

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

MINUTES OF THE 14TH BUREAU MEETING

held in Brussels on the premises of the
Maison des Industries Chimiques de Belgique, 49 Square Marie-Louise
on Sunday and Monday, June 17 and 18, 1962.

PRESENT:

| | |
|-----------------------------------|--------------------|
| Prof. W. A. Noyes, Jr., President | |
| Prof. W. Klemm, Vice-President | |
| Lord Todd, Vice-President | |
| Sir E. Charles Dodds, Treasurer | |
| Dr. R. Morf, Secretary General | |
| Dr. J. H. Bushill | Prof. H. Malissa |
| Prof. H. J. Emeléus | Prof. G.-M. Schwab |
| Prof. H. Erdtman | Prof. R. Tourky |
| Dr. T. Govindachari | Prof. P.E. Verkade |
| Prof. V.N. Kondratiev | Prof. O. Wichterle |
| Prof. M. Letort | |

16 of the 22 Bureau Members were present thus
forming a quorum enabling the Bureau to act legally

Specially invited representatives of the Sections:

Prof. R. Belcher
Dr. C. E. Dalglish
Prof. G. Emschwiller
Prof. V. Gutmann
Prof. L. Marion
Prof. R. Truhaut

Further invited:

Prof. J. C. Bailar, Jr.
Dr. D. C. Martin
Dr. H. W. Thompson
Prof. B. C. L. Weedon

French Interpreter: Mr. Cambien

Excused:

Prof. A. Stoll, Past President.
Prof. A. Tiselius, Past President
Prof. G. Chaudron, Vice-President
Prof. E.J. King, Bureau Member
Prof. D. Marotta, Bureau Member
Dr. C.E. Nabuco de Araujo, Jr. Bureau Member
Sir H. Melville, Representative of Section 1.

TOTAL PRESENT: 26.

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

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A G E N D A

1. Agenda
2. Minutes of last meeting. (See Page 126 Comptes Rendus XXI).
3. Report and financial statement of the Honorary Treasurer.
4. Election procedures for 1963 (memorandum of President Noyes)
5. Reports of the six Section Presidents.
6. Publications: Report of the Chairman of the Editorial Advisory Board.
 - a) Translations
 - b) Sponsorship
7. New Structure of IUPAC (Verkade Committee)
8. Programme for the Congress and Conference in London 1963, and future Conferences.
9. Nomenclature Problems: Joint Commission with I. U. B.
Joint Commission within the Sections.
Ion-exchange Commission.
10. Procedure for the approval of titular members.
11. Number of titular members in Divisions; e. g.
The Paper Division,
Commission on Colloid and Surface Chemistry
12. Atomic weights or atomic masses ?
13. Co-operation with UNESCO - Teaching of chemistry,
- Catalysis
14. Co-operation with the International Union of Geological Sciences.
15. How can better geographical distribution be achieved without hampering the efficiency of Commission work.
16. Proposals for the nomination of Councillors-at-large.
17. Dr. Wichers' proposals for increasing the importance of the Bureau, etc..
18. Applications of new member countries.
19. Information Bureau on Toxic and other dangerous substances used in industry.
20. Any other business.

Minute 1

AGENDA

Resolved: That the Agenda with the twenty points as established and circulated before the meeting by the Secretary General be approved.

Minute 2

MINUTES OF THE LAST MEETING

The Minutes of the 13th Bureau Meeting held in Montreal in 1961 had been distributed at the time in a draft form. The comments then received were taken care of and the final version as printed in the Comptes Rendus XXI (page 126) laid on the table was taken as read and it was

Resolved: That the Minutes be approved.

Minute 3

REPORT AND FINANCIAL STATEMENT OF THE HONORARY TREASURER

The report of the Honorary Treasurer was circulated to all the Bureau Members in the French and English version on 15th May, 1962. The Honorary Treasurer could, therefore, limit his remarks to a few items only. He pointed out that, owing to a fortunate coincidence, the financial position of IUPAC was much better than anyone could have expected before. There are several reasons for this: on the one hand 1961 was the first year in which the augmentation of the annual dues of categories A and B became effective. Moreover, some of the Adhering Bodies have requested membership in higher categories. As a result of this the regular income of IUPAC shows an increase from \$33,638 (1960) to some \$62,000 (1961). In addition to this regular income the Honorary Treasurer was able to announce voluntary contributions which have increased the income to the grand total of \$81,042.69 as compared to \$41,410.00 (1960).

Whilst the figures on the income side are gratifying, it was unexpected that expenditure would be so much less than anticipated. The following are the principle reasons:

- a) the substantial indirect contribution made by our Canadian hosts in inviting many Titular members as lecturers, thus taking care of their transportation and subsistence. The total amount paid by the Canadians for travel and subsistence was about \$50,000.
- b) many Titular members did not attend the Conference in Montreal
- c) the charter flight was a great success and reduced the expenditure considerably.

Realistic Budget. It is very difficult for the Honorary Treasurer to comply with the demands of setting up a realistic budget as the greater part of the cost of running the General Secretariat is paid by the four Chemical Companies, Ciba, Geigy, Roche and Sandoz in Basle. Further, gifts from various organizations total an amount of about \$40,000. All these contributions and grants should be posted as income to IUPAC with appropriate off-setting charges in the expense column.

Resolved:

- i) That the Honorary Treasurer be thanked for his report and for his work
- ii) That the Honorary Treasurer's report be accepted
- iii) That the Honorary Treasurer's report will not be published, as IUPAC traditionally only publishes the financial reports biennially.

(The Honorary Treasurer's report in full is appended to these Minutes Appendix A).

Minute 4

ELECTION PROCEDURES FOR 1963 (MEMORANDUM OF PRESIDENT NOYES)

During the XXIIInd Conference of IUPAC, London July 5-9, 1963, Council will have to proceed to very important elections of Bureau members and officers. In order to provide all the Adhering Bodies and all those who have a real interest in IUPAC with appropriate information, President Noyes in December 1961 circulated a memorandum in which the procedure for the nomination of candidates and the election of Bureau members and officers was described in detail. (See Appendix B). This memorandum was discussed thoroughly by the Bureau and it was

Resolved:

- i) That the procedures as described by President Noyes be put into force for the elections to be held in London in July 1963
- ii) That, as a principle, no one adhering organization shall have more than one elected member in the Bureau
- iii) That the adhering organizations be invited to make their nominations accompanied by a short biography of the candidates and that these be submitted in written form to the Secretary General before May 4, 1963.
- iv) That the Bureau discuss the nominations and be empowered to make proposals for nominations to Council (See Appended Memorandum)
- v) That, in case the new statutes are accepted by Council prior to the elections which will be held at the end of the Council meeting in London, the procedure for nominations and elections will nevertheless be applied strictly according to the memorandum of President Noyes, but that regarding terms of office the new statutes be observed.

Guiding principles with regard to nomination and election of candidates.

A very detailed discussion was held in two open and two closed sessions of the Bureau and it was unanimously agreed that in electing candidates not only the problem of geographical distribution be considered but that it is essential for candidates to be good chemists and enjoy world-wide recognition.

In the open and, later, in a closed session of the Bureau meeting candidates for possible election were put forward and it was

Resolved: That the Secretary General provides a list of the names of these proposed candidates together with their short biographies.

Minute 5

REPORTS OF THE SIX SECTION PRESIDENTS

The Section Presidents had met prior to the Bureau meeting in London on 11th April, 1962. The proceedings and minutes of this meeting will not be published. The detailed reports of each of the six Section Presidents are published in Information Bulletin No. 16. In these minutes only those matters emanating from the Section Presidents requiring a resolution by the Bureau are mentioned.

a) PHYSICAL CHEMISTRY SECTION (I)

Resolved:

- i) That the election by the Physical Chemistry Section of Dr. Guy Waddington to be President of the Commission on Physico-Chemical Symbols and Terminology (I. 1) to fill the vacancy left by Professor W. Jost, who has resigned, be approved by the Bureau on behalf of the Council
- ii) That, as already mentioned in the Budget, \$1,000 be granted as a contribution towards the production and distribution of the bulletin on Thermodynamics and Thermochemistry
- iii) That IUPAC, with the hope that reimbursement from ICSU funds will be received, be prepared to advance the necessary funds to enable the Joint Commission on Applied Radioactivity (I. 8) to continue its activity
- iv) That the best solution regarding the ownership of the so-called "Hoenigsmid" Standards for radioactivity and a suitable location for these standards be explored by the Secretary General
- v) That the Physical Chemistry Section be invited to reduce the number of Titular members in the Commission on Colloid and Surface Chemistry (I. 7) to the statutory number of 8 as was clearly decided when the Commission was formed at the Council meeting in Montreal.

b) INORGANIC CHEMISTRY SECTION (II)

Problems concerning atomic weights and masses and concerning the Commission on Geochemistry will be dealt with as specific items as provided in the initial Agenda under Nos. 12 and 14.

c) ORGANIC CHEMISTRY SECTION (III)

Resolved:

- i) That the Organic Chemistry Section be authorized and invited to increase the number of members of the Section Committee to 10
- ii) That the election made by the Organic Chemistry Section of Professor A. Kjaer from Copenhagen be approved by the Bureau on behalf of the Council

- iii) That the recommendation made by the Organic Chemistry Section to give sponsorship to the Symposium on the Chemistry of Natural Products, Kyoto, April 12-18, 1964, be approved (See also Minute 6 v).

The fact that the subject of the chemistry of natural products has been dealt with at many symposia during recent years and that consequently the field of Organic Chemistry as a whole has been neglected was reflected. Various proposals were made for IUPAC to have at its next conference Organic Chemistry as its main subject and that symposia be held (e.g. in USA) on various subjects dealing with theoretical organic chemistry.

d) BIOLOGICAL CHEMISTRY SECTION (IV)

Due to the poor health of Professor E.J. King, Dr. C.E. Dalglish, Secretary of the Section Committee, submitted the report of the Biological Chemistry Section. It was

Resolved:

- i) That the reappointment of Professor W. Klyne as Chairman of the Commission on the Nomenclature of Biological Chemistry (IV.1) until the London meeting be approved
- ii) That an ad hoc committee be set up to make recommendations at the London meeting concerning the possibility of a joint commission with IUB and the problem of co-ordination, not only between the Nomenclature Commissions of IUPAC and similar commissions in other Unions, but also liaison between the different Nomenclature Commissions in IUPAC. This ad hoc committee would consist of the chairmen of the existing Nomenclature Commissions in the Union with one of their number being appointed as convener.
- iii) That the misprint in the Budget for 1962 with regard to the Commission on Clinical Chemistry (IV.3) be corrected as follows: "The expenditure for the meeting of the Commission on Clinical Chemistry (IV.3) and of the Biological Chemistry Section, be listed under expenditures for the year 1963 and not 1962".

e) ANALYTICAL CHEMISTRY SECTION (V)

Resolved:

- i) That the report of the President of the Analytical Chemistry Section made in Montreal be given further circulation and better publicity
- ii) That the wish of the Analytical Chemistry Section to hold a congress on analytical chemistry in Vienna in 1965 be favourably received
- iii) That the problem of co-operation between the other Nomenclature Commissions of IUPAC (see also under Biological Chemistry Section, Resolution ii), be dealt with by setting up a working group to make recommendations at the London meeting

- iv) That the wish of the Analytical Chemistry Section to be represented in the Editorial Advisory Board be considered.

For the Chairman of the Editorial Advisory Board to act.

f) APPLIED CHEMISTRY SECTION (V)

Resolved:

- i) That the personnel of the Commission on Trace Elements in Food be discharged when the report on the determination of Arsenic, Lead, and Mercury is completed. Permission is granted then for the appointment of other personnel to the Commission to study the determination of Selenium, Boron and Fluorine in food.
- ii) That the request of the Oils and Fats Division to hold its 1963 meeting in the Netherlands instead of London (the venue of the IUPAC Conference), contrary to the principles decided upon in Montreal, be received with reluctance. Power be given to the Honorary Treasurer and the Secretary General to make a final decision whether the Oils and Fats Division should meet in London or elsewhere in 1963. This decision is backed by all except two votes
- iii) That the wish of the Applied Chemistry Section to have a Symposium on Paper and Pulp at the London Conference be referred to the organising committee of the London Conference and that in connection with this Dr. Bushill, in his capacity as President of the Section, shall make a final decision
- iv) That the Pulp, Paper and Board Division (V1.9) should not be granted permission to increase the number of its Titular members from 8 to 10 (contrary to the newly approved structure of the Applied Chemistry Section).
- v) That the compilation by the Organic Coatings Division of a tri-lingual glossary of terms for the Paint Industry be approved. According to general practice it would be submitted to the Editorial Board for publication and no royalties would accrue to the author or authors
- vi) That permission be given to the Toxicology and Industrial Hygiene Division to participate in a Symposium, with no cost to the Union, on "Tolerance Limits of Toxic Substances in Industrial Atmospheres and in Biological Materials".

It is further agreed that the Symposium be under the aegis of IUPAC jointly with ILO and The Permanent Commission and International Association of Occupational Health.

- vii) That the proposal concerning the formation of an "Information Bureau on Dangerous Substances" be submitted to the Adhering Bodies for their comments in order that an assessment may be made of the need for such a bureau and of the level of support that could be expected from national, governmental and industrial sources.

Minute 6

PUBLICATIONS

As a result of a meeting of the whole Editorial Advisory Board held on Saturday, 16th June 1962, and following a very detailed report given by Dr. H. W. Thompson, Chairman of the Editorial Advisory Board meeting, (App. C) the Minutes of this item will be restricted to the following resolutions: it was

Resolved:

- i) That thanks be expressed to the Chairman and Scientific Editor, Dr. H. W. Thompson and Professor B. C. L. Weedon, of the Editorial Advisory Board, for their untiring efforts in starting and developing the IUPAC Journal
- ii) That a letter be written to Butterworths expressing concern over the low sales figures, quality and intensity of publicity and asking Butterworths to suggest ways in which the Union might assist them in improving the situation
- iii) That a new contract be signed with Butterworths
- iv) That translations be made when required, according to the principles laid down in the Minutes of the Montreal meeting (Information Bulletin 15, Page 25)
- v) That IUPAC should not give sponsorship too freely and that a special committee should be formed to guide the general policy about sponsorship

As negotiations have already been underway, sponsorship for the following meetings were granted by the Bureau with no subvention to be given by IUPAC:

- a) Following a letter from Dr. H. W. Thompson dated 8th May, 1962, and having asked and been advised by the Organizing Committee of the London Conference, sponsorship will be given to the European Molecular Spectroscopy Meeting, Budapest July 22-27, 1963.
- b) On the recommendation of both the Organic and Applied Chemistry Sections and with the consent of the Editorial Advisory Board and in agreement with the Organizing Committee of London, sponsorship will be granted for a meeting on the Chemistry and Biochemistry of Fungi and Yeasts, July 18-20, 1963 at University College, Dublin.
- c) Sponsorship will be granted to the Symposium of Nitroaliphatic Compounds, Warsaw, September/October 1963 as according to the advice of the Organizing Committee of the 1963 Congress in London, this will not conflict with the dates and subject matter of the London meeting
- d) On the recommendation of the Organic Chemistry Section and the Editorial Advisory Board, sponsorship will be given to the Symposium on the Chemistry of Natural Products, April 12-18, 1964, in Kyoto, organized by the Science Council of Japan.

Problems regarding the publication of some documents being prepared by the Commission on Thermodynamics and Thermochemistry were discussed. It was noted that the Editorial Board had received a letter from Professor Schäfer from which it had been concluded that these publications could be treated in the same way as others prepared under the auspices of IUPAC.

The suggestion of a new kind of monograph series was discussed.

Minute 7

NEW STRUCTURE AND STATUTES OF IUPAC

President Noyes when introducing this item invited the Bureau to have a full discussion, but, as it was obviously impossible to discuss Statutes in all their details, including style and grammar, with a body of 26 persons, the principle points were concentrated upon and subsequently the following points were discussed and resolutions taken:

- a) Objects of the Union. It was agreed upon to adopt the Verkade-Martin version for describing the objects of IUPAC.
- b) Categories. Although the idea was expressed from various sides that due to decisive developments of chemistry in only a few countries the Union should be restricted to only these countries, the great majority of the Bureau, however, was convinced that such a restriction of IUPAC activity would not be feasible and that a category D be provided for those areas where chemistry is not yet so important.
- c) Terms of office of the President, President-elect, and immediate Past-President. As already published in the Comptes Rendus XXI in the report of President Noyes to the Council in Montreal there might be besides some serious disadvantages a great advantage if the terms of office of the President, President-elect, and immediate Past-President were reduced to 2 years. On the recommendation of Lord Todd and with the aim of providing more possibilities for the Bureau, it was

Resolved:

- i) That the terms of office of the President, President-elect, and immediate Past-President be reduced to 2 years.

Continuity of the Council. With his proposals for a new structure of IUPAC, Dr. Wichers is of the opinion that Council as a supreme governing body of the Union should be a continuous organization and that, therefore, the delegates to the Council as appointed by the National Adhering Organizations should hold office from the beginning of the Council meeting until the next following Conference when new delegates are appointed. This point was discussed thoroughly but no resolution was passed. The general feeling was that whilst Council, which is the top-governing body representing all adhering organizations,

should be a permanent organization, there were strong objections to the continuity of office of delegates to Council as the National Adhering Organization may have chosen and especially briefed one particular delegate for the particular Council meeting.

It was further

Resolved:

- ii) That no Adhering Organization should have more than one elected member in the Bureau. The President, the President-elect, the immediate Past-President, the Honorary Treasurer, the Secretary General and the Section Presidents should be excluded from this restriction.
- iii) That possibilities should be provided for the continuity of IUPAC in case of emergency.
- iv) That Professors J. Bailar, Jr., P. E. Verkade and Dr. D.C. Martin should meet in Basle on Saturday and Sunday, June 23 and 24, 1962, for a further discussion on the new structure and Statutes of IUPAC.

Minute 8

PROGRAMME FOR THE LONDON CONFERENCE IN 1963

With the aim of making the London Conference a great success and the intention of giving the delegates of the National Adhering Bodies all the information on IUPAC they may wish to have, it was

Resolved:

- i) That two full days be reserved for the Council Meeting, Friday afternoon, July 5, Saturday morning July 6 and Tuesday morning and afternoon July 9, 1963.

As a consequence of this decision it is obvious that the time for the Bureau meeting must be limited and that the items to be discussed at the Council meeting cannot be discussed at full length at the Bureau meeting. This also means that the Agenda for the Bureau meeting will differ from that of the Council meeting. It was

Resolved:

- ii) That the dates for the Bureau meeting be as follows: Friday morning July 5, Monday afternoon July 8, 1963, and a further meeting to be held after the last Council meeting.
- iii) That the Sections, Divisions and Commissions will meet as indicated in Appendix D.

Minute 9

INTERPRETATION AND SIMULTANEOUS TRANSLATION

A long discussion was held on the possibilities and facilities regarding simultaneous translation and interpretation. Simultaneous translation would be a great help provided that first-class technical facilities are available and that specially trained interpreters are at our disposal. Taking into consideration, however, the great expenses involved, it was

Resolved:

- i) That no simultaneous translation be provided but that each delegation of an Adhering Body be permitted to have its own interpreter at the Council meeting, and
- ii) That no interpreters be provided for the Bureau meeting at the cost of IUPAC.

Minute 10

XIXth INTERNATIONAL CONGRESS OF PURE AND APPLIED CHEMISTRY July 10 - 17, 1963

The first circular of the British National Committee for Chemistry with the invitation to attend the XIXth International Congress of Pure and Applied Chemistry in London, July 10-17, 1963, was distributed prior to the Bureau meeting and was received with great interest. It was

Resolved:

- i) That our British colleagues be thanked for all the efforts they are making in organizing the above Congress, and
- ii) That in view of the high competence of the Organizing Committee no interference whatsoever with the Programme of the Congress in London should be made by IUPAC.

With regard to the possible organization of a special Symposium on Plasma Physics and High Temperatures, etc. no resolution was passed but the general feeling expressed was that it would be highly advisable for IUPAC to take great interest in this rapidly developing field of science.

Minute 11

PLANNING OF FUTURE MEETINGS

Apart from the various Symposia foreseen, there are plans for

- i) a Congress on Catalysis to be held in the Netherlands in 1964
- ii) a Congress on Co-ordination Chemistry to be held in 1964
- iii) a meeting on the Chemistry of Solid States to be held in Munich 1964.

and invitations from

India and Australia for an IUPAC Congress to be held in their countries in 1965.

Resolved:

That the Secretary General should draft a chart in which all these possible meetings be shown and that based on this chart a general plan be drawn up for discussion at the next meeting.

Minute 12

NOMENCLATURE PROBLEMS

(See also Minute 5 d) Resolution ii, and Minute 5 e) Resolution iii).

On the occasion of the Gordon Conference the experts assembled there decided to form an ad hoc committee for the Nomenclature in the field of Ion Exchange and Ion Exchange Membranes under the Chairmanship of Dr. F. Helfferich. As a so-called legal recognition of this committee was desirable the Bureau noted that the Secretary General had informed all the Nomenclature Commissions of IUPAC of the existence of this committee and that he had circulated to all these Nomenclature Commissions the recommendations made by this committee for the nomenclature in the field of Ion Exchange. It was

Resolved:

That the Committee on the Nomenclature in the Field of Ion Exchange may possibly be incorporated in the Nomenclature Commissions of IUPAC later.

Minute 13

PROCEDURE FOR THE APPROVAL OF TITULAR MEMBERS

The 1957 Statutes demand the following:

"The election of a titular member or a delegate shall take place either during a meeting of the Commission or by correspondence. The nomination shall then be submitted for the approval of the member organization representing the country of residence of the member elected. If approval be obtained the Council, the Bureau or the Executive Committee shall take a decision at the next meeting. Failing a reply from the member organization or in case of disapproval of the latter the nomination shall be deferred until the next Conference so that it may be submitted for the examination of the Council who shall come to final decision."

In recent years when submitting a nomination for approval to the National Adhering Body concerned and when applying the above article, many comments and various complaints involving long correspondence were received by the Secretary General from several of the Adhering National Bodies.

Although no resolution was passed by the Bureau, many Bureau members felt that some provision ought to be established also within the new Statutes stating that a formal agreement must be obtained from the National Adhering Body upon the nomination of titular and associate members and national representatives, but that it must be the undisputed right of IUPAC represented by Council, Bureau, Sections, Divisions and Commissions, for them to select their candidates.

It was also felt that a proposal made by the Section Presidents as quoted below, would be a good working procedure:

"It was considered that the procedure for the approval of Titular members by National Bodies led to much delay and it was queried whether it would not be easier if Sections made a direct approach to the National Bodies. Dr. Morf expressed the wish that this topic should be raised at the Bureau Meeting and it was agreed to recommend that in order to speed up procedure it was best that Section Presidents should write to Dr. Morf who would notify the National Body concerned that the Section President had requested the approval to the particular Section, Division or Commission. In order to accelerate matters it was suggested that with this request there should be an intimation that a reply was required within a certain time (to be specified) and that if no reply was received the Union would assume that the National Body has no objection to the appointment of the specific nominee."

Minute 14

ATOMIC WEIGHTS OR ATOMIC MASSES?

This subject was discussed but a final decision is to be taken in London, July 1963.

Minute 15

INTERNATIONAL CONGRESS ON CATALYSIS

There are two problems:

- a) One problem brought up by the British National Committee for Chemistry deals with the new constitution of the International Congress on Catalysis which tries to obtain regular contributions from their national adhering organizations. As the Council in Montreal gave affiliated status to the International Congress on Catalysis with IUPAC it is obvious that IUPAC should also have a word to say when the International Congress on Catalysis Incorporated wants to change its constitution and in particular if it attempts to raise funds.

It was

Resolved:

- i) That a small ad hoc committee be appointed, within the terms of reference, to examine the relationship of affiliated bodies to IUPAC and more particularly their relationship to Commissions and that a policy towards affiliated bodies be agreed, this committee to report to the Executive Committee which will make a final decision at its next meeting
- b) The second problem emanates from the fact that UNESCO, through the channel of IUPAC, intends to stimulate research in the field of Catalysis by organizing congresses etc. On the recommendation of Professor G.M. Schwab in his capacity as President of the Physical Chemistry Section, and as a member of the International Congress on Catalysis and noting the contents of a letter from Professor J. H. de Boer (See Appendix E), it was

Resolved:

- ii) That the decision taken in Rome by the Executive Committee as quoted below be endorsed:

"That, if UNESCO have decided to have a programme of Catalysis, IUPAC should be prepared to give advice on this subject

That the Executive Committee states that it has no knowledge concerning the budget of the Congress on Catalysis and that IUPAC should not assume responsibility for any grant to that Congress

That the Executive Committee feels that before allocations for specific projects are made in any field of pure chemistry, careful consideration should be given to all possibilities by a representative group of competent chemists."

Minute 16

TEACHING OF CHEMISTRY AND CO-OPERATION WITH UNESCO

A detailed report was given to the Bureau by Mr. A. V. Baez, who was specially invited for this purpose (See Appendix F). It was

Resolved:

- i) That the reports made by the various experts chosen by the National Adhering Body concerned (Prof. Bénard - France, Prof. Bowen - UK, Prof. Cuta - Czechoslovakia, Prof. Haenisch - USA, Prof. Reutov - USSR, Prof. Schwab - Germany) be sent to and compiled by the Secretary General

- ii) That a meeting be held in Paris at the UNESCO House in November 1962, with a small number of participants in order to study the question as how best to proceed with this task in 1963
- iii) That as requested by UNESCO a committee be appointed by the Executive Committee.

Minute 17

CO-OPERATION WITH THE INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

Professor W. Klemm had been asked to explore, in consultation with the President of the Inorganic Chemistry Section (II) and in particular with Professor Correns, the possibilities of closer co-operation in the field of Geo-chemistry with the International Union of Geological Sciences and to report to the Bureau. In accordance with the President of the Inorganic Chemistry Section, Professor Klemm proposed and the Bureau

Resolved:

- i) That closer co-operation must be arranged between IUPAC, IUGG and the International Union of Geological Sciences (IUGS)
- ii) That the delegates of IUPAC to the Executive Board of ICSU oppose the formation of a new Union
- iii) That the delegates of IUPAC to the Executive Board of ICSU also oppose the formation of an independent commission on Geochemistry
- iv) That Geochemistry being an integral part of Inorganic, IUPAC reconfirms its right to continue the Geochemistry Commission
- v) That the Commission on Geochemistry as composed and listed in the Comptes Rendus XXI be convened in London in 1963 and report on their plans. For this meeting authorised representatives of IUGG and of IUGS be invited to attend.

Minute 18

COUNCILLORS-AT-LARGE

Following the recommendation made by the Ad Hoc Finance Committee and in accordance with the decision made by Council at Montreal (Minute 29 (i) - "The Bureau of the Union be authorized to expend funds to meet the travel and subsistence expenses to Conferences of the Union for one delegate from each of those Adhering Bodies which are active members of the Union but have no representation on either Commissions or Committees of the Union") the Bureau

Resolved:

That travel expenses, economy class - London return - and subsistence allowance be paid by IUPAC for one "Councillor" from each of the following countries to attend the Conference in London in July 1963: Argentina, Bulgaria, Taiwan, Columbia, Hungary, Ireland, Luxembourg, Portugal, Rumania, South Africa, Turkey and Yugoslavia.

For the Honorary Treasurer and Secretary General to act.

Minute 19

DR. WICHERS' PROPOSAL FOR INCREASING THE IMPORTANCE OF THE BUREAU

This matter was referred to the Drafting Committee for the new Statutes.

Minute 20

APPLICATIONS OF NEW MEMBER COUNTRIES

Following a proposal made by the Executive Committee and having received very detailed information regarding the Korean Chemical Society of South Korea, the Bureau on behalf of the Council

Resolved:

- i) That the Korean Chemical Society, 199 Dongsung-dong, Seoul, Korea be accepted subject to the final approval of the Council in 1963
- ii) That the Secretary General should explore as to what category of membership would be appropriate.

Minute 21

HIGHER CATEGORY OF MEMBERSHIP FOR INDIA

An official statement was received from the Government of India that India has decided to raise her category of membership from Category C to Category B2. It was

Resolved:

That this request for higher category membership of India be accepted subject to the final approval of the Council in 1963.

Minute 22

TOXIC AND OTHER DANGEROUS SUBSTANCES USED IN INDUSTRY

Following the initiative of Dr. A. L. G. Rees of Australia and with the advice of Dr. J. C. Gage, President of the Toxicology and Industrial Hygiene Division (VI.5) and that of Professor R. Truhaut, Past President of that Division and Vice Chairman of the Applied Chemistry Section, the Biological Chemistry and the Applied Chemistry Sections, and considering the enormous task involved, it was

Resolved:

- i) That information be collected by the Applied Chemistry Section and the Adhering Bodies and be submitted to the Secretary General
- ii) That an appropriate screening center be established
- iii) That WHO, FAO and international medical organizations be consulted
- iv) That the analytical problem be considered as an IUPAC affair and that IUPAC informs other international organizations, which already are dealing with this problem in various aspects on their own, that there is need for consulting highly competent experts before any recommendations and prescriptions can be made.

(See Appendix G)

Minute 23

INTERNATIONAL COMMITTEE ON FOOD SCIENCE AND TECHNOLOGY

Resolved:

That Dr. J. H. Bushill, President of the Applied Chemistry Section, should be the IUPAC representative to the International Congress on Food Science and Technology and report to the Executive Committee on its activities and advise as to whether and when it would be opportune for IUPAC to co-operate.

Minute 24

NEXT MEETINGS

The next meetings of the Bureau will be held in London on Friday morning, July 5, Monday afternoon, July 8, 1963, and a further meeting after the last Council meeting on July 9, 1963.

VOTE OF THANKS

Resolved:

That thanks be expressed to our Belgian hosts

For the Secretary General to act.



Professor W. Albert Noyes, Jr.
President.



Dr. Rudolf Morf
Secretary General.

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

TREASURER'S REPORT FOR THE FISCAL
YEAR 1961

1. Introduction

The Statutes of IUPAC and the tradition to hold General Conferences and Council Meetings every two years, demand that a biennial report of the Treasurer be submitted to the Council every other year. However, it has been proved convenient to make a survey which shows the development of IUPAC finances for every year. This annual report, therefore, is to be considered for inside information and is not intended for world-wide dissemination.

When I submitted my first annual report in 1957, I was in the somewhat fortunate position to report on the merits of my predecessor and, moreover, I was lucky to be able to report that although there was a small deficit, our reserve fund had not been reduced to a great extent and I mentioned the fact that it is rare for a new Treasurer to be able to report such a wind-fall.

This time I am again in a special position and am able to report that a financial equilibrium can be assured. In 1961 we were prepared to accept a deficit of some \$110,000 as a result of the Montreal Conference which should have been met by our financial reserves and by a "carry-over" to the non-Conference Year of 1962. Instead of this enormous deficit, it has been possible to show a positive result.

A healthy financial position can be realised by either an increased income or a diminished expenditure. In 1961 IUPAC was in the fortunate position that both were tackled simultaneously.

2. Income

In 1961 was the first year in which the increased annual dues were in force. Credit for this improvement has to be given to the Finance Committees, the first ad hoc Committee in 1959 presided over by Professor A. Tiselius of Sweden, and a similar Committee established in 1961 chaired by Professor John C. Bailar, Jr., from the United States. The recommendations made by these two bodies were carried out firstly by Germany who voluntarily increased her annual contribution to \$5,000. This catalysing action was immediately followed by the generous British National Body (The Royal Society) and the British Chemical Industry. Also the extraordinary contribution of \$20,000 from the National Science Foundation, Washington, is responsible for the very substantial increase of IUPAC's income. As a consequence, regular income in 1961 was increased to \$62,000, of which \$45,850 has been paid to the 31st December 1961. This compares very favourably to the regular income

in 1960 which was only \$33,638. Voluntary contributions amounted to \$28,437, as detailed under Point 5 Realistic Budget.

3. Expenditure.

On the expenditure side, it has been possible to reduce the expenses in a way which has not hitherto been foreseen. Our Canadian friends invited many titular members to give lectures at the 18th Congress held in Montreal, and paid all their travel and subsistence expenses. The French National Body paid a substantial amount towards the travel costs of their titular members, as did also the USSR and, finally, the first experiment with a charter flight was a financial success.

The reduction in expenditure can be calculated as follows:

| | |
|--|----------|
| (a) Bureau and titular members who did not come to Montreal would have cost: | \$26,516 |
| (b) Bureau and titular members invited to lectures would have cost: | \$ 1,066 |
| (c) British titular members paid by the Royal Society | \$ 2,273 |
| (d) French titular members: | \$ 4,610 |
| (e) German titular members: | \$ 1,001 |
| (f) USSR titular members: | \$ 6,615 |
| (g) Expenses for the Nomenclature Commission Meeting in Columbus, Ohio, and paid by the U.S. Government Office amounted to some: | \$ 4,974 |

| | |
|---|-----------------|
| The total figure of unexpected saving is: | <u>\$47,061</u> |
|---|-----------------|

To this sum we must add the possible expenditure of all those Divisions and Commissions that did not meet in Montreal in 1961 because of financial consideration.

4. Investments and Taxation.

In order to be prepared to meet the expenditure of the Montreal Conference, a substantial amount of the reserves were ready in cash and it was later possible to invest \$14,176 in Gold Bar and Public Utilities and also in shares of international chemical companies. (following advice of the second ad hoc Finance Committee in Montreal). In spite of our attempts to convince Her Majesty's Tax Office of the necessity to exempt IUPAC from British Taxes, tax had to be paid for £773.

5. Realistic Budget.

I was requested to present a "realistic budget". This should take into account and indicate under Income and Expenditure all the voluntary contributions such as the one made by the President of IUPAC, by various organizations like the Royal Society, travel support provided by countries that may do so in their

own currencies, and the support given by the Swiss Chemical Companies for the office of the Secretary General. All these contributions and grants should be posted as income to IUPAC with an appropriate off-setting charge in the expense column.

| | | |
|---|-----------|----------|
| (a) Expenses for the office and travel of the President, and not charged to IUPAC: | | |
| Clerical assistance, salaries | - \$1,000 | |
| Stationery, stamps, cables, telephone calls | - \$ 500 | |
| Travel not paid by IUPAC | \$ 500 | |
| | | <hr/> |
| | | \$ 2,000 |
| (b) Honorary Treasurer's expenses | | |
| | | \$ 500 |
| (c) Secretary General's expenses paid by four companies in Basle - Ciba Ltd., J.R. Geigy Ltd., F. Hoffmann-La Roche & Co. Ltd., Sandoz Ltd. | | |
| Salaries, social insurances travel, subsistence and representation, clerical assistance and translation fees | | \$21,752 |
| (d) Voluntary contributions, already mentioned on Page 2 | | |
| United States | \$20,000 | |
| Great Britain | \$ 8,437 | |
| | | <hr/> |
| | | \$28,437 |
| (e) Estimated cost for an Accountant if the Union Bank of Switzerland did not do this without cost to IUPAC | | |
| | | \$ 1,500 |

6. Income and Expenditure Account.

An Income and Expenditure account will be supplied when available from chartered auditors.

7. The Future Outlook.

In 1962 we are for the first time extending IUPAC activities to include Asia. As it is obvious that a mere meeting of a few IUPAC officers in Tokyo cannot have much effect in increasing close co-operation with this part of the world, it will be necessary therefore to hold more meetings to develop our activity. This means that greater financial assistance will be required to meet expenses of much greater proportion than hitherto experienced.

The outlook is similar for Latin America and Africa.

8. Conclusion and Thanks.

IUPAC is indebted to the member countries who have followed the advice of the two Finance Committees in a very generous way. Special thanks also must be given to Mr. G. Hanselmann and Mr. H. Baumann of the Union Bank of Switzerland whose services have been invaluable. We must express our gratitude also to Mrs. E. Barron and Mrs. T. Brabazon and Dr. D.C. Martin of the Royal Society, for their help.

LONDON, May 1962

E. Charles Dodds
Honorary Treasurer

Foot-note

The following is an excerpt of a letter dated June 13th, 1962, from Mr. G.R. Laclavère, Treasurer of ICSU.

"I have recently received the Report of the ICSU Auditor for the year 1961 and I would send you herewith the remarks which he made about the Accounts of IUPAC. These are as follows:-

As in recent years IUPAC sent a very satisfactory audited statement showing expenses incurred in 1961 in connection with their allocation from the UNESCO Subvention to ICSU which substantially exceeded this allocation and enables us to include on the return total payments in the sum of \$30,517 against an allocation of \$14,000."

PRESIDENT'S LETTER

20th August 1962

To all Members of the Bureau:

The Executive Committee of the International Union of Pure and Applied Chemistry at its meeting in Rome on 8 and 9 November 1961 considered the memorandum dated 25 September 1961 relative to the nomination and election procedures to be followed in 1963 before and during the meeting of the Council of the Union. This revision of the memorandum is based on those discussions and comments are invited. It will be sent to all adhering bodies about 1 February 1962, so please send comments to me with copies to Dr. MORF as soon as possible.

It must be remembered that revisions of the Statutes and By-Laws will probably be voted in London prior to the elections. These will undoubtedly be discussed at the meeting of the Bureau in Brussels in June 1962. It is believed that these will not affect these procedures although the lengths of some terms of office and possibly even the titles of some offices may be changed.

Very sincerely yours,

W. ALBERT NOYES, Jr., President

ELECTION PROCEDURE FOR 1963

Elections for the following positions must be held in London in 1963 (an asterisk * indicates that the present incumbent is not eligible for reelection—** indicates also member of the Executive Committee):

- (1) President [present incumbent: W. A. NOYES, Jr.* ** (USA)]
- (2) Vice-President [present incumbent: GEORGES CHAUDRON (France)]
- (3) Vice-President [present incumbent: W. KLEMM** (Germany)]
- (4) Vice-President [present incumbent: LORD TODD** (GB)]

Note: One Vice-President should be informally designated as President-elect. The title of Vice-President (President-elect) may be listed in the new Statutes.

- (5) Secretary General [present incumbent: R. MORF** (Switzerland)]
- (6) Honorary Treasurer [present incumbent: Sir CHARLES DODDS** (GB)]
- (7) Member of the Bureau [present incumbent: V. N. KONDRATIEV** (USSR)]
- (8) Member of the Bureau [present incumbent: M. LETORT** (France)]
- (9) Member of the Bureau [present incumbent: D. MAROTTA (Italy)]
- (10) Member of the Bureau (present incumbent: A. R. TOURKY (United Arab Republic))
- (11) Member of the Bureau [present incumbent: P. VERKADE (Netherlands)]

(12), (13) The two immediate past presidents (STOLL, NOYES,) will continue as members of the Bureau. If the new Statutes are adopted the immediate past president will also be a member of the Executive Committee.

It should be noted that three members of the Bureau elected in Montreal will continue in office until 1965: T. R. GOVINDACHARI (India), C. E. NABUCO DE ARAUJO, Jr. (Brazil), O. WICHTERLE (Czechoslovakia). Also there are six section presidents who are members of the Bureau. These persons

are chosen by the Sections and are merely confirmed by the Council. Two now in office will continue until 1965: G. M. SCHWAB (Physical Chemistry, Germany) and H. MALISSA (Analytical Chemistry, Austria).

In making nominations and in voting the following points must be kept in mind:

(1) Only persons should be chosen who are vitally interested in the International Union of Pure and Applied Chemistry and who are willing to devote time to its activities.

(2) The Bureau must faithfully represent all parts of chemistry and all parts of the world. Subject matter and geographical distribution are both important.

The following procedure will be followed in 1963 although it will be modified at the Council meeting in London if new Statutes and By-Laws make this necessary by their adoption before the election:

(1) A separate vote will be taken for each position to be filled.

(2) Adhering bodies represented by delegates present at the Council meeting may cast votes. Voting by correspondence will *not be permissible*.

(3) Each delegation will cast one vote which will be counted as 6 for A countries, 4 for B countries, and 2 for C countries.

(4) Since the voting is secret, ballots must not be signed or indicate in any way the name of the country or the delegate casting the vote.

(5) If only one candidate is nominated for a particular office, the votes will be either "yes" or "no". If the candidate does not receive a majority of "yes" votes, the position will be filled by the Bureau.

(6) A candidate to be elected must receive an absolute majority of the valid votes cast, i.e. he must receive more than half of the votes cast. Abstentions and invalid votes will not be counted in calculating the total votes cast. Should there be more than two candidates nominated for an office and should no one receive a majority on the first ballot, the one receiving the smallest number of votes shall be eliminated and a new vote taken. This will continue until one candidate receives a majority. In the event of a tie vote the President after consultation with the Executive Committee shall cast the deciding vote.

(7) Nominations:

(a) Nominations must be made in writing and addressed to the Secretary General. They must indicate clearly the name of the person nominated, the position for which he is nominated, and be accompanied by a short biographical sketch. Since more than one member of the Bureau is to be elected, the nomination must indicate clearly the name of the present member who would be replaced by the person nominated.

(b) Nominations by national adhering bodies must be made at least two months prior to the start of the Conference (i.e. on or before 25th Dec. 1962).

(c) Nominations may be made at any time prior to the elections by the Bureau (or if necessary by the Executive Committee). This is necessary to ensure at least one candidate for each vacancy.

It is hoped that many distinguished chemists will be nominated for the positions to be filled in 1963. An active organization always is manifest by numerous candidacies.

Adhering bodies should now give serious consideration to candidates for the positions to be filled in 1963. Some persons now holding office may not wish to continue even though eligible. Information on these points should be obtained directly from the persons in question.

Any comments relating to these procedures should be sent as soon as possible to the Secretary General since decision must be made not later than May 1962 on the voting procedure.

(8) Executive Committee. The Council will elect all members of the Bureau. Following the elections the new Bureau will convene to elect the members of the Executive Committee. Ex officio members of the Executive Committee are the President, the Secretary General, and the Honorary Treasurer. Whether specified in the Statutes or not the person considered to be President-elect should be a member of the Executive Committee. If the term of office of the President is shortened the immediate past president should probably also be a member of the Executive Committee. The Bureau will therefore elect either two or three Bureau members to be members of the Executive Committee if the Executive Committee continues to consist of seven members.

Note: The word "nomination" seems to have different meanings in different countries. As used here the meaning is that in the USA, viz. "to nominate is to propose for election". Thus "nomination" and "election" do not mean the same thing.

W. ALBERT NOYES, Jr., President

PROCÉDURE D'ÉLECTION POUR 1963

Des élections doivent avoir lieu à Londres en 1963 afin de repourvoir les postes suivants:

1° Président (actuellement en charge: W. A. NOYES, Jr* ** [USA])

2° Vice-Président (actuellement en charge: G. CHAUDRON [France])

3° Vice-Président (actuellement en charge: W. KLEMM** [Allemagne])

4° Vice-Président (actuellement en charge: LORD TODD** [Royaume-Uni])

Remarque: Un des Vice-Présidents devrait être désigné officiellement comme successeur à la présidence. Le titre de Vice-Président (successeur du Président) devrait être mentionné dans les statuts.

5° Secrétaire général (actuellement en charge: R. MORF** [Suisse])

6° Trésorier (actuellement en charge: Sir CHARLES DODDS** [Royaume-Uni])

7° Membre du Bureau (actuellement en charge: V. N. KONDRATIEV** [URSS])

8° Membre du Bureau (actuellement en charge: M. LETORT** [France])

9° Membre du Bureau (actuellement en charge: D. MAROTTA [Italie])

10° Membre du Bureau (actuellement en charge: A. R. TOUREY [Royaume Arabe-Uni])

11° Membre du Bureau (actuellement en charge: P. E. VERKADE [Pays-Bas])

Les deux anciens Présidents (STOLL et NOYES) continueront comme membres du Bureau. Si les nouveaux Statuts seront acceptés NOYES continuera comme membre du Comité exécutif. Il y a lieu de rappeler que trois membres du Bureau, élus à Montréal, resteront en fonction jusqu'en 1965: MM. T. R. GOVINDACHARI (Inde), C. E. NABUCCO DE ARAUJO, Jr (Brésil), O. WICHTERLE (Tchécoslovaquie). Les Présidents des six Sections font également partie du Bureau. Ces Présidents sont désignés par les Sections et leur nomination est confirmée par le Conseil. Le mandat de deux Présidents de Section actuellement en charge prendra fin en 1965. Il s'agit de MM. G. M. SCHWAB (Chimie physique, Allemagne) et H. MALISSA (Chimie analytique, Autriche).

*personnes qui ne sont pas rééligibles

**personnes qui sont également membres du Comité exécutif

IUPAC Editorial Advisory Board

Extract from Chairman's Progress Report, May, 1962

During the past nine months since the Montreal meeting, much progress has been made, and it seems that our organization for IUPAC publications is now settling down smoothly. Three volumes of the Journal are already published, and the fourth volume is expected to be completed by the end of May. Volume 5, and part of volume 6, as well as two supplementary lengthy articles to be issued separately during the autumn, are expected before the end of 1962. As the Union's policy becomes more widely known and understood, we have—with very few exceptions—received general co-operation from all concerned.

Revision of contract

At Montreal it was decided to seek a revision of the contract with Butterworths, particularly with regard to the copyright arrangement for Nomenclature Rules and similar items. It will be recalled that at Montreal the publishers agreed as a matter of urgency to allow reproduction, without claiming a copyright fee, of the tentative rules for biological chemistry, on the understanding that appropriate acknowledgement would be made and that the *final* version would in due course be printed in "*Pure and Applied Chemistry*". Subsequently, permission has also been given to many parties to reprint the new *tables* of atomic weights freely, in order to obtain a universal publicity. There has also been reprinting in several languages, under the original agreement, of the Nomenclature Rules for Inorganic and Organic Chemistry, and of other standards reports on analytical chemistry.

The present contract was drawn up at a time when the success of the new Journal was uncertain, and the publishers were reluctant to take full financial risk. An arrangement was therefore made for the reprinting of the Nomenclature Rules freely by recognized national bodies in any language, by payment from the Union to the publisher of a copyright fee. The publishers have now agreed to a revision of the contract so as to eliminate such payments and facilitate the widest possible dissemination of Nomenclature Rules and all similar items which are regarded by the Union as requiring a maximum publicity. Under this new arrangement, it is suggested that:

- (a) The Nomenclature Rules shall be published first in "*Pure and Applied Chemistry*" and *subsequently* in the same or other language in any other recognized Journal of a member country, this Journal to be approved case by case by IUPAC (Permission to reproduce could be given by reference to the Secretary General, the Chairman of the Editorial Board and Scientific Editor, or to the Executive Committee). The reprint sales of such articles in the IUPAC Journal should be in the hands of Butterworths as at present, and the royalty to the Union in respect of such sales should follow the same principle as for other publications. The sales of reprints in any language from Journals other than *Pure and Applied Chemistry* would be possible by prior arrangement between the national body concerned, Butterworths and the Union. As a general guide to such agreements, it is suggested that Butterworths should be paid 7½% royalty on the selling price, to which might be added some reasonable sum after taking into account the length of the article, probable sales, and other factors, the total being divided between Butterworths and the Union in the proportion 2:1.

- (b) The reprinting by any parties of any other material published by IUPAC and regarded as essential material for international standards should be treated in a similar way to the Nomenclature Rules under (a), but in each case should be the subject of a separate agreement between the parties concerned.
- (c) *All reprinted articles should carry the appropriate acknowledgement to the Union and Butterworths, and refer where appropriate to the original publication in the IUPAC Journal.*
- (d) For all other works published in the Journal, reprints of them, and any separate publications, the present arrangement will apply, whereby the publisher pays to the Union a royalty of the selling price. An exception to this may be made for the reprints of very short articles of less than 12 pages in length unless these are covered by a separate agreement.

These arrangements therefore allow any recognized national body to reprint the Nomenclature Rules and all similar material in any country, abolish all payment by the Union for such reprinting, increase the revenue of the Union, and require some small payment by bodies or National Societies which may wish to sell extra copies themselves. By suitable arrangement there need be no great delay between the first publication in Pure and Applied Chemistry and later reprinting elsewhere.

At its Rome meeting (November 1961) the Executive Committee approved the above general principles, and a revised contract has been drawn up for immediate signature, and which, if signed, will be deemed to operate from 1 January, 1962.

Income and Sales

The official return of sales received from Butterworths up to 31 December 1961, shows a substantial sum owed to the Union, and which should have been paid over during April 1962.

An arrangement has now been made, however, for an *annual subscription*. It has been decided to publish 2 volumes each year, with supplementary separate issues as may be necessary. For example in 1962 there will be two such supplements, on Spectroscopic Analytical Data (DUYCKAERTS Commission) and The Determination of Oils and Fats (Applied Section), in both cases perhaps more suitable as separate books than for the Journal.

The effects of the annual subscription plan have not yet been fully felt, and it is to be hoped that with other steps now being taken for greater publicity there may be a substantial increase in the number of regular subscribers.

Discussions have therefore taken place between the publishers, the Scientific Editor and myself about ways of obtaining greater publicity and advertisement. This is considered below.

Publicity and Advertising

The following steps have been taken to obtain great publicity:

- (i) The publishers have now prepared leaflets giving a full list of publications, explaining the new annual subscription arrangement, and separate leaflets for each major publication. These have been circulated to all members of the Chemical Society and can be sent to others if appropriate lists of addresses can be obtained.

- (ii) The adhering National Committees for Chemistry have been asked to provide lists of libraries which might purchase the Journal, and also invited to distribute information about the Union's publications from time to time. A number of these have already supplied useful information and agreed to co-operate.
- (iii) An article explaining the IUPAC Journal has been prepared by Dr. CAHN, Prof. WEEDON and myself and it is suggested that this might be sent out over the name of Dr. NOYES, as President of the Union for printing in the Proceedings of the Chemical Society (which has agreed to accept it), to "Chemical Engineering News", and after translation into other languages in other appropriate national journals.
- (iv) Organizers of Symposia should be asked to enclose leaflets in their brochures and at the time of the meeting announce to participants the discount rates for purchases of the proceedings of the meeting. Urgent action is needed for Prague, Stockholm, Tokyo and Florence in 1962.
- (v) Attempts should be made to ensure that advertisements for a particular item are directed at the right people, and particular issues sent to the right journals for review.
- (vi) The publishers have been asked to see that "*Pure and Applied Chemistry*" is known to abstracting bodies such as "Current Chemical Papers", "Chemical Abstracts", "Current Chemical Titles", and "Index Chemicus".
- (vii) Articles explaining the whole procedure for publication under IUPAC have been prepared by the Scientific Editor and myself for publication as soon as possible in both the Comptes Rendus and Information Bulletin.

Any further suggestions for increasing publicity would be welcomed.

Present Position and Future Publication Commitments

Volumes 1, 2 and 3 are now complete. Volume 4, part 1, was issued some months ago. The likely programme is as follows:

| | | |
|------------------------|---|------------|
| Vol. 4, parts 2, 3, 4, | Macromolecular Symposium | May 1962 |
| Vol. 5, parts 1-2 | Wood Symposium | July 1962 |
| Vol. 5, parts 3-4 | Montreal Lectures | Sept. 1962 |
| Vol. 6 and 7 | Solubility Report (FEITKNECHT), translation not yet received | |
| | Co-ordination Chemistry (Stockholm) | |
| | Natural Products (Prague) | |
| | Pharmaceutical Chemistry (Florence) | |
| | Spectroscopy (Tokyo) | |
| Vols. 8 and 9 | London Meeting 1963 | |
| | Fungi Symposium (Dublin 1963) | |
| | Natural Products (Japan 1964) | |

Reports from Commissions will be included in the issues as they become available. Some from the Analytical Section are already in hand, and the Atomic Weights Report will shortly be available. In addition, it is expected to publish, during the autumn of 1962, separate books on Spectrophotometric data on complexes for analysis (DUYCKAERTS), and Determination of Oils and Fats (Applied Section). These have been delayed, in the former case owing to delay by the authors in sending drawings, and in the latter the report is still incomplete.

General Matters

A good deal of delay and trouble have arisen because authors have delivered their manuscripts very much behind schedule, and sometimes the text and drawings were quite unsatisfactory. Organizers of Symposia must be asked firmly to see that manuscripts are delivered at the time of the meeting, and that authors follow the instructions laid down in the printed leaflet which has now been prepared and copies of which are now available for distribution.

It is certain that the name of the Union has become better known in recent years, although there is still much to be done. The question may be raised, however, whether it is wise to grant sponsorship to Symposia too freely. It is becoming normal for anyone organizing a symposium to seek sponsorship by IUPAC as a means of enhancing prestige. This is a good thing but it will only be effective, in the long run, if some restraint is imposed so as to maintain a high standard and scientific level. For this reason I feel that the Executive Committee should consider this matter carefully and attempt to satisfy itself before sponsorship is granted, even when no financial grant is made. It is clearly impossible for the Union to publish even the main lectures at all Symposia, and it is perhaps not desirable that it should attach its name to all of them.

I must record my own thanks and also the debt owed by the Editorial Board to the scientific Editor, Prof. WEEDON, for his efficiency and tolerance in dealing with our many problems, and to Dr. CAHN also for much helpful advice and co-operation.

H. W. THOMPSON

Reprint from Information Bulletin No. 16

Appendix D

XXIInd Conference of IUPAC - Preliminary Programme

The Executive Committee will hold meetings on Wednesday, 3rd July, Thursday 4th July and Wednesday 10th July, 1963.

The Bureau will hold meetings on Friday 5th July, Monday 8th July, and Wednesday 10th July.

The Council will hold meetings on Friday 5th July, Saturday 6th July, and Tuesday 9th July.

The Section Committees and Commissions will meet on Saturday, 6th July, Monday 8th July and Tuesday 9th July.

The Section Presidents will meet on Thursday, 4th July.

The IUPAC Editorial Board will meet and there will be an Ad Hoc meeting of Secretaries of National Committees with the Secretary General of IUPAC.

All six Sectional Committees and the following Commissions and Divisions are planning to hold meetings during the XXIInd Conference:

I. Physical Chemistry Section

- 1.1. Commission on Physico-Chemical Symbols and Terminology
- 1.2. Commission on Thermodynamics and Thermochemistry
- 1.3. Commission on Electrochemistry
 - 1.3. 1. Subcommittee 1. Symbols & Terminology of Electrochemistry
 - 1.3. 2. Subcommittee 2. Thermodynamics of Electrochemistry
 - 1.3. 3. Subcommittee 3. Electrochemical Kinetics
- 1.4. Commission on Macromolecules
- 1.5. Commission on Physico-Chemical Data and Standards
- 1.6. Commission on Molecular Structure and Spectroscopy
- 1.7. Commission on Colloid and Surface Chemistry.

II. Inorganic Chemistry Section

- II.1. Commission on Atomic Weights
- II.2. Commission on the Nomenclature of Inorganic Chemistry
- II.3. Commission on High Temperatures and Refractories
 - II.3. 1. Subcommittee 1. Gas
 - II.3. 2. Subcommittee 2. Condensed States
- II.4. Commission on Geochemistry

III. Organic Chemistry Section

- III. 1. Commission on the Nomenclature of Organic Chemistry.

IV. Biological Chemistry Section

- IV. 1. Commission on the Nomenclature of Biological Chemistry
- IV. 2. Protein Commission

V. Analytical Chemistry Section.

- V.1. Commission on Analytical Reactions
- V.2. Commission on Microchemical Techniques
- V.3. Commission on Nomenclature of Analytical Chemistry
- V.4. Commission on Spectrochemical & other Optical Procedures
for Analysis
- V.5. Commission on Electrochemical Data
- V.6. Commission on Equilibrium Data.

VI. Applied Chemistry Section.

- VI.1. Food Division
- VI.2. Fermentation Industries Division
- VI.3. Oils and Fats Division
- VI.4. Water, Sewage and Industrial Wastes Division
- VI.5. Toxicology and Industrial Hygiene Division
- VI.6. Pesticides Division
- VI.7. Plastics and High Polymers Division
- VI.8. Organic Coatings Division
- VI.9. Pulp, Paper and Board Division.

WETENSCHAPPELIJKE RAAD VOOR DE KERNENERGIE
Stadhoudersplantsoen 12. 'S-Gravenhage.

Professor Dr. G. M. Schwab,
Direktor des Physikalisch-Chemischen,
Instituts der Universität,
Sophienstrasse 11,
MUNCHEN 2.

June 13th, 1962.

Re: Financial contribution by IUPAC to the
1964 Congress on Catalysis.

My dear Schwab,

A financial support by IUPAC to the 1964 Congress on Catalysis in Amsterdam would be very welcome. As you know this Congress, which will be held under the auspices of the Koninklijke Nederlandse Chemische Vereniging (Royal Netherlands Chemical Society) is affiliated with IUPAC. It is the third international congress on catalysis, the first being held in Philadelphia (Pa.) in 1956 and the second in Paris in 1960. The growth of the Congress is such that the organising committee feels obliged to draw up a budget as enclosed.

It would be very welcome to the committee and to the sponsoring society (Koninklijke Nederlandse Chemische Vereniging) to have a financial contribution in the order of magnitude of 10,000 Dutch guilders netto. I write here the word "netto" because of a very unpleasant experience which I had as the chairman of the 1960 Congress on the Reactivity of Solids when a grant was received from the IUPAP. Many months after the Congress we learned from the IUPAP that having received the grant we had the obligation to send a certain number of the Congress books (I think it was 25) to UNESCO (I think for the distribution amongst newly developed countries). Consequently just about half of the grant was taken away again. As in your letter of March 5, 1962, you are also speaking about UNESCO, I fear that a similar procedure may be foreseen in this case. This is the reason that I ask for 10,000 Dutch guilders netto. I expect the Congress book of the third Congress on Catalysis to cost in the order of magnitude of 170 Dutch guilders, which means that the committee may get it for 135 Dutch guilders.

I send a copy of this letter to Dr. Morf.

With best personal regards,

Yours sincerely,

(Signed) Prof. Dr. J.H. de Boer.

THE NEED FOR INTERNATIONAL COOPERATION IN STRENGTHENING CHEMISTRY TEACHING.

A Statement by the Division of Teaching of Basic Sciences at
University level, Department of Natural Sciences, UNESCO.

The joint acceptance of responsibility we see today by university scientists and classroom teachers for reforms in science education is almost without precedent. Undoubtedly the enormous growth of knowledge in each field of science has combined with alarming shortages of trained talent to drive the scientists to a serious consideration of what and how should be taught of each subject at all levels from the school through the university.

In chemistry, for example, the whole face of the subject has undergone deep changes since the 1920's as atomic and electronic concepts have developed through theoretical and experimental advances. Industrial and university research have accelerated swiftly under the impact of these powerful new organizations of empirical fact but, sadly enough, textbooks and instruction at most levels have lagged far behind. The new approaches to chemistry teaching, however, aim to close this gap first of all through incorporating into their content contemporary theories and facts under guidance of leading research scholars. Secondly, these new approaches are experimenting with means to improve the learning efficiency of the science student and to render the classroom teacher more effective in his instruction. To these ends, films, three dimensional models, wall charts, programmed instructional devices, and demonstration apparatus are all being developed. Particular attention is also being devoted to a closer integration of practical (laboratory) work by the student with the theoretical concepts of the classroom in order to emphasize in his mind the dynamic nature of scientific understanding.

The urgency and magnitude of these efforts have brought scientists together across national boundaries in their attempts to find solutions. Recently, the physicists held a highly successful International Conference on the Teaching of Physics in Paris, in collaboration with UNESCO, and the chemists gathered at Greystones, Ireland, under OECD, for a seminar on the Teaching of Chemistry. Perhaps the most important reason these international meetings on science teaching are significant is that they may fill the rapidly growing need within the newly developing countries for science teaching capable of preparing the cadres of scientists and technologists required to reach economic and social equality with the developed countries. UNESCO is heavily committed to assisting these nations in these tasks. Its chief mode of operation is to draw upon insight and talent from the developed countries through the International Unions of the various sciences.

As an indication of the scope and significance of such UNESCO assistance, the following summary of recent projects is given:

1. UNESCO Survey on basic science teaching at University level - Experts in each of six countries in chemistry have been contacted through IUPAC as consultants to conduct this survey.
2. UNESCO is currently preparing sourcebooks on teaching of science at the University level, precedent for this being found in the highly successful UNESCO Sourcebook in science teaching at the secondary school level.
3. In co-operation with the International Scientific Film Association, UNESCO is sponsoring a project aimed at selecting and producing a pilot list of films recognized as being appropriate for University basic science teaching.

In the future UNESCO hopes to select appropriate sequences from the great body of existing films, and providing these to science teachers in a useable form.

4. Regional Seminar on Teaching of Science at University level in Tropical Africa. IUPAC aided UNESCO in locating a chemistry rapporteur.
5. UNESCO provided a working paper on chemistry teaching in the schools of agriculture to the 2nd Latin American meeting on Higher Agricultural Education in Colombia in 1962.
6. Co-operating with IUPAC, UNESCO is bringing about an International Conference on Chemistry Teaching in Paris late in 1962.
7. A year-long post-doctoral seminar for research and education in chemistry for selected fellows from the newly developed countries is in the planning stage. Yet to be chosen is a university research centre where these fellows would be welcomed and granted full partnership with working research chemists.
8. In addition to these specific projects in which UNESCO is supporting new approaches to chemistry teaching, UNESCO provides guidance for projects totalling two million dollars, related to science teaching under the U.N. Technical Assistance Programme. In addition, it is expected that another two million dollars will be provided by the U.N. Special Fund of the Technical Assistance Board for projects in 1963-64, giving assistance to the national scientific advance of developing countries. The proportionate share of this amount to be devoted to the development of chemistry in these countries is estimated at one million dollars.

Clearly, the responsibility on UNESCO's shoulders is great, and in meeting this it earnestly seeks the continued co-operation of IUPAC. The gradual broadening of this aid to include an ever larger amount of aid to teaching of chemistry in these countries places a corresponding requirement on IUPAC to find means to place at UNESCO's avail outstanding chemical educators, particularly those currently engaged in these teaching reforms in their home countries.

In conclusion, some of the needs for international co-operation in strengthening chemistry teaching are being met by the joint efforts of UNESCO and IUPAC. It is hoped that a commission on Chemistry Teaching will soon be formed within IUPAC to assume a greater share of responsibility in this worthy enterprise.

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

APPLIED CHEMISTRY SECTION

THE PROPOSED IUPAC INFORMATION CENTRE

There is a growing preoccupation with the hazards to health from substances used in industry, in the laboratory, in agriculture and in the home, and this is reflected by the increasing legislation in many countries to control the exposure of men and animals to such materials. Organisations engaged in the manufacture, distribution and use of chemicals, or in scientific investigations, must acquaint themselves with the properties of the material which they handle to avoid affecting the health of their employees or of the general public, or to enable rapid remedial action to be taken in cases of accidental poisoning. During the preparation, processing and packaging of food, cosmetics and other products usually regarded as harmless by the general public, care must be taken to avoid the deliberate or accidental incorporation of substances which may be harmful. Similarly, governmental and other organisations concerned with the health and safety of the population at work and at home, need up-to-date information on the properties of substances in current or future use.

It has been brought to the attention of the IUPAC Applied Chemistry Section that in many countries the present facilities for obtaining reliable information on the properties of hazardous substances are inadequate. The experimental and clinical observations on which is based our knowledge of the toxicological properties of chemicals and other materials used by industry and agriculture, originate from many countries and are scattered in a wide variety of publications and reports, not all of which are readily available. Many substances are designated by trade names, and it is often difficult to ascertain their chemical nature. There exist in some countries national organisations which collect and disseminate information on toxicological and other hazards within their own frontiers, and some of the larger industrial organisations maintain their own service to cater for their own particular needs. There is also a limited distribution of information by certain international organisations. In some countries, however, such information services are very restricted or non-existent, and it has been stated that the scope of the international organisations in this field is too limited and their operation too slow to be of much practical value.

A suggestion has been made that the Applied Chemistry Section should organise an information service which should be available to those countries which support IUPAC. At the Montreal Conference a small Committee was formed to consider this suggestion, and has led to the following recommendations which have been prepared in consultation with the interested Division of the Applied Chemistry Section.

The scope of the Information Service

At this stage it is not possible to assess the unsatisfied need for toxicological information among the member nations of IUPAC nor to forecast the extent to which the suggested service would be used. To ascertain this it would be necessary to ask the national adhering bodies to organise a survey. There is no doubt that the response of the member nations would, to some extent, be influenced by the nature and scope of the services which IUPAC could supply, and the financial burden which it would involve. It is, therefore, necessary first to

consider the possible forms which the organisation could take and to relate these to their potential usefulness.

Ideally, the information service should, in response to an inquiry, be able to supply a balanced critical review of the available relevant evidence, interpreted in the light of any special local conditions. With this as an aim, the organisation should include at least one individual with wide toxicological and chemical experience, who should have access to the world literature through an efficient abstracting system. Such an organisation might well cost at least £10,000 per annum for salaries alone, and would require in addition extensive library facilities.

It may be that nothing short of this ideal would be adequate, but it may be appropriate to consider a more modest start to the information service. A central organisation comprising only a clerical staff acting as a clearing house for information received from elsewhere would have a limited value. It could, for example, pass on documents such as the American Industrial Hygiene Association, Hygienic Guide Series to those unaware of their existence, but it would be incapable of transmitting information not readily available or dealing with obscure or conflicting evidence. It seems that a more efficient way of utilising a limited budget would be the appointment of a fully qualified director who would initially have at his disposal only a small clerical staff. It would be his responsibility to make contact with the national and international organisations which store information and also to keep in touch with specialists in particular fields of scientific activity in various countries. The co-operation of such organisations and individuals might readily be forthcoming if it was realised that they might, through IUPAC, have access to a wider range of sources. Such a unit could make an intelligent appraisal of the information available to it, and it would form the nucleus for the later development of a larger organisation containing its own abstracting service.

It is not possible at this stage to define completely the range of subjects which would be covered by the suggested IUPAC information service, as this will depend to some extent on the results of a survey made by the national adhering bodies. The subjects which are most likely to be of general interest are the following:

1. Industrial and laboratory hazards
2. Pesticides; application hazards and residues
3. Direct and indirect food additives
4. Cosmetics
5. Other substances used in the home
6. Safety and first aid

Finance:

It is not impossible that an IUPAC information centre could make a direct charge for its services; this might present some administrative difficulties for minor inquiries, but it would be quite practicable for a special survey of some magnitude. It is not likely, however, that the organisation could initially be made self-supporting, and it would be necessary to tap national and international funds. In this connection, it should not be overlooked that the suggested service

would be of considerable value to IUPAC itself; many of the Divisions and Commissions would welcome an independent and reliable source of information to assist them in their deliberations. With reference to item (3) above, it will be noted that the Union has already sanctioned some expenditure by the Food Additive Commission for the collection of information on that subject. This serves as a practical demonstration of the growing need for the provision of an IUPAC information centre.

J. C. Gage
Chairman

Toxicology and Industrial
Hygiene Division

PROPOSAL FOR THE ESTABLISHMENT OF AN IUPAC DANGEROUS SUBSTANCES INFORMATION BUREAU

Information on hazardous materials is at present either scattered in the scientific, medical and technological literature or collected in specialist texts and indexes of limited scope and difficult of access. The enormous expansion of the use of chemical compounds in industry and the similar expansion of research and development activity in academic, industrial, governmental and institutional laboratories throughout the world makes it desirable to attempt the establishment through international co-operation of a central comprehensive bureau for receiving and disseminating information. Undoubtedly the International Union of Pure and Applied Chemistry is the appropriate body to undertake such a project, possibly, but necessarily, in collaboration with other international groups, such as the World Health Organisation.

Present Sources of Information

There are at present a number of groups that provide facilities for information on certain classes of toxic and hazardous substances, both at an international, national and private association or industrial level. Broadly these are as follows:-

(1) International Organisations, e.g., Occupational Safety and Health Division of the International Labour Office, Geneva; Division of Environmental Sanitation, World Health Organisation.

(2) National Groups, e.g., Association of British Chemical Manufacturers, London; Manufacturing Chemists' Association, Washington; American Industrial Hygiene Association, Detroit; There are other bodies providing a similar service on the European continent.

(3) Large Industrial Firms. Many of the larger industrial firms throughout the world operate internal services designed for their own specific needs.

Inquiries addressed to the international bodies are not processed rapidly; often the replies simply refer the inquirer in a general way to other possible sources of information. The main defect of all the present sources lies in their restricted scope; there does not appear to be in existence any comprehensive and up-to-date central source of even basic and qualitative information on hazardous materials.

Scope of the Present Proposal

It is suggested that -

- (a) The proposed Information Bureau should provide an information service covering -
 - (1) organic chemical compounds, including new compounds which have not found any industrial application,
 - (2) inorganic chemical compounds, and
 - (3) radioactive substances;
- (b) The information should cover not only toxic substances but also substances which constitute a hazard for other reasons, for example, easy inflammability or explosive properties, and not be restricted, as are most existing information sources, to those substances which have some commercial application;
- (c) the service should provide for the requirements of industrial and laboratory workers;
- (d) the Information Bureau should act not only as a disseminator of information, but also as an international focus to which the information relating to the dangerous character of any chemical substance should be submitted either by laboratories, industrial firms or private individuals;
- (e) the Information Bureau should have facilities for editing and screening submitted data and for stimulating further investigation where it is warranted;
- (f) the Information Bureau should include in its functions the circulation of significant new information (e.g., the recent discovery of anti-mitotic properties of organo-phosphorus compounds) to national adhering organisations.

The most important present deficiency is a source from which information as to whether a substance is hazardous or not and the nature of the hazard can be obtained rapidly and in condensed form for a standard small fee. Undoubtedly, for many substances claimed to be dangerous the information is extremely scanty, but a single index card containing selected information for each compound would fulfil the primary requirement of the Information Bureau. Data which might be included on such an index card is as follows:-

A. Name and formula of compound

- (i) Both systematic and trivial names; molecular and if possible structural formulae.

(ii) Basic physical properties. e.g. melting point, boiling point.

(This data is probably necessary for proper identification of the compound)

B. Toxic properties

(i) Nature of Toxic properties, e.g. systematic poison, dermatogenic agent.

(ii) Tolerances (if known)

(iii) Special precautions in handling substance.

(iv) Symptoms and first-aid treatment recommendations.

C. Physical or chemical hazards

E.g. inflammability, explosive properties, etc., together with information on conditions under which substance is dangerous.

D. Radioactive hazards.

Nature of hazard, half-life of radioactive nucleus.

E. References.

Only key references or source of information if unpublished.

The data collected on this card would be incritical and often unconfirmed, but it would serve the purpose of alerting the laboratory or industrial worker that the use of the material is hazardous and may help him in designing precautionary measures. Copies of such information cards could be made on standard copying machines and returned to the inquirer by return mail at a standard small fee. Complete sets of card index could be made available to national adhering organizations if required.

There is a more specific requirement for comprehensive and complete information, for example, on the toxicology and chemical methods of estimation of some of the more widely used hazardous substances. It is in this category that most of the industrial and national bodies operate at present, but here again the comprehensiveness is lacking and the availability of the information is difficult. The proposed Information Bureau should ultimately be in a position to provide a complete critical summary of:-

(i) Toxicological data, including accepted mean lethal dose (animals), cases of poisoning in man, maximum allowable concentration in air;

(ii) data related to food additives, including those compounds permitted in certain countries, residue concentration tolerances of food additives;

(iii) accepted analytical methods of estimating toxic concentrations in environment and food;

(iv) relevant physical and chemical data, including such information as limits of inflammability and explosion, minimum ignition temperatures, hazardous reactions with other chemical compounds;

(v) complete radioactivity data;

(vi) legislation relating to transport, labelling, restrictions of use, etc.;

(vii) medical management, including accepted methods of health supervision.

(viii) recommended precautionary measures, including specifications for equipment and/or other special precautions to be taken in handling and use of hazardous substances.

Such a critical summary should also contain a complete bibliography together with some assessment of the reliability of the information quoted. This information could, of course, only be provided at a fee determined by the amount of time spent in its compilation.

Staffing of the Information Bureau.

The compilation of the card index as envisaged in the first proposal would, of course, require office staff operating under the supervision of a technical director responsible for ensuring that the information contained on the cards is technically correct. It is recommended that the establishment of this phase of the Information Bureau's operations should be complete before any attempt is made to extend the type of service provided. However, the long-term aim should be to establish an IUPAC Information Bureau able to provide complete data about chemical toxicology and other chemical hazards.

The provision of complete critical summaries would undoubtedly require a team of experts as permanent staff of the Information Bureau working together with panels of consultants to whom matters of reference, for example, involving standardization of methods of estimation, could be referred. The co-operation of those bodies already maintaining information sources would be essential.

While the financial provision for the first step in the establishment of the Information Bureau would be relatively small, the larger organisation would require quite substantial support from international bodies, such as U.N., from national governments and from industry. The aim should be to make the Information Bureau a self-supporting, but non-profit making body.

Procedure for Implementation of Proposal

The following procedure, which is necessary for the adoption and implementation of this proposal, is recommended:-

- (i) Submission of draft proposal to the ad hoc Montreal Committee.
- (2) Simultaneous submission of draft proposal to the Division of Toxicology and Industrial Hygiene of the IUPAC Applied Chemistry Section.
- (3) Submission of final proposal by the Applied Chemistry Section to the IUPAC Bureau with the recommendation that the IUPAC Bureau constitute an ad hoc Committee for the purpose of approaching national adhering bodies.
 - a) for comment on the proposal and
 - b) for opinion as to the level of support that could be expected either from national, governmental or industrial sources.
- (4) The appointment of an expert committee to examine the consequences of the proposal in detail, to collate and screen the comments and information provided by national adhering bodies and to make detailed proposals for the establishment, including staffing and financing, of the Information Bureau. This latter committee could, if the IUPAC Bureau so determined, be an inter-organisational committee involving other international bodies that have responsibilities in the same field (e.g. W.H.O.)