K Narisada (Japan)	
	LR Ronchi (Italy)	
EXECUTIVE SECRETARY	W Budde (Canada)	J Schanda (Hungary)

APPENDIX 2 RECORDED REPRESENTATION AT CIE SESSIONS

*Observers from non-member countries

	1921 PARIS	1924 GENEVA	1928 SARANAC INN	1931 CAMBRIDGE	1935 BERLIN KARLSRUHE	1939 SCHEVE NINGEN
Argentina				1	2	
Australia						
Austria	0	0	3	4	7	0
Belgium	1	0	0	7	5	7
Brazil			2 *			
Bulgaria						
Canada				2 *		
Chile						
China						
Czechoslovakia				6	8	0
Denmark						1
Egypt						
Finland						
France	9	6	10	29	16	17
Germany	0	0	9	16	43	60
Great Britain	7	9	18	23	51	67
Hong Kong						
Hungary				0	2	5
Iceland						
India						
Iran						
Ireland				1 *		
Israel						
Italy	2	2	0	15	3	8
Japan		1 *	6	8	7	2
Malaysia						
Mexico						
Netherlands	0	0	1	8	8	13
New Zealand				2 *		
Norway						
Pakistan						
Peru						
Philippines						
Poland		1 *		3	12	12
Portugal						
Rumania						
South Africa			1 *	1 *		
Spain	1 *			3 *	1	1
Sweden			1	5	4	4
Switzerland	1	10	4	11	11	10
Thailand						
Turkey						
USA	3	7	15	16	15	10
USSR			2 *	1 *		0
Venezuela						
Yugoslavia						
Attendance	24	36	72	162	195	217
Countries	7	7	12	20	16	14
CIE membership at time of Session	9	9	11	15	16	17

	1948 PARIS	1951 STOCKHOLM	1955 ZURICH	1959 BRUSSELS	1963 VIENNA	1967 WASHINGTON
Argentina						
Australia		2	1	3	1	3
Austria	0	2	12	10	88	13
Belgium	13	9	23	92	24	3
Brazil			1	1	1	
Bulgaria						
Canada		1 *	2 *	4	8	10
Chile						5
China						
Czechoslovakia	8	0	4	5	19	3
Denmark	12	19	9	14	19	6
Egypt		1 *				
Finland		11	8	8	14	3
France	211	40	54	54	61	42
Germany	4	37	85	92	91	22
Great Britain	70	69	109	82	77	43
Hong Kong						
Hungary	1			3 *	25	1
Iceland			1	3	2	2
India						
Iran						
Ireland		1 *	4	0	1 *	
Israel	1 *	1	2	2	2	3
Italy	17	10	20	12	26	7
Japan	0	0	1	10	8	17
Malaysia						1 *
Mexico						
Netherlands	32	22	32	45	34	14
New Zealand						
Norway	3	19	13	6	10	0
Pakistan						
Peru						
Philippines		1 *				
Poland	0	0	3	1	3	0
Portugal					6	2
Rumania				0	2	1
South Africa	1 *	1	4	3	4	5
Spain	3	2	12	7	16	14
Sweden	9	98	18	14	22	18
Switzerland	16	13	60	15	33	12
Thailand						
Turkey	1 *	1 *	1 *		2 *	
USA	18	25	38	51	58	182
USSR	2	0	5	2	16	8
Venezuela						1 *
Yugoslavia			5	1	11	0
Attendance	422	385	527	540	684	441
Countries	18	22	27	26	30	27
CIE membership at time of Session	18	21	25	27	28	28

	1971 BARCE-LONA	1975 LONDON	1979 KYOTO	1983 AMSTERDAM	1987 VENICE	ATTENDANCE OVER 17 SESSIONS
Argentina	1 *	1 *	1 *	3	1	10
Australia	7	17	10	10	9	63
Austria	9	9	1	6	5	169
Belgium	11	11	6	13	13	238
Brazil				1	0	6
Bulgaria	6	5	0	1	1	13
Canada	10	16	9	15	11	88
Chile	0	0	0			5
China			7 *	15 *	9	31
Czechoslovakia	8	1	5	4	2	73
Denmark	16	14	10	11	9	140
Egypt						1
Finland	7	8	3	11	13	86
France	44	48	33	39	42	755
German DR		2 *	1	3	1	7
Germany FR	76	54	39	41	35	704
Great Britain	69	78	30	64	38	904
Hong Kong			2 *	4	2	8
Hungary	12	15	6	11	11	92
Iceland	2	2	0	2	1	15
India			2 *	1 *	5	8
Iran	2	4	0			6
Ireland	1 *	3 *				11
Israel	3	6	7	8	5	40
Italy	26	24	7	10	72	261
Japan	22	31	206	41	30	390
Malaysia						1
Mexico	1 *			0	0	1
Netherlands	20	38	20	74	34	395
New Zealand				1 *	1	4
Norway	5	10	2	10	18	96
Pakistan				1	2	3
Peru				0	0	0
Philippines						1
Poland	5	7	5	2	5	59
Portugal	10	4	0	6	7	35
Rumania	1	0	1	0		5
South Africa	10	14	11	20	9	84
Spain	191	19	6	12	2	290
Sweden	19	19	12	19	17	279
Switzerland	21	13	8	13	12	263
Thailand					0	0
Turkey	1 *	4 *		1 *	1 *	12
USA	82	53	44	56	49	722
USSR	5	10	6	3	4	64
Venezuela	1 *					2
Yugoslavia	6	1	6	2	2	34
Attendance	710	541	506	534	478	6474
Countries	35	32	30	36	35	
CIE membership at time of Session	30	30	31	35	38	

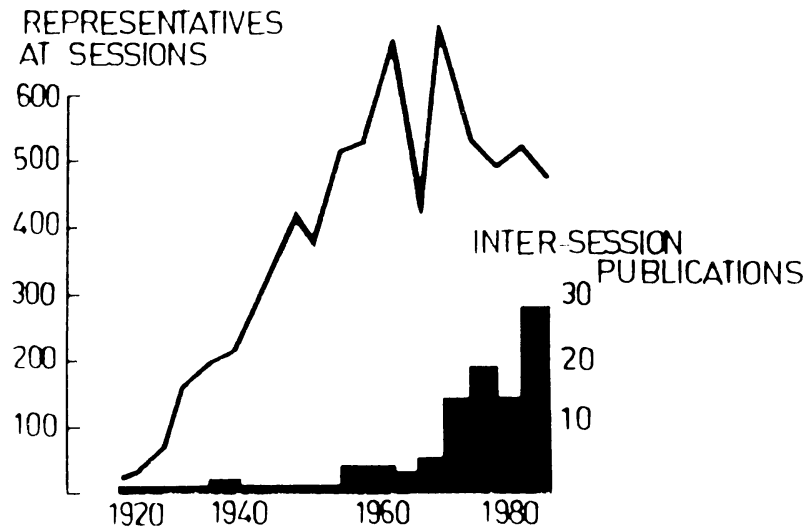
APPENDIX 3 CIE PUBLICATION ACTIVITY

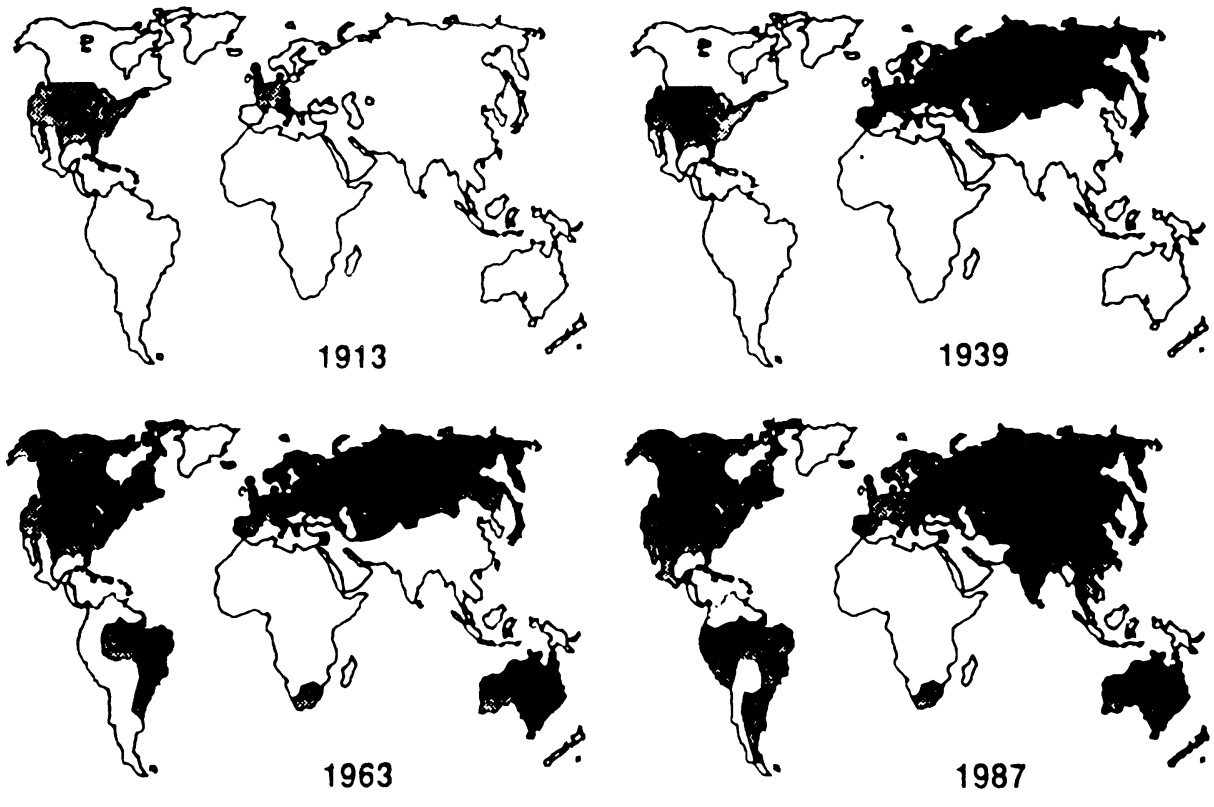
1923		Proceedings 5th Session (Paris 1921)
1926		Proceedings 6th Session (Geneva 1924)
1929		Proceedings 7th Session (Bellagio 1927 / Saranac Inn 1928)
1932		Proceedings 8th Session (Cambridge 1931)
1936		Proceedings 9th Session (Berlin 1935)
1938		International lighting vocabulary
1942		Proceedings 10th Session (Scheveningen 1939)
1949		Proceedings 11th Session (Paris 1948)
1952		Proceedings 12th Session (Stockholm 1951)
1956		Proceedings 13th Session (Zurich 1955)
1957	CIE 1	International lighting vocabulary. 2nd edition. Vol 1
1959	CIE 2	Colour of light signals
	CIE 3	International lighting vocabulary. 2nd edition Vol 2
1960	CIE 4-7	Proceedings 14th Session (Brussels 1959) Vols A, B, C, D
	CIE 8	Street lighting and accidents
1963	CIE 9	History of the CIE
	CIE 10	Slides for lighting education
1964	CIE 11	Proceedings 15th Session (Vienna 1963) Vols A, B, C, D
1965	CIE 12	International recommendations for the lighting of public thoroughfares
	CIE 13	Method of measuring and specifying colour rendering properties of light sources
1968	CIE 14	Proceedings 16th Session (Washington 1967) Vols A, B
1970	CIE 16	Daylight
	CIE 17	International lighting vocabulary. 3rd edition
	CIE 18	Report on principles of light measurement
1971	CIE 15	Colorimetry: Official CIE recommendations
1972	CIE 15 supp 1	Special metamerism index: change in illuminant
	CIE 19	A unified framework of methods for evaluating visual performance aspects of lighting
	CIE 20	Recommendations for the integrated irradiance and the spectral distribution of simulated solar radiation for testing purposes
	CIE 21	Proceedings 17th Session (Barcelona 1971) Vols A, B, C
	CIE 22	Standardization of luminance distribution on clear skies
	CIE 23	International recommendations for motorway lighting
1973	CIE 24	Photometry of indoor type luminaires with tubular fluorescent lamps
	CIE 25	Procedures for the measurement of luminous flux of discharge lamps and for their calibration as working standards
	CIE 26	International recommendations for tunnel lighting
	CIE 27	Photometry of luminaires for street lighting
1974	CIE 13.2	Method of measuring and specifying colour rendering properties of light sources. 2nd edition
1975	CIE 2.2	Colour of light signals. 2nd edition
	CIE 28	The lighting of sports events for colour TV broadcasting
	CIE 29	Guide on interior lighting

1976	CIE 30	Calculation and measurement of luminance and illuminance in road lighting
	CIE 31	Glare and uniformity in road lighting installations
	CIE 36	Proceedings 18th Session (London 1975)
	CIE 37	Exterior lighting in the environment
1977	CIE 12.2	Recommendations for the lighting of roads for motorized traffic. 2nd edition
	CIE 32	Lighting in situations requiring special treatment (road lighting)
	CIE 33	Depreciation of installations and their maintenance (road lighting)
	CIE 34	Road lighting lantern and installation data: photometrics, classification and performance
	CIE 38	Radiometric and photometric characteristics of materials and their measurement
1978	CIE 15 supp 2	Recommendations on uniform colour spaces, colour-difference equations, psychometric colour terms
	CIE 35	Lighting of traffic signs
	CIE 39	Surface colours for visual signalling
	CIE 40	Calculations for interior lighting: basic method
	CIE 41	Light as a true visual quantity: principles of measurement
	CIE 42	Lighting for tennis
1979	CIE 43	Photometry of floodlights
	CIE 44	Absolute methods for reflection measurements
	CIE 45	Lighting for ice sports
	CIE 46	A review of publications on properties and reflection values of material reflection standards
	CIE 47	Road lighting for wet conditions
1980	CIE 48	Light signals for road traffic control
	CIE 50	Proceedings 19th Session (Kyoto 1979)
	IUA/CIE1	Guidelines for minimizing urban sky glow near astronomical observatories
1981	CIE 19.2	An analytic model for describing the influence of lighting parameters upon visual performance. 2nd edition. Vols 1, 2
	CIE 49	Guide on the emergency lighting of building interiors
	CIE 51	A method for assessing the quality of daylight simulators for colorimetry
1982	CIE 30.2	Calculation and measurement of luminance and illuminance in road lighting. 2nd edition
	CIE 52	Calculations for interior lighting: applied method
	CIE 53	Methods of characterizing the performance of radiometers and photometers
	CIE 54	Retroreflection: definition and measurement
	CIE Journal	Vol 1. Nos 1, 2
1983	CIE 18.2	The basis of physical photometry. 2nd edition
	CIE 39.2	Recommendations for surface colours for visual signalling. 2nd edition
	CIE 55	Discomfort glare in the interior working environment
	CIE 56	Proceedings 20th Session (Amsterdam 1983)
	CIE 57	Lighting for football
	CIE 58	Lighting for sports halls
	CIE Journal	Vol 2. Nos 1, 2

1984	CIE 59	Polarization: definitions and nomenclature, instrument polarization
	CIE 60	Vision and the visual display unit work station
	CIE 61	Tunnel entrance lighting
	CIE 62	Lighting for swimming pools
	CIE 63	The spectroradiometric measurement of light sources
	CIE 64	Determination of the spectral responsivity of optical radiation detectors
	CIE 66	Road surfaces and lighting
	CIE Journal. Vol 3. Nos 1, 2	
1985	CIE 65	Electrically calibrated thermal detectors of optical radiation
	CIE Journal. Vol 4. Nos 1, 2	
1986	CIE 15.2	Colorimetry. 2nd edition
	CIE 29.2	Guide on interior lighting. 2nd edition
	CIE 67	Guide for the photometric specification and measurement of sports lighting installations
	CIE 68	Guide to the lighting of exterior work areas
	CIE Journal. Vol 5. Nos 1, 2	
	S001	Colorimetric illuminants
	S002	Colorimetric observers
1987	CIE 17.4	International lighting vocabulary. 4th edition
	CIE 69	Methods of characterizing illuminance meters and luminance meters
	CIE 70	The measurement of absolute luminous intensity distributions
	CIE 71	Proceedings 21st Session (Venice 1987) Vols 1, 2
	CIE 72	Guide to the properties and use of retroreflectors at night
	CIE Journal. Vol 6. Nos 1, 2	
1988	CIE 73	Visual aspects of road markings
	CIE 74	Roadsigns
	CIE 75	Spectral luminous efficiency functions based upon brightness matching for monochromatic sources 2° and 10° fields
	CIE 76	Intercomparison on measurement of total spectral radiance factor of luminescent specimens
	CIE 77	Electric light sources: state of the art 1987
	CIE 78	Brightness luminance relations: classified bibliography
	CIE 79	A guide for the design of road traffic lights
	CIE Journal. Vol 7. Nos 1, 2	

APPENDIX 4 GROWTH OF CIE





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